

REVERSING UNDERACHIEVEMENT AMONG
GIFTED SECONDARY STUDENTS

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REVERSING UNDERACHIEVEMENT AMONG
GIFTED SECONDARY STUDENTS

Presented by Beth Joelle Winton

A candidate for the degree of

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ABSTRACT

In the field of public education, calls for reform are ubiquitous, originating from multiple sources, and mostly focusing on the need to raise the achievement levels of American school children. The abilities and needs of children who attend public school across the country are as varied as the recommendations being made to improve their education. Among the special populations of students walking the halls of our public schools every day, gifted children are less likely than any others to be the target of these school reform efforts.

This mixed methods research study analyzed a segment of the gifted student population, those who are not achieving academically. In an attempt to discern whether underachieving gifted students could be identified through data analysis, a quantitative investigation was conducted. In an attempt to analyze how to best meet the needs of underachieving gifted students, qualitative interviews were conducted with ten underachieving gifted students to ascertain their perceptions of the self and school.

By applying the motivational aspect of Deci and Ryan's Self-Determination Theory, this study evaluated the effects of school experiences on the intrinsic motivation of gifted students. The data collected from this study produced several themes related to student descriptions of school that support their intrinsic motivation to learn, including 1) effective use of time in class and at home, 2) teacher quality/characteristics that are motivating, 3) instructional strategies that focus on

engagement and mastery, and finally, 4) the need for positive relationships with teachers and peers.

Recommendations for policy changes to meet the needs of underachieving gifted students are provided, as well as implications for additional research.

CHAPTER 1 - INTRODUCTION

The National Association for Gifted Children (NAGC), in its 2011-2012 biennial State of the States survey, collected a snapshot of state policies and practices affecting gifted and talented learners. It found limited monetary support and a “disturbing lack of accountability” on the part of states for the responsibility to educate gifted students (NAGC, 2012b). While leaders in industry and government continue to issue calls for educational reform in order to develop our most talented students, many states are focusing little to no attention or resources on this special population of students (NAGC, 2012a). As businesses increasingly look to hire skilled labor from outside the U.S., improving the quality of education in the country is a topic of national concern. The calls for reform come from many arenas, interest groups, and concerned citizens with little to no evidence of improvement.

When it comes to gifted and talented students, many states across the U.S. do not collect information about how these students are identified locally, monitor district programs for these students, or have full-time staff members dedicated to gifted education within the state education agency (NAGC, 2012b). In short, the educational needs of gifted children are often ignored. In the State of Missouri, a special education law (H.B. 474) that was enacted in 1973 granted authority to the State Board of Education to establish state aid and special programs for gifted students. Chapter 162, section 162.675, of the Missouri statute defines gifted children as

those children who exhibit precocious development of mental capacity and learning potential as determined by competent professional evaluation to the extent that continued educational growth and stimulation could best be served by an academic environment beyond that offered through a standard grade level curriculum (HB 474, 1973).

Once the definition of gifted students and funding following those students were established, gifted programs in Missouri grew from seven school districts in 1974-75 serving 1,465 students with nearly \$250,000 in state funding, to 268 school districts with nearly \$25 million in state funding serving 40,931 students (see Appendix A). However, this designated state funding was eliminated in 2006 and gifted programs began declining across the state.

Compounding this lack of institutional support for gifted students is the related issue of how gifted children receive their education. The majority of a gifted student's education occurs in a regular classroom setting under a mainstreaming model, where teachers have little to no specialized training in gifted education and are unprepared to meet the unique academic needs of gifted students (Sisk, 2009). Most states do not require teachers to receive pre-service training in gifted and talented education, nor do they require credentialing for professionals in specialized gifted and talented programs. General education teachers in most states are not required to complete training at any point in their careers regarding the nature and needs of gifted and talented students. Additionally, few states accommodate individual differences in aptitude or preparation by permitting students to enter kindergarten earlier than a state established minimum age (NAGC, 2012a).

The State of Missouri fails to adequately support the needs of gifted students in any of the previously mentioned categories. The state does not monitor current gifted education programs, and there is no requirement for regular classroom teachers to receive specialized training or for teachers of gifted students to have certification. Missouri has more than 892,000 students enrolled in public K-12 schools, and approximately 41,000 (4.6%) of these students are identified as gifted. Missouri has no state law requiring that school districts identify or serve gifted students. Further, the state has reduced the number of full-time dedicated employees within the Missouri Department of Elementary and Secondary Education from a high of 3 in 1996 to currently zero (MODESE, 2011), and has eliminated all dedicated funding for gifted education. Missouri does not even require school districts to apply the state definition of gifted students in its schools (NAGC, 2012a).

Gifted children think differently, feel differently, have unique academic and socio-emotional needs and, therefore, require different treatment. Missouri school districts must come to terms with the concept that what is fair in the education of gifted children does not mean equal treatment of all children. Affording all children opportunities to learn according to their individual abilities is a “just practice” (Cooper, 2009, p. 284). The lack of recognition of the unique educational needs of gifted students and the lack of support at the state and local levels put such students at risk of academic failure (Hertzberg-Davis, 2009). In short, gifted students are the only students in Missouri who are not legally entitled to a free and appropriate education.

In addition to the lack of national and state support of gifted education, there are pervasive myths about gifted kids that impede their educational progress. Many teachers and school administrators believe that gifted students are smart enough to do well on their own without any specialized support or targeted services. Studies of perceptions among preservice and inservice teachers have found that teachers hold preconceived and erroneous notions regarding the nature of gifted children and their academic and emotional needs. Preservice teachers were found to believe that gifted children would excel in school without receiving any special services, rarely experience frustration with failure, and can effectively be served within the regular classroom setting (Bain, Bliss, Choate, & Brown, 2007). Additionally, although most preservice teachers do not receive training in the nature and needs of gifted students while pursuing an undergraduate educational degree (Bangel, Enersen, Capobianco, & Moon, 2009), targeted training can improve new teachers' knowledge and confidence in their ability to meet the needs of gifted students in their regular classroom (Bangel, Moon, & Capobianco, 2010).

Underachievement has long been a persistent problem throughout the United States, appearing in all racial groups, genders, and every geographic area of the country. Indeed, even as far back as 1996, the Carnegie Corporation report entitled *Years of Promise* discussed the seriousness of the underachievement problem in the United States. The report states:

Make no mistake about it; underachievement is not a crisis of certain groups; it is not limited to the poor; it is not a problem afflicting other

people's children. Many middle- and upper-income children are also falling behind intellectually. Indeed, by the fourth grade, the performance of most children in the United States is below what it should be for the nation and is certainly below the achievement levels of children in competing countries (p. 2).

Unfortunately, gifted students are not immune to this epidemic and are also at risk of educational underachievement, and may even be at risk for dropping out of high school. Gifted children are neither better than nor more entitled than other children but they are, by virtue of their academic potential, different and do face different issues. We must better understand the gifted: their intellectual and personality characteristics, the manifestations of high ability, and the specific problems and issues they face (Schuler, 2012). General characteristics that distinguish gifted students from their age peers include intellectual traits (e.g., curiosity, ability to learn new material quickly, and alacrity in accepting intellectual challenge) and personality characteristics (e.g., insightfulness, excellent sense of humor, and wide range of interests) (Delisle & Galbraith, 2002). However, gifted students can exhibit these traits positively or negatively in a school setting. Certain characteristics of gifted adolescents can be associated with detrimental traits such as perfectionism, sensitivity, social isolation, and risk aversion (Delisle, 1986; Dixon & Scheckel, 1996; VanTassel-Baska, 2003). Other negative manifestations of giftedness include difficulty with social relationships, refusal to do routine or repetitive assignments, high levels of anxiety, and difficulty accepting criticism (Christopher & Shewmaker, 2010).

Purpose of the Study

The purpose of this study is to identify the factors that lead to reversing underachievement among gifted secondary school students. Researchers and theorists in the field bemoan the failure among gifted secondary school programs to sufficiently justify the effectiveness of programs and policies. While the field of gifted education has advocated evaluation as a central component of program development for a number of years, there is a dearth of literature that explores the effectiveness of gifted education programs. Studies that identify what works and what does not “would be an excellent extension” of current research (Hertzog, 2003, p. 141). By generating a list of students who are underperforming academically in middle school but by grade 10 are demonstrating significant increases in achievement, it may be possible to identify the factors that support and encourage these students. Once identified, these factors may have significant implications for school district policies in relation to effective delivery models and support services.

Research Questions

This study is guided by two overarching research questions and one sub-question:

- 1: In what ways do the motivational characteristics and patterns of academic achievement for underachieving gifted students differ between students who increased their achievement by 10th grade

and those who did not? What is the relationship between these patterns and gender, special education needs, and race/ethnicity?

2: How do the perceptions of self and school differ between underachieving gifted students who increased their achievement by 10th grade and those who did not?

Theoretical Framework

All students continually act on and adapt to their surroundings within a school setting. The motivation for these ongoing interactions with the environment is referred to as either intrinsic or extrinsic motivation. Deci (1975) suggests that intrinsically motivated behaviors are involved with the basic human need for feeling competent and self-determining. People need to feel like causal agents to feel competent and effective, and engage in activities they perceive further that goal (Deci, Nezlek, & Sheinman, 1981). Figuring out how and what motivates students can influence the instructional tools teachers use in the classroom.

One powerful theoretical lens that can be used to analyze students' self-motivation is the Self-Determination Theory (SDT) (Deci, 1975). Utilizing this theory, educators can move learners from an external locus of control – being motivated by forces outside of themselves – to an internal one. SDT acknowledges the fundamental nature of institutionalized schooling and proposes strategies to promote the human needs for autonomy, competence, and relatedness as motivational agents. Once the value of education is instilled, students become motivated through appreciating what is

being learned in relation to their lives. Gradually, students can become intrinsically motivated to excel at the activities they are engaged in during the learning process (Hiachun & Chen, 2010).

When this internalization occurs in contexts that support self-determination, it is evidenced by consistency between one's behavior and one's feelings about the activity. Unfortunately, gifted students often enter secondary levels of schooling extremely disenchanted, unmotivated, or depressed by the public school system and its response (or lack thereof) to their academic and emotional needs (Hanninen, Fascilla, & Anderson, 1990). The goal of secondary gifted educators is to create an environment in which the students will be intrinsically motivated to learn as they progress through the secondary level and beyond into college and later life. Through an evaluation of the current district structures and policies that diminish a gifted child's intrinsic motivation to learn, the choices for the leadership become clear.

Findings

This mixed methods study demonstrates that underachieving gifted secondary students can be identified through data analysis as there are multiple data collection opportunities in which the underachieving gifted students can be differentiated from the achievers. Furthermore, the qualitative analysis of student perceptions indicates the structures and policies that enhance the motivation of gifted students in a public school setting. In concert, these data lead to recommendations for policy modifications necessary to alleviate the structural orientations that lessen student motivation.

Significance of the Study

The rationale for undertaking a study of this nature is grounded in the prospect of providing appropriately differentiated educational opportunities for every child to achieve at levels commensurate with his/her abilities. Gifted students may have a higher potential for academic accomplishments than other students their age, but that does not guarantee academic success. On the contrary, gifted students are more at-risk for academic difficulties due to the misalignment between their intellectual potential and the regular classroom curriculum.

Overview of the Dissertation

Grant and Piechowski (1999) claim that extensive theoretical work in gifted education may not contribute much to the development of gifted children. They argue that research does little good unless it is rooted in student-centered, case-based inquiry. Without this link, much of the theorizing in the field promotes outside-the-child visions of achievement as opposed to the emotional well-being of the child. Given the nature and needs of gifted students as well as the lack of institutional and monetary support in the state of Missouri, teachers must be creative and collaborative in developing support services that help gifted kids learn how to become academically successful as they transition into secondary education. The current research project examines factors that support gifted underachievers and seeks to provide implications about the support that should be addressed by school district policies. In Chapter Two, I present a review of the literature in the field relating to gifted students and their educational, psychological,

social, and emotional growth. Chapter Three delineates the specifics of my study: I analyzed achievement data from and conducted interviews with current 10th grade gifted students in a public school district seeking differentiating factors related to underachieving gifted students who were able to raise their levels of achievement. In Chapter Four, I present the results of the quantitative data analyses and outline the themes that emerged from the student interviews. Finally, in Chapter Five, I discuss the implications of the findings as they relate to educational leadership and policy and provide recommendations for leadership and policy changes that would enrich the achievement of underachieving gifted students.

CHAPTER 2 – REVIEW OF THE LITERATURE

"Why is it that so many gifted children suffer so wide a breach between potential and performance? What is it that causes so many gifted children to lose this spark? What can be done to rekindle it? How can the energy be channeled after it is rekindled?" (Webb, Meckstroth, & Tolan, 1982, p. 63). The failure of any child, regardless of ability level, to reach his or her full potential is detrimental to the future of our country in this increasingly competitive, global world. Often, our traditional grade level public schools focus their efforts and curriculum to the middle and lower ends of the ability continuum leaving the gifted child disengaged, establishing the foundation for detrimental academic progress. Further, once a gifted student establishes a pattern of underachievement, the effort needed to reverse the trend on the part of both teacher and student is substantial.

The most recent longitudinal research completed by the National Assessment of Educational Progress (NAEP) reports data trends from a nationally representative group of 9, 13, and 17 year olds on annual math and reading assessments dating back to 1973. These data show 9 and 13 year olds making academic gains, while the scores for 17 year olds have not increased statistically in math or reading (NAEP, 2008). Because achievement at the secondary level can determine a child's future advancement, including college entrance and scholarship opportunities, it is important to fully understand why students at the secondary level have not continued to progress as they

did in the early grades. Further investigation is needed into how these trends have adversely and specifically affected gifted students and what the implications may be for public school districts in Missouri, a state that does not mandate services or provide funding for the programs supporting its gifted students.

This chapter examines the literature pertinent to the education of gifted children. The historical definitions of intelligence are reviewed followed by a brief history of the field of giftedness. The dearth of policies relating to the education of gifted students is also discussed in this chapter. The overall failures of the public school system and the myths surrounding giftedness are discussed in conjunction as their detrimental impact on the education of gifted children contributes to underachievement. And, finally, the theoretical framework applied in the study, Self-Determination Theory, is reviewed.

Studying Intelligence

Although how to measure varying levels of intelligence have been around for quite some time, the study of such levels, their origins, and how to accommodate the diversity of student abilities in a public school setting is reasonably new. Giftedness as a measureable dimension grew as a field out of the investigations into intelligence; that is, what it is, what promotes its growth, and how one can measure it. Sir Francis Galton made the first attempts at describing innate intelligence in the late 1800's using tests of reaction time as an indicator of general mental processing speed. Galton believed that superior human ability was the result of heredity. In his book *Hereditary Genius* (1892), Galton wrote "I propose to show in this book that a man's natural abilities are derived

by inheritance ... and that each generation has enormous power over the natural gifts of those that follow” (p. 1).

Early in the 20th century, the first attempts to measure intelligence concentrated on it as a single construct defined by a score on an intelligence test. A French psychologist, Alfred Binet, and a colleague, Theodore Simon, created the first applicable examination of intelligence as a method for diagnosis of the intellectual levels. The authors posited that by understanding the “normal progress of intellectual development, we shall be able to determine how many years an individual is advanced or retarded” (Binet & Simon, 1905, p. 38). Simon and Binet created the first intelligence test, a set of practical tasks of increasing difficulty, called the Binet-Simon Scale. Binet proposed testing psychological constructs rather than educational ones and designed the test to avoid school-related tasks dependent on reading and writing skills. He created the construct of an intelligence quotient (IQ) being a ratio of one’s mental age compared to chronological age (Krapp, 2005). Binet, knowing that his assessment was limited by the cultural heritage of the test takers, as well as by their age, revised the test several times over the years.

Supporting the idea that intelligence was a singular measurable construct, Charles Spearman’s theory of a general measurable intelligence, called *g*, relied on his supposition that “different abilities and test-scores can in many cases be combined additively into a single composite ability and score” (Spearman, 1929, p. 216). Spearman (1904) reached the “profoundly important conclusion that there really exists a something that we may provisionally term ‘General Sensory Discrimination’ and

similarly a 'General Intelligence,' and further that the functional correspondence between these two is not appreciably less than absolute" (p. 101). Supporting Spearman's notion of a measureable *g*, Thurstone (1922) suggested intelligence was one's ability to refine instinctual tendencies and internalize these changes in a manner that affects future behavior choices. In other words, intelligence distinguished humans from other animals as we learned to convert our unconscious instincts to conscious thoughts. This notion of intelligence as a single measureable construct permeated intellectual thought at the time.

By the middle of the twentieth century, theorists began to eschew the strict exclusivity of the idea of intelligence as a single measureable construct. Raymond Cattell wrote a series of widely used intelligence tests, improving on the earlier Binet Tests, and evolving from the notion that intelligence was a single, measureable mental construct. Cattell (1943) claimed intelligence to be both fluid and crystallized. Fluid intelligence consisted of those abilities based on biological factors such as heritability (e.g., the functioning of the central nervous system.) Crystallized intelligence was the manifestation of acculturated aspects of being, such as education and experiential learning (Horn & Cattell, 1966). Fluid and crystallized intelligence were viewed along with other influencing factors such as general speediness, general visualization ability, fluency, number facility, and exuberance, among others. Horn & Cattell introduced this notion of alternative mechanisms, which may be activated in the performance of a certain behavior and represent the application of intelligence. That is, many intellectual

tasks allow one to choose to apply either fluid intelligence or crystallized intelligence to reach an answer (p. 255).

J. P. Guilford (1959) expounded the multidimensional view of intelligence, suggesting that intelligence consists of three “faces” (see Appendix B). These “faces” include: (a) operations (cognition, memory, convergent thinking, divergent thinking, and evaluation); (b) contents (figural, symbolic, semantic, and behavioral); and (c) products (units, classes, relations, systems, transformations, and implications). Guilford believed that every skill or ability should be defined as a combination or interrelation of the operation required, the content considered, and the product being created. Guilford’s formulation marked a significant breakthrough from the prevailing single measurable construct theories of intelligence into a new world of intelligence as a multifaceted combination of complex processes.

Further advancing this multidimensional viewpoint, Howard Gardner (1983) was convinced that intelligence exists, it can be found in special populations, and it may become advanced in specific individuals or cultures. Gardner believed academic disciplines *can* envision the various core abilities that, in effect, define intelligence (Gardner, 1983. p. 8). Gardner’s theory of multiple intelligences introduced a new way of looking at intelligence as more than a multidimensional concept by differentiating the various “intelligences” a person can exhibit. Gardner presented seven distinct types of intelligence: 1) logical-mathematical, 2) linguistic, 3) musical, 4) spatial, 5) bodily-kinesthetic, 6) interpersonal, and 7) intrapersonal (Gardner & Hatch, 1989). Each of these different factors is assessed and evaluated via a culturally responsive approach as

children learn and exhibit intelligence in a culturally responsive way. Gardner re-conceptualized the theory of intelligence from one particular trait or ability that is expressed in a particular way to a series of inherently diverse abilities that can be manifested differently in particular situations and in particular children.

Diverging from the conception of intelligence as a possessed trait, some theorists interpret intelligence not as a possession but place the importance on the expression or exhibition of intelligence. In other words, it's not enough to simply possess superior abilities if one doesn't choose to apply them. Agreeing, in part, with Gardner's theory of multiple intelligences, Robert Sternberg's triarchic theory of intelligence – focusing on what he refers to as "successful intelligence" – is composed of the application of knowledge under the classifications: (a) analytical intelligence (problem-solving abilities), (b) creative intelligence (using prior knowledge and skills to deal with new situations) and (c) practical intelligence (the ability to adapt to a changing world) (Sternberg, 1985).

Another contemporary researcher expanding the definition of intelligence to include emotional regulation of the application of skills is Daniel Goleman (2007). Today, emotional intelligence is referred to colloquially as either EI or EQ (one's emotional quotient); this emotional intelligence serves as the basis for many school curricula in a new area called social and emotional learning (SEL). Goleman was inspired by the work of psychologists Mayer and Salovey (1993), who defined EI as "a type of social intelligence that involves the ability to monitor one's own and others' emotions, to

discriminate among them, and to use the information to guide one's thinking and actions" (p. 189). Goleman's wildly popular book, *Emotional Intelligence* (2007), brought a revolutionary idea to the forefront of educational consciousness. By arguing that there was more to intelligent actions than possession of innate abilities whose expression is enhanced by supportive environmental factors, Goleman established the concept of emotional stability as a significant contributing factor to whether and how well people can express or apply their intelligence quotient (IQ).

Goleman (2007) outlined his preliminary argument that SEL was the active ingredient in programs that enhance children's learning, while preventing problems such as bullying and violence. In the 1980's, when issues such as drugs, teen violence, and bullying were becoming more prominent, the federal government required schools to develop programs to combat these problems. Once these studies were conducted, researchers realized that successful programs included one key ingredient: they helped students become more self-aware, manage distressing feelings, and respond to situations in a more empathic manner. Programs addressing SEL, in turn, increase pro-social behaviors such as attendance, behaving in school, liking school, and student achievement. As a result, anti-social behavior such as classroom disruptions, truancy, and failing to complete assignments all decreased (Goleman, 2007).

As programs emphasizing SEL expanded across the country, John Payton and colleagues (2008) set out to evaluate their effectiveness by conducting a meta-analysis of more than 700 positive youth development, SEL, character education, and prevention interventions, including 317 studies of more than 324,000 school children in grades

Kindergarten through 8. This was the largest, most scientifically rigorous, controlled outcome research on school-based interventions that aim to develop children's social and emotional maturity. Payton et al. concluded that significant improvements were achieved from the application of an SEL program, including positive effects in both during-school and after-school settings, showing promising results among students with and without behavioral and emotional problems, and effectiveness among a diverse range of students from urban, rural, and suburban settings. SEL programs were also found to: (a) enhance students' aptitude in applying newly acquired social-emotional skills; (b) improve certain aspects of their attitudes about self and others, including their connection to school; and (c) increase both academic performance and positive social behaviors. Students who internalized these skills experienced lower levels of emotional distress and had fewer instances of conduct problems.

Comparing results from these reviews to findings obtained in reviews of interventions by other research teams suggests that "SEL programs are among the most successful youth-development programs offered to school-age youth... improv[ing] students' achievement test scores by 11 to 17 percentile points [and] indicating that they offer students a practical educational benefit" (Payton et al., 2008, p. 3). Moreover, compared to controls, SEL program participants demonstrated significantly improved behavior, social and emotional skills, attitudes, and academic performance that reflected an 11-percentile-point gain in achievement (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011).

Giftedness

The changing conceptualization of intelligence has significantly altered the nation's view on human productivity and how to nurture and develop it. This change has also influenced the dialogue about the nature and goals of the public school system and how to efficaciously meet the diversity of students' needs within the system. The variability of skills and abilities in child development governs the very foundation of policies that affect all public school children. Whatever intelligence is, however it is defined or measured, all children deserve a chance to nurture and develop their mental capacity to its fullest extent.

Although not named as such, the earliest references to gifted education are attributed to Dr. William T. Harris, Superintendent of Schools in St. Louis from 1868-1880. Harris is credited with a policy of "frequent promotion" into upper grades to address the dual problems of "individual differences among students" and "fluctuations in enrollment" at a time when the St. Louis Public Schools were exceeding their capacity at an alarming rate (Kohlbrener, 1951, p. 19). Harris is additionally credited with instituting other radical policies such as: (a) raising the standards of education and ability of teachers; (b) advocating the necessity for the position of school superintendent and setting high qualifications for those who hold that position; (c) establishing kindergartens; (d) devising plans for grading and promoting pupils at frequent intervals, and classifying them in accordance with their ability; (e) studying causes of the withdrawal of pupils from school; and (f) advocating higher salaries for teachers and

proposing that they be regulated by both length of experience and quality of service (p. 21).

While public schools have always faced the need to cope with the diversity of student abilities in the classroom, early research on giftedness begins only in the early 1900's with Lewis Terman at Stanford University, a controversial figure who proposed the use of intelligence tests on upper ability children rather than just those on the lower end of the spectrum. Terman selected 857 boys and 671 girls from California, ages 3 to 19 years, who had IQs above 135 and studied them for decades. Although Terman has long been criticized for his postulate that giftedness is genetic (Greenwood, 1955), this study is the longest running research study in history (Leslie, 2000). The children came to be known as "Termites" and formed the foundational attempts for research in the field of gifted education. Among Terman's other notable achievements in the field is his revision of the original Binet Intelligence Test. The test was renamed the Stanford-Binet Intelligence Test and is still widely utilized (currently in its fourth edition). The Stanford-Binet test reigned supreme in the identification of gifted children until the 1960's when the Weschler Intelligence Scales for Children (WISC) and the subsequent WISC-Revised scales were introduced (Hynd, 1983).

Another early researcher in the field, continuing the belief that giftedness is what is assessed by an intelligence test, was Leta Stetter Hollingworth. Hollingworth was a major force in the early 1900's in advocating for the needs of gifted students, particularly gifted girls and exceptionally gifted children. Hollingworth believed gifted children's time was being wasted in school to the detriment of the development of

their abilities. She felt that what the gifted child needs is an education that will provide challenges and “utilize to the full his power of learning” (Hollingworth, 1936, p. 385). Hollingworth wrote the first curriculum addressing the affective needs of the gifted and she taught the first gifted education course for educators. She also fought against the sexism of her time that held males were inherently smarter than females. However, the bulk of her research focused on advocating for children with IQ’s in the exceptionally gifted range. She concluded that gifted individuals had the potential for maladjustment due to two factors: inept treatment by adults and lack of challenge in educational pursuits. Her research remains the most comprehensive longitudinal study of exceptionally gifted children.

More contemporary theorists in the field, including Joseph Renzulli, believed the expression of superior abilities supersedes the mere possession of the trait, and envisioned schools as places where talent should be developed. He created an Enrichment Triad Model (ETM), which focuses school personnel on expanding projects from an initial idea stage to a quality enriching educational experience for gifted children (Renzulli, 1976). Renzulli initially took issue with the “appropriateness of many activities that parade under the banner of gifted education” (p. 303) and sought to provide a guide to a qualitatively different approach concerning the education of gifted students. Renzulli is notably different from others in the field in that he advocated a school-wide enrichment model that would benefit all children, not only the gifted.

From his Enrichment Triad Model, Renzulli developed the School-wide Enrichment Model (SEM) as a gifted programming option for public schools. SEM

delineates three types of enrichment tasks: (a) general exploratory, (b) group training, and (c) in-depth individual or small group investigations – respectively labeled Type I, II, and III activities. SEM has been implemented in thousands of public schools in the United States and is considered one of the most widely used programs for gifted students (Mitchell, 1981).

Policies defining giftedness. Despite decades of extensive research in both the fields of intelligence generally and intelligent children specifically, the exact use and application of the term “gifted” continues to elude policymakers and practitioners alike. Delisle and Galbraith (2002) failed to find the existence of one accurate or generally accepted definition of giftedness. They list no fewer than a dozen varying definitions (p. 14) all from reputable sources, government agencies, advocacy groups, and researchers. The lack of a common understanding of intelligence and the concomitant lack of a comprehensive definition for giftedness make it difficult to identify giftedness, design appropriate services for gifted students, identify factors contributing to achievement by gifted students, and implement support strategies. Delisle and Galbraith (2002) contend that having a working definition is important, as it usually serves as the foundation for program design and development.

The earliest definitions of giftedness (described in Reis & Renzulli, 2009) contend that gifted students possess capabilities superior to their age peers. The federal definition of the term 'gifted and talented' when used with respect to students, children, or youth originates from the definitions section of the 1965 Elementary and Secondary Education Act (ESEA, Title IX, part A, section 9101); this definition is also

included in the Javits Act. It defines gifted students as those who demonstrate “evidence of high performance capability in areas such as intellectual, creative, artistic, or leadership capacity or in specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities” (ESEA, 1965).

Another definition of the term originates with former U. S. Commissioner of Education Sidney P. Marland, Jr., in his 1972 report to Congress entitled *The Education of the Gifted and Talented*, where he defines gifted and talented children as

those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society (p. 20).

The same report continued:

Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination: general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, visual or performing arts, and/or psychomotor ability. (Marland, 1972, p. 20)

Further definitions concentrated more on cognitive processing skills. Robert Sternberg and Robert Wagner (1982) proposed that the psychological basis of intellectual giftedness originates in skills that include three main processes: (a) separating relevant from irrelevant information, (b) relating newly acquired information to information acquired in the past, and (c) combining isolated pieces of information into a unified whole. Sternberg and Wagner emphasized problem-solving abilities and viewed the

gifted student as one who processes information rapidly, who applies their abilities, and uses insight and other skills and abilities to solve problems.

Furthermore, rather than defining giftedness as the possession a superior trait or skill, researchers focused more on the manifestations of superior abilities in order to define the construct. Renzulli (1986) offered a definition of giftedness based on exhibited behaviors that reflect an interaction among three basic clusters of human traits: (a) above-average general and/or specific abilities, (b) high levels of task commitment (motivation), and (c) high levels of creativity. According to Renzulli (1986), gifted and talented children are those who currently possess or are capable of developing this combination of traits *and applying* them to any potentially valuable area of human endeavor.

In an effort to stop defining giftedness as either the possession or manifestation of superior abilities, a group of authors, researchers, and parents attempted to define giftedness in a way that removes the performance aspect, as gifted students do not always demonstrate their gifts in a public school setting (Morelock, 1992). They refer to the uneven development of a gifted child by emphasizing advanced cognitive development occurring in conjunction with other typical or age-appropriate developmental patterns. Their definition states:

Giftedness is asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching and counseling in order for them to develop optimally. (Morelock, 1992, p. 15)

The National Association for Gifted Children (NAGC), the leading educational and advocacy group, blends both the possession and performance aspects into one broad, inclusive definition stating:

[S]tudents, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities. [T]hose who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports). (NAGC, 2012a)

Following nearly a century of research in the field of gifted education yielding no consistent definition of giftedness, school district officials have looked to state and federal laws that regulate public education for guidance. With no federal definition or direction provided, state policies on gifted education also vary widely. NAGC conducts a nation-wide annual survey of state policies and practices, the most recent of which found a “highly uneven and fragmented” approach to the education of gifted children across the nation (see Appendix C). Other key findings from the reports include poorly trained and unprepared teachers, a “crazy quilt collection” of services purported to meet the needs of gifted students, and limited state level support in terms of a consistent definition of gifted students or funding for programs (NAGC, 2012b). Given the disparate nature of the definitions in the literature, for the purposes of this study

giftedness is defined by the identification procedures used in the local school district to determine student eligibility for services in the gifted program.

Myths about giftedness. Without a consistent definition and little to no guidance from governmental sources, myths regarding the gifted population abound, which severely limit the educational opportunities available to gifted students in public schools. In response to deficiencies in the field, the *Gifted Child Quarterly*, the official publication of the NAGC, produced a special issue to address these myths. In 1982, the 15 leading researchers in the field each appropriated a topic and addressed its detrimental impact on the achievement of gifted students. In 2009, the leading researchers in the field maintained these myths to be ever present and released an updated special issue, this time discussing 19 myths surrounding gifted education. These 19 myths include:

1. The gifted constitute a single, homogeneous group.
2. The gifted constitute 3% to 5% of the population.
3. Identification means one test score.
4. We need to have the same scores for everyone.
5. Creativity is too difficult to measure.
6. The cosmetic use of multiple criteria is acceptable.
7. Differentiation in the regular classroom is equivalent to a gifted program.
8. The Patch-On approach equals gifted service.
9. There is a single curriculum for the gifted.
10. Gifted programs cure sick regular programs.

11. Gifted education means having a “program.”
12. Programs should stick out like a sore thumb.
13. Regular classroom teachers can do it alone.
14. Wait for mandates/certification before making changes.
15. High ability students don’t face problems and challenges.
16. High stakes testing equals rigor.
17. Gifted students don’t have unique social and/or emotional needs.
18. It’s “fair” to teach all children the same way.
19. Advanced Placement (AP) is an adequate secondary program.

Identifying giftedness in only one manner or utilizing only one measurement is a pervasive myth that continues to be applied to the criteria for identifying giftedness in America’s public schools (Friedman-Nimz, 2009). Gifted education programming choices begin with deciding to whom those services will be offered. Identification of students in need of services is one of the main aspects to programming decisions. The NAGC programming standard for exemplary identification procedures states that educators must provide “equal access to a comprehensive assessment system that allows [students] to demonstrate diverse characteristics and behaviors that are associated with giftedness”; they must “collect multiple types of assessment information so that all students are able to demonstrate their gifts and talents” (NAGC, 2010, p. 2). Unfortunately, the application of multiple selection criteria is sporadic, at best. Even in instances where multiple identification criteria are present, it seems that identification and placement decisions are still driven by scores on a single assessment of general

intellectual ability, typically an IQ test (Friedman-Nimz, 2009). Although these standardized assessments are reliable, valid, and can hold a legitimate place in a comprehensive identification plan, accommodations must be made to identify the “invisible gifted” that traditional assessments consistently miss (Smutny, 2003).

Another myth surrounding gifted students is that they comprise 3-5% of the student population (Renzulli, 1982). The 1972 report to Congress entitled *Education of the Gifted and Talented*, dubbed *The Marland Report* after the Commissioner of Education and author Sidney Marland, described the portion of the student population that is gifted as a *minimum* of 3-5% with no intention that the specific percentage would be held forevermore as gospel. This restrictive percentage has been attributed to equating gifted exclusively with IQ scores (Renzulli, 1982), lacking reliable resources on the true definition or percentage, the range of 3-5% seems to have gotten stuck in the collective minds of educators since then, but should not be construed to imply that only an exact percentage of school children can be gifted (Borland, 2009).

The restrictive definitions of gifted children and the small percentage of this group of students as a segment of the population are contributing factors to another myth: gifted students are a homogenous group (Reis & Renzulli, 2009). Gifted children comprise a vastly diverse group of students. Giftedness is found in every walk of life and from every ethnic and socioeconomic group. Gifted students exhibit a broad range of personal characteristics in temperament, risk-taking, and effort that is comparable to the normal range of the student population (Neihart, Ries, Robinson, & Moon, 2002).

Another myth pervading public schools is the widely held belief that gifted children do not have unique academic and emotional needs (Sunde-Peterson, 2009). The current educational system includes age-based grouping of students, rigid grade-level curricula with little differentiation, narrow and exclusionary definitions of giftedness, and untrained teachers. If a school system does not perceive the existence of real needs, that system will not attempt to provide alternative programming options. This lack of recognition that gifted students have unique educational needs often creates a negative perception of the public school system among these students, exacerbates their feelings of isolation, and contributes to a significant loss of motivation (Whitney & Hirsch, 2007).

Possibly the most damaging myth as it relates to gifted children and their public school experiences is that gifted education is elitist. The juxtaposition of clamoring for both excellence and equity has created tension regarding the education of gifted students, vacillating between being a critical need when excellence is demanded, such as after the launch of Sputnik in the 1957, and an “elitist luxury” when interest in excellence wanes. (Jolly, 2009, p. 38). The approach that “fair means equal” doesn’t apply to the education of children, as all children are unique individuals (Cooper, 2009). It is not fair to hold children back from learning to their full potential. All children should be encouraged to reach their own full potential in an atmosphere of respect, integrity, and compassion (Tomlinson, Brimijoin, & Narvaez, 2008). Programs have been created that offer services to meet the needs of exceptional learners, both above and below the abilities of a typical child, that are conducted to address individual learning differences

and promoted in a culture and atmosphere that supports mutual benefits and social equity (Matthews & Kitchen, 2007).

Failures of addressing the needs of gifted in the educational system. Gifted students exist in all public school classrooms across the country. They have unique characteristics that require special attention in order for them to develop to their full potential. Unfortunately, the public school system repeatedly lets them down. There have been three significant government reports delineating systemic failures related to the education of gifted students: *The Marland Report* (1972), *A Nation at Risk* (1983), and *National Excellence: The Case for Developing America's Talent* (1993). These reports delineate the vast and dramatic shortfalls in the system and the overall need for school improvement nationwide. Those shortfalls directly affect the education of gifted students.

Among the main findings in *The Marland Report* (1972) were inadequacies in identification and programming for gifted students. The level of special programming available at the time of the report failed to meet the needs of important subgroups among the gifted population, namely minorities and students from low income families. Differentiation required to advance the top student received very low priority at various levels of government. Identification of gifted students is hindered not only by cost but by “apathy and even hostility among teachers, administrators, guidance counselors and psychologists” (p. 10). The authors found that gifted children can and do suffer mental and emotional damage and “permanent impairment of their abilities” (pp. 10-11) as a result of the lack of appropriate educational opportunities.

Eleven years later, a report entitled *A Nation at Risk: The Imperative for Educational Reform* (1983), written by the United States Department of Education's National Commission on Excellence in Education, cited the "ideal of academic excellence as the primary goal of schooling seems to be fading" and established the need for drastic changes in how the United States educates its students. One of the hearings convened exposed the shortfalls in the education of gifted students and heard testimony from nearly two dozen of the leading researchers and advocates in the field of gifted education at that time, citing the "dimensions of the risk... have been amply documented." Over half the population of gifted students does not match their tested ability with comparable achievement in school, a fact which is exacerbated by a shortage of teachers of gifted students. On 19 academic tests, American students failed to place first or second even once and, in comparison with other industrialized nations, were last seven times. The report found the average achievement of high school students in the U.S. is "lower than... when Sputnik was launched" (p. 11). Additionally, from 1963 to 1980, average verbal scores on the College Board's Scholastic Aptitude Tests (SAT) fell more than 50 points and average mathematics scores dropped by nearly 40 points.

A Nation at Risk explained these shortfalls in terms of four important aspects of the educational process: 1) content, 2) time, 3) expectations, and 4) teaching. *Content* refers to the "very 'stuff' of education - the curriculum" (p. 17). The authors assessed the regular education curriculum to be "homogenized, diluted, and diffused" to the point of mediocrity. The proportion of students taking non-college track courses

increased from 14% in 1964 to 42% in 1979. The commission also noted disturbing trends related to how American school students use, or fail to properly use, their instructional *time*. Compared to other nations, American students spend less time on school work, spend their classroom and homework time ineffectively, and fail to develop the necessary study skills or the inclination to work diligently on school tasks.

Additionally, the report also indicated significant deficiencies in relation to *expectations*. While the amount of homework and average student achievement has declined, grades have been increasing. In other industrialized nations, rigorous courses such as biology, higher level math, and physics are required of all students, and they spend more time by far on these subjects than do even the most science-oriented high schools in America. Finally, the Commission recounted several inadequacies in the acquisition and retention of effective *teachers* as an additional area in which the US was falling behind other nations. They cited, among other unflattering observations, that

not enough of the academically able students are being attracted to teaching; that teacher preparation programs need substantial improvement; that the professional working life of teachers is on the whole unacceptable; and that a serious shortage of teachers exists in key fields. (p. 20)

This scathing indictment of the nation's school system came nearly 30 years ago; not much has changed since then. The lack of rigor and lowering of expectations for all students has indeed affected the educational opportunities for the gifted students attending the nation's schools.

Unfortunately, the situation did not improve dramatically. Ten years after the publication of *A Nation at Risk*, another unflattering report about the nation's education

arrived in the form of *National Excellence: A Case for Developing America's Talent*, a 1993 report by the Office of Educational Research and Improvement (OERI) under the direction of then Secretary of Education Richard Riley. One need read no further than the first line of the abstract to know what was to be found within. "This report on the education of America's gifted and talented students identifies indicators of an educational crisis." Defined as a quiet crisis, the lack of development of our most talented youth threatens the very foundation of our standard of living and our status in the world. The report found that American children with high levels of ability spend less time in school, read fewer books, complete less demanding coursework, and begin their adult lives less well prepared than counterparts in other industrialized nations.

The indicators of this crisis are widespread, multifaceted, and plentiful. NAEP assessments specify, as cited in the report, various shortcomings among America's most capable students. From 1972 to 1989, the prevalence of high scores on the verbal section of the Scholastic Aptitude Test (SAT) – defined as a score between 600-800 – declined by nearly 40%, while the number of high scores on the math section remained flat. Internationally, U.S. students fare poorly as well. Only 9% of American children demonstrated an understanding of mathematical concepts compared to 40% of children in Korea. When comparing scores of the top U.S. students to those in 20 other countries, these top U.S. students were consistently near the bottom. The report follows these deficiencies through college, into graduate programs, and into professional life and cites poor performance among U.S. candidates when applying for admission to

professional graduate programs and when competing in the global marketplace for employment, especially in the fields of math and science. “Foreign born students are not taking jobs away from Americans; they are filling jobs that are going empty” (National Excellence, 1993, p.11). Unfortunately, any small advancement made as a result of the *National Excellence* report was vanquished with the passing of the No Child Left Behind (NCLB) Act of 2001. The law, which was intended to “leave no child behind,” focused so much attention on raising the achievement levels of the lowest performing students that the collateral damage left “little room for the needs of the gifted” (Jolly, 2009, p. 49).

An additional piece of evidence of the failure of the public school system in assisting gifted students is that America’s public high school students drop out of school at alarming rates. Hart, Bridgeland, Dilulio, & Morison (2006) studied the reasons why students choose to drop out of high school, considering the issue from the students’ perspectives. They reported:

- 47% said a major reason for dropping out was that classes were not interesting;
- 69% said they were not motivated or inspired to work hard;
- 80% did one hour or less of homework each day in high school;
- Two-thirds would have worked harder if more had been demanded of them;
- 70% were confident they could have graduated if they had tried;
- 59 - 65% had missed class often the year before dropping out; and
- 38% believed they had “too much freedom” and not enough rules.

According to the National Center for Educational Statistics (NCES), the “status dropout rate” among all students is defined as the percentage of 16- through 24-year-olds who are not enrolled in school and have not earned a high school credential (either a diploma or an equivalency credential such as a General Educational Development [GED] certificate). Between 1989 and 2009, the overall status dropout rate declined from an average of 12.1% to 8.1% (NCES, 2012), although rates were significantly lower for White and Asian students and significantly higher for Black, Hispanic, and American Indian/Alaskan Native students.

To think that 12 out of every 100 high school students do not earn a high school diploma is staggering. Enhancing the significance of this issue is the historic underreporting of dropout statistics. According to Jay Green of the Manhattan Institute for Policy Research (2002), legislative punishments and politics interfere with accurate data collection and reporting. Green reported that while the NCES published a completion rate of 86% for the class of 1998, the true rates were far lower, averaging 71% nationally, with white students at 78%, African-American students at 56%, and Latino students at only 54%. These results are distressing and suggest that the problem public schools are facing is far worse than we would wish (Greene, 2002, p. 9).

Gifted students are significantly affected by the general failures of the public school system and are also at risk for dropping out of school. However, the narrow definition of gifted students continues to hinder the evaluation of these issues as they relate to gifted students. Nevertheless, research studies have focused on the choices made by gifted students who drop out before graduation. For example, Robertson

(1991) estimates nearly 25% of all students drop out of school and 18-25% of gifted students drop out. Moreover, there is one consistent factor identified in the research on gifted students who drop out of school: underachievement (Boyd-Zaharias & Pate-Bain, 2008). By identifying the factors precipitating underachievement and those actions that may aid in reversing underachievement, one could potentially affect the related issue of gifted students dropping out.

Another feature that should be construed as a failure of the educational system in regards to gifted education is the difficulty in identifying culturally diverse gifted students for services. African-American students comprise 16% of the school population yet they comprise only 8% of gifted programs nationally (Ford, 2004). Underrepresentation of African American students in gifted programs may occur for numerous reasons. Among the chief complaints of students are: (a) being a "minority within a minority" because there are often few or no other African American students in the gifted program; (b) feelings of isolation from classmates; (c) experiencing peer pressure from African American youth not in the gifted program; (d) feeling misunderstood by teachers who often lack preparation in both gifted and multicultural education; (e) feeling misunderstood by teachers who do not understand the nature of giftedness, especially among diverse students; and (f) feeling misunderstood by family members who do not understand the nature of giftedness (Ford, 1994).

Gifted students from low socio-economic status or culturally diverse families are similarly underrepresented in gifted programming (Hunsaker, Frazier, Frank, Finley, & Klekotka, 1995). Several contributing and compounding events have been found to lead

to the underrepresentation of these diverse groups of students. First, gifted students exist in these groups but are not identified as such because current identification criteria do not accurately assess the skills, traits, and aptitudes they possess. Second, exhibitions of giftedness exist in a cultural context and may be misconstrued when viewed through the majority cultural context. The appropriate paradigm for the identification of culturally diverse gifted students must begin interpreting differences as “deficits, dysfunctions, and disadvantages” of the school system and not of the students (Ford, Harris, Tyson, & Frazier-Trotman, 2002, p. 52). In other words, educators must learn how a gifted child from a diverse background exhibits those abilities in a public school setting and how those behaviors differ from gifted students from the majority white culture.

Programming options to meet the needs of gifted students. Compounding the inadequacies of defining giftedness and selecting instruments that identify gifted children from a variety of cultural and economic backgrounds, are the shortfalls in the services offered to meet the needs of those students who are identified as gifted. Programming for gifted students should include a multiple criteria approach to identification and a comprehensive menu of service options to meet the needs of gifted students in all settings (NAGC, 2010). All too often, however, programs for gifted children are at best tangential to the mission of the school and operate as add-on, separate classroom opportunities rather than as a comprehensive programmatic option. These “patch-on” approaches tend to reinforce the underrepresentation of culturally diverse students, result in mismatches between identification and curriculum choices,

have poorly articulated program goals, poor communication between the gifted program and the regular school program, and define effectiveness based on what students like as opposed being based on empirical evidence of what they need (Tomlinson, 2009). Inadequate regular classroom experiences and poorly structured gifted programming fail to effectively meet the needs of gifted students, contribute to a scenario where the gifted students feel left out of the school experience, and intensifies their lack of motivation and potential for low achievement.

This mismatch between needs and services extends beyond the education of gifted students. John Hattie, an educational researcher from New Zealand, conducted a meta-analysis of meta-analyses to discern the typical effect size for more than 100 educational interventions being discussed around the world associated with school improvement. Hattie analyzed more than 800 meta-analyses, including more than 50,000 different research studies, involving more than 200 million students. He discovered that the typical effect size among these many interventions is 0.4, a moderate but positive effect on student learning (Hattie, 2009). According to Hattie's research, the top five influences on student learning, in order of their effect size (ES), are: 1) self-reported grades, ES 1.44; 2) constructivist learning programs, ES 1.28; 3) providing formative evaluation, ES 0.90; 4) micro-teaching (self-reflective teaching practice), ES 0.88; and 5) acceleration, ES 0.88. Other strategies Hattie identified with higher than average positive effect sizes include: (a) quality feedback, ES 0.73; (b) teacher-student relationships, ES 0.72; (c) mastery learning, ES 0.68; (d) teaching strategies, ES 0.62; and (e) challenging goals, ES 0.56.

All of these strategies have been found successful in supporting the academic achievement of gifted students (Colangelo, Assouline, & Gross, 2004). Additionally, Hattie analyzed the influence of various factors on student learning and categorized them into six aspects, listed in order of their variance on student achievement: student, teacher, home, school, peers, and the building principal (Hattie, 2009). According to Hattie, although home, school, peers, and the principal are important factors in student achievement, each contributes approximately 5% of the variance in student outcomes. The student (50%) and the teacher (30%) together account for most of the variance and, therefore, focusing on needs of the students and their experiences in the classroom can make a remarkable difference.

Hattie views the teacher more as a facilitator than an information delivery system. In order not to become a barrier to learning, teachers must enhance the evolving self-assessment in capable students, develop positive peer interactions, harness the power of critique/error/feedback, and enhance the students' self-regulation by seeing students also as teachers (Hattie, 2009). Hattie identified five major dimensions of excellent teachers that correspond to a teacher's ability to sustain student achievement in the classroom and foster a classroom atmosphere that supports intrinsic motivation. Expert teachers can 1) identify essential objectives of their subject, 2) guide learning through classroom interactions, 3) monitor learning and provide feedback, 4) attend to affective attributes, and 5) positively influence student outcomes.

The collective effects of positive experiences in the classroom with a quality teacher support the motivation of gifted students and enhance their achievement.

Part of creating positive classroom experiences based on the student needs centers on discerning the students' perceptions of self and intelligence as it relates to their motivation. Carol Dweck writes extensively on the topic of motivation and gifted students. Dweck's (2006) research concluded students perceive their own intelligence as either fixed and unchangeable, or a learned trait that can be molded and improved. This difference not only impacts how they perceive challenges (2006) but can be influenced by their school experiences. Her studies revealed that praising students' intelligence provided positive results only in the short term and had many long-term negative effects. Students began to prefer tasks in which they perceived an easy success over a challenging opportunity to learn as they were more concerned with how they would be perceived than in accomplishing a new task. In contrast, in the group of students praised exclusively for their efforts, nearly all opted for the more challenging learning opportunity. This attitude also impacted on how pupils handled educational struggles and setbacks. The bright students who were praised for being smart, viewed an educational struggle as evidence that they were not that smart while the students who were praised for their efforts, interpreted the setback as an indicator that more effort was needed. The two groups of students who had started off with similar performance were now very far apart (Roberts, 2009).

Furthermore, the orientation of students' perceptions regarding how they will be evaluated is an important aspect of student perceptions of self that can be enhanced or diminished by their surroundings. Pintrich (2000) identified two evaluation approaches: mastery or performance goal orientation. Mastery goal orientation focuses on learning and developing competence in a subject area. A performance goal orientation focuses solely on demonstrating competence to an outside observer. This performance goal orientation is further subdivided into two facets: an approach focus where the goal is to look better or appear smarter than others, or an avoidance focus where the goal is to avoid looking less competent than others. The mastery goal is preferred to a performance goal orientation for fostering intrinsic motivation (Linnenbrink & Pintrich, 2002). Although the approach goal is slightly less detrimental to intrinsic motivation than the avoidance goal, it still possesses an external focus on evaluation from an outside source. The avoidance focus is detrimental for both intrinsic motivation and for achievement as students with this orientation as they choose to avoid challenging situations in which they might be perceived by an outsider as less competent. Teachers need to be aware of their influence on the development of student perceptions in order to begin providing adequate challenges in the early years of a gifted child's schooling and to reward and remark about not the outcome, but the effort expended.

The lack of this awareness by teachers further contributes to the environment that sees diminishing achievement as a student progresses through school. Sally Reis (2006) summarized some of the research-supported facts concerning to the

phenomenon of low achievement among gifted students. She states that the underachieving behaviors (a) may begin to occur in elementary school; (b) are not always chronic and can be episodic or sporadic, occurring in some years and not in others, in some classes and not in others; (c) may be a direct relationship between inappropriate or unchallenging content beginning in elementary school and underachievement in middle/high school; (d) may be addressed at the school level and there are no clear links between parental behaviors and causes for underachievement; (e) may be influenced, prevented, or reversed through peer group influences, and (f) moreover, are less likely in adolescents who are involved in clubs, extra-curricular activities, sports, or religious activities. Therefore, effectively programming to meet the needs of gifted students throughout their entire school career allows for varied educational interventions providing appropriate challenge in a classroom environment that promotes effort over easy success while implementing proven strategies that further student achievement.

Underachieving Gifted Students

Clearly, identified gifted students are not immune to the potential for underachievement. Indeed, these students' high potential creates room for a significant amount of underachievement. According to a national needs assessment conducted by Renzulli, Reid, and Gubbins (1991), the number one concern confronting the field of gifted education – representing “the most serious gap in research on the gifted and talented” (p. 5) – is underachieving gifted students. Despite broad concern expressed

about the needs of economically disadvantaged students, individuals of limited English proficiency, underachievers generally, and individuals with disabilities, very few empirical studies have been carried out with these groups. Renzulli, Reid, and Gubbins (1991), conducted a nation-wide survey of teachers, authors, and researchers in the field of gifted education seeking to determine which of the several special populations should be the major focus of future research. Among all the special populations of gifted students listed in their national survey, underachieving gifted students was ranked first by all categories of respondents, followed closely by gifted females, economically disadvantaged gifted, gifted dropouts, and at-risk populations. The report ranks the top 21 recommendations for future research, including: impact of programming options on student outcomes; motivation; effectiveness of programming for special populations, including underachievers; self-efficacy; policy implications; and assumptions/stereotypes concerning underachievement (see Appendix D).

Reis and McCoach (2000) proposed an operational definition of gifted underachievement that has been adopted in several empirical studies (Matthews & McBee, 2007; McCoach & Siegle, 2003a; Siegle, Reis, & McCoach, 2006). They posited:

Underachievers are students who exhibit a severe discrepancy between expected achievement (as measured by standardized achievement test scores or cognitive or intellectual ability assessments) and actual achievement (as measured by class grades and teacher evaluations)...Gifted underachievers are underachievers who exhibit superior scores on measures of expected achievement (i.e., standardized achievement test scores or cognitive or intellectual ability assessments). (Reis & McCoach, 2000, p. 157)

Risk factors have also been noted for the underachievement of gifted students, including over-empowerment at home, early health issues, lack of challenge in school, too much challenge in school leading to perfectionism, over- or under-competitive classroom environments, and contradictory messages (Rimm, 1997). Rimm prefers a broad, inclusive definition for underachievement, stating that underachieving gifted students “are not working to their ability in school” (p. 2). Given the disparate nature of the definitions in the literature, for the purposes of this study underachieving students are identified based on underperformance in a classroom setting determined by their class grades.

Causes for underachievement among gifted youth are complex and varied. Factors can be categorized based on origin, which include environmental (school-related) factors and personal/family-oriented factors. Environmental or school-related factors include an anti-intellectual atmosphere, lack of recognition of gifted students’ needs, inflexibility in the courses and curricula offered, and negative peer group attention or influence. Personal and family-related factors include poor coping skills, diverse and/or unrecognized learning styles, as well as other underlying personality traits such as perfectionism or low self-image. Culturally diverse and underrepresented populations of gifted students experience the same risk factors for underachievement in addition to unique factors such as differences in culturally relevant exhibition of high ability, language limitations, the need for more valid and reliable identification practices, and gender differences including perceived role expectations (Schultz, 2002).

Some research has suggested that gifted achievers and underachievers differ in terms of their approach to school and school-related tasks (Carr, Borkowski, & Maxwell, 1991). Gifted underachievers were found less likely to choose appropriate cognitive strategies and they implemented those strategies poorly on challenging tasks when compared to their achieving peers. Additionally, differences in children's beliefs in terms of sustained effort and perceived amount of control over their academic progress were found among underachievers, who externalized these constructs more than achievers (Carr, Borkowski, & Maxwell, 1991). The likelihood that children will develop a positive self-image and feel in control of their performance is inversely proportional to the type and amount of external stimulus provided for their choices. Furthermore, this is corroborated by the research of Oka & Paris (1987), who found that achievers, when compared to underachievers, had higher self-esteem, stronger internal attributions about success and effort, and enhanced cognitive awareness in a classroom setting.

Types of underachieving gifted students. Underachieving gifted students are as unique and individual as are all gifted students, however, they "often fit into prototypical categories" (Rimm, 1995, p. 10). Having coined the term "underachievement syndrome," Rimm (1995) designates student behaviors using the traits conformers/non-conformers and dependence/dominance. Rimm created an "Inner Circle of Achievers" (see Appendix E) to describe the various manifestations of underachievement that can occur. This Inner Circle consists of caricatures that parents can use to identify the intersections of these traits exhibited by underachieving gifted students.

Rimm's caricatures begin with dependent conformists, students who might complete worksheet pages in class perfectly, but are unable to begin projects because they cannot think of anything good enough to write about. These students excel on concrete tasks, but have trouble when the tasks increase in challenge, complexity, or abstractness. Another underachieving type of students is a dependent non-conformer who might complain of stomach aches or other maladies and miss a lot of school. These students' mothers make excuses for and support their complaints about the make-up work that is piling up. These students feel as though catching up is impossible so they do not try (Rimm, 1995).

Two other characterizations of underachieving gifted students include dominant conformists and non-conformists. Dominant conformists are personable and socially adept, competitive in activities in which success is assured. Though intellectually capable, these students do not see themselves as "winners" academically and therefore do not put forth effort. Dominant non-conformists might be moody, locking the bedroom door and closing themselves off from friends and family. They may be clinically depressed and feel as though school is irrelevant to life. These students might work hard for teachers who are liked, though those are few and far between (Rimm, 1995).

Each of these caricatures is unique, yet related as all of these children have developed behavior patterns detrimental to academic achievement. Rimm (1987) states that underachieving students often are highly competitive in narrow and specific instances, but lack an internal locus of control and have not learned to handle the victories and defeats that are inevitable in life.

Selective consumers. Some researchers have further delineated a type of underachieving that specifically pertains to the gifted student, originating not from some deficiency in understanding or other personality trait such as insecurity (Neihart, 2006) or perfectionism (Morisano & Shore, 2010), but occurring as a rationally achieved conclusion about the value of the opportunities being offered by the school system. These students are called *selective consumers* and are distinguished by the source of their lack of performance as a learned behavior taking the best from their school experiences and leaving the rest behind (Delisle & Galbraith, 2000). Reviews of evaluative comments from teachers can distinguish selective consumers from other causes of underachievement. Underachievers have a reason for their poor achievement, such as low self-esteem or perfectionism, and a lack of understanding of the causes or remedies. In contrast, selective consumers tend to know exactly what is happening and why. Teachers describe selective consumers relative to the choices they make in the classroom, using comments such as failing to turn in homework, only putting forth his/her best effort in certain classes or on certain types of assignments, unwilling to complete certain assignments, or non-productive or sporadic performance. Selective consumers have concluded, after years of negative experiences in the classroom, that schools and teachers do not meet their needs, choose to withdraw from those activities they deem unnecessary, and selectively participate in those they feel are worthy. Selective consumers are intellectually capable and generally satisfied with their performance (Delisle & Galbraith, 2000). Additional characteristics that distinguish a selective consumer from an underachiever are noted in Table 1.

Table 1

Comparison of the characteristics of underachievers and selective consumers

Underachiever	Selective Consumer
Does not understand why they are underachieving	Knows exactly why they are underachieving
Dependent and/or reactive	Independent and proactive
Withdrawn	Tends to rebel
Respect for or fear of authority figures	Sees teachers as adversaries, may be contentious
Needs structure and limits	Requires little structure, needs breathing room
Uniformly weak performance	Performance varies relative to the teacher/content
Generally requires family intervention	School can usually handle issues
May change over the long term	May change overnight
Often perfectionistic	Frequently satisfied with their accomplishments
Possess a poor academic self-image	See themselves as academically able

Source: Delisle & Galbraith, 2000

In one of the first and most comprehensive accounts of the gifted underachiever, Whitmore (1980) suggests that strategies to reverse underachievement fall into three categories: 1) intrinsic, 2) supportive, and 3) remedial. A teacher truly interested in assisting the underachiever must first determine whether the child is underachieving or selectively choosing, then apply the appropriate strategies. Supporting the underachievers requires focus on applying their skills to accommodate for their weaknesses and positive and constructive feedback. Reversing the choices made by a selective consumer, however, requires better alignment with the student's learning style, more flexibility in the activities available, putting the student partly in charge of

his/her progress, and allowing the student to take more responsibility for the choices and the outcomes. Other distinctions in the approach required to accommodate an underachiever and a selective consumer are summarized in Table 2.

Table 2

Strategies to support and remediate underachievers and selective consumers

Strategies	Underachiever	Selective Consumer
Support	Discuss student concerns in class meetings Directive atmosphere of trust	Reduce completion of work already mastered Allow student selection of topics and projects
Intrinsic	Written contracts of work to be completed Free time scheduled daily for choice activities, relaxation Specific rewards for completing work Student evaluation of work before teacher evaluation Frequent positive contact with the family regarding progress Verbal praise for any self-initiating behaviors	Non-authoritarian atmosphere Utilize multiple methods to demonstrate mastery Students help write rules Student responsibilities for classroom management Teachers listen more, comments serve to clarify, not evaluate Students set goals with teacher approval
Remedial	Students grade own papers Tutor younger students in strength area Small group instruction in weak area Projects that do not involve a grade	Self-selected goals for improvement Private instruction in weak areas Use humor to approach weaknesses Help students utilize existing research into learning styles to self-select strategies

Source: Delisle & Galbraith, 2000

Regardless of the type of underachievement or the strategies needed to remedy the effects of the student's choices, it is imperative that a teacher who understands the nature and needs of gifted children intervene on the child's behalf.

Effect of an influential adult. A factor isolated as positively influencing underachieving gifted students is that of relationship with an influential adult, most often a teacher. Zabloski & Milacci (2012) conducted a phenomenological case study of seven gifted students who had dropped out of school. Noting a "paucity of research exists about gifted dropouts" (p. 175), they sought to understand their subjects' choices and identified the influence of relationships, specifically the influence of teachers as an emerging theme in their research. Zabloski & Milacci state, "positive relationships are a strong motivator to attend school, but most dropouts have few positive relationships with peers, adults, or teachers" (p. 182). Additionally, they found that the participants all faced a life-changing trauma influencing their motivation toward school, even if the trauma was not school related. Relationships with teachers, or lack thereof, also emerged as a central theme in the participants' decisions to drop out of high school. "All of the participants loved learning and welcomed mental challenge but did not find it in their public school" (p. 187), a fact that decreased their motivation to achieve. None of the turning points in the lives of the participants was academic; rather, they were "relational or social" (p. 188). It was people the students cared about, and they all desired more of a connection with others.

Additional research further expounds the importance of the relational aspect to supporting underachieving gifted students. Herbert and Olenchak (2000) found that the

significance of a single influential adult was the main emerging theme in motivating such students and leading to the reversal of underachievement in their subjects. Purposeful intervention on the part of the school was necessary in order to establish the mentoring relationship. More importantly, without this intervention, the relationship that altered the achievement trajectory would not have existed. The importance of the mentor was prevalent in all cases: mentors acted as an advocate, focused on the student's strengths, and provided support in a non-judgmental way. Similarly, Puckett (1996) conducted a single-subject case study of an underachieving gifted child and discovered concerns about the teacher-student interactions. Despite evidence that should give a gifted student a leg up in school, Puckett found that her subjects had many of the attributes common to other underachieving gifted students: including low motivation, a lack of genuine respect from teachers, an aversion to inflexibility and rigidity in the classroom, an emphasis on external evaluation, a distaste for the constant adult/teacher control of the class, and little patience regarding an unrewarding curriculum with textbook learning. In Puckett's case, it was the absence of the influential adult that had a significant, though negative, effect on student achievement.

Another factor assisting underachieving gifted students that has been found to be influenced by an important adult role model is goal orientation. Through a case study approach, Reilly (2009) interviewed two gifted adolescents and suggested goal orientation as important to their intrinsic motivation and, therefore, their achievement. Reilly discovered two divergent but equally useful goal orientations: (a) a contribution orientation, whereby the subject is motivated by the aspect of making a difference; and

(b) a challenge orientation, whereby the subject was motivated by the thought of taking on and succeeding at a challenging opportunity. Reilly concluded that these aspects to motivation are as important as the development of career goals, which receive the most empirical attention.

Motivation. Making changes in student behavior is never easy, and the research on underachieving gifted students draws only one consistent conclusion: the phenomenon is complex. As each child is an individual, his/her reason for underachieving is unique. However, research shows that motivation plays a key role in the behavior and attitude choices of students. Clemons (2008) studied underachieving gifted students through the lens of a social cognitive model and found that student motivation greatly influenced academic achievement. Clemons stressed the importance of the lack of motivation among underachievers as a main contributor to the phenomenon. Teachers and parents seeking to prevent or reverse underachievement should focus on student motivation. If a student appears to be losing motivation (e.g., stops turning in work, doesn't appear to be putting forth effort on assignments) that might be a "strong indication of future underachievement" (Clemons, 2008, p. 21). The important influence of teachers on student motivation is corroborated in the research. Robert Schultz (2002) conducted research of two gifted underachieving high school students and found two students who were

on an academic merry-go-round, whirling by the same content over and over. Internally driven to learn, they became frustrated and unchallenged: perpetually waiting to do something interesting. Even when moving forward, the pace and content covered were deliberate, with little opportunity for student input. Stripped of personal choice,

challenge, and control in their classrooms, their [motivation decreased and] expected academic learning deteriorated (p. 210).

Rubich, Barone, & Agostino (1998) found underachieving gifted kids mentioned extensively that they lacked motivation in school because in certain teachers' classrooms they were destined to fail, and that they "didn't stand a chance" (p. 308). This research confirms the importance of the adult relationship by addressing stereotypes and teacher expectations in the classroom in a pre-service teacher education program. Rubich et al. found that preservice teachers need to be trained in techniques that help create warm classroom environments supportive of all students' social and emotional growth. Even "brief negative vicarious experiences may reinforce latent biases and stereotypes" (Rubich et al., 1998, p. 311) and preservice teachers need opportunities to critically examine the issues related to the education of special populations of students in order to foster development of the techniques and instructional strategies that support the egalitarian foundations of our public school system.

At the heart of all of these recommendations is a single important construct: they all identify factors that increase student motivation to succeed in a school setting. Given the broad definitions of gifted children and their unique academic, social, and emotional needs, programming for gifted students should include a comprehensive menu of service options designed to meet the needs of such students in school settings (NAGC, 2010). Students come from a wide variety of cultural and family backgrounds, all of which are beyond the control of the school system. Gifted students are failing in

school, and the only thing schools can control is how they attempt to address the educational needs of the students who are in the classrooms. For this reason, factors that contribute to underachievement and can be manipulated or controlled by the school system must be addressed.

The collective experiences of the underachieving gifted students demonstrate that there are significant factors contributing to and exacerbating the low motivation of certain gifted students. Individual motivation underlies the associated constructs of attitude, behavior, and effort. Overall, the daily life of a gifted child in a public school setting can be described as unchallenging and unmotivating at best. Thus it is unrealistic for parents, teachers, and administrators to expect gifted children who feel as though their needs are not being addressed to sit quietly by, progressing through their K-12 school years without exhibiting any social or emotional effects. Nor is it surprising that the cumulative effect of years of feeling as though their needs are not important and/or are being ignored negatively impacts the attitude, behavior, effort, and motivation of gifted students. Consequently, a determined focus on the underachieving student by a school professional is vital to reverse any underachieving habits.

According to Zimmerman (1994), motivation and self-regulation may “hold the key” (p. 418) to understanding student achievement, although disentangling the constructs of motivation and self-regulation has proven challenging. Self-regulation refers to students’ self-generated thoughts, feelings, and actions that are systematically oriented toward the attainment of goals (Zimmerman, 1994). Assigning value to something is necessary to being motivated to do it, and valuing the goals of schooling is

a necessary precursor to being motivated enough to achieve those goals. Therefore, students who do not value the goals of school will be less likely to put forth effort to achieve those goals. However, students can value the goals of school and still not put forth the necessary effort to achieve those goals, as demonstrated by selective consumers. Therefore, these two factors [motivation and self-regulation] are moderately to highly correlated; nevertheless, they are “distinct components of a student’s achievement orientation” (Zimmerman, 1994, p. 422).

Theoretical Framework: Self-Determination Theory

In order to study the underachievement of gifted students, I chose to utilize the motivational aspect of Self-Determination Theory (SDT) as the framework for this research study. While a lack of motivation in the classroom cannot be blamed for all instances of underachievement, it is clear that low student motivation may be the outward manifestation of students’ disappointment with the curricula and/or the instructional methods being utilized (Ford, Alber, & Heward, 1998). Motivation is the “energization and direction” of behavior (Deci & Ryan, 1985, p. 39). Energy is a function of an organism seeking need satisfaction, and direction relates to the actions taken, e.g. behaviors, to meet those needs. According to Deci & Ryan (1985), motivational theories must attempt to answer the “why” of behavior. Any theory that merely discusses the direction or the behavior choices made by an individual is not a true motivational theory because it neglects the most salient aspect of motivation: the needs being pursued.

Why is motivation important? With much of the regular curriculum targeted at the ability level of a typical learner, there is often no differentiation for high ability

students in the classroom (Guldemon, Bosker, Kuyper, & Van der Werf, 2007). Even for advanced learners, a curriculum that is too challenging may be demotivating, just as a curriculum that is too easy is demotivating. Recommendations for increasing motivation among gifted students include a challenging curriculum offered at a faster pace, greater depth and complexity, and less repetition and review. Appropriate classroom context and teacher support is essential in making challenging curriculum motivating and engaging (Little, 2012).

There are a myriad of theories relating to motivation, in general, and to student motivation in an academic setting, in particular. SDT is especially pertinent to supporting the underachieving gifted student in a public school setting because these children possess greater ability to achieve in comparison to their age peers, but have demonstrated a lack of willingness to do so. Deci and Ryan (1985) conclude that all human motivation is compelled by the satisfaction of three basic psychological needs: (a) *autonomy*, (b) *competence*, and (c) *relatedness*. Social environments and unique individual characteristics that support satisfaction of these basic needs facilitate growth processes, whereas environments that prevent autonomy, competence, and/or relatedness are associated with poor motivation, inadequate performance, and reduced well-being. Additionally, people initiate and persist at behaviors to the extent that they believe the behaviors will lead to desired outcomes or goals. Deci & Ryan further claim that each of these three needs plays a necessary part in optimal development, such that none can be thwarted or neglected without significant negative consequences; gratification of “one or two are not enough” (p. 231).

SDT differs from a drive-reduction perspective on motivated behaviors (see Hull, 1943). Within a drive-reduction theory framework, which is popular in psychological circles, needs are understood as physiological insufficiencies that disturb an organism's equilibrium and push the organism to behave in ways that were chosen because they returned the individual to a state of equilibrium. Thus, in drive theory, the underlying balance point of the human organism is a process of replenishing deficiencies; and the purpose of behavior is need satisfaction. By contrast, in SDT the underlying balance point of the human organism is growth-oriented activity. School age children are similarly directing their actions to meet perceived needs, but not always in a manner that supports academic achievement or positive personal growth.

Behaviors are chosen based on a perception of a need, part of a person's search for competence and self-determination leading to a feeling of gratification (Deci, 1975). In other words, people choose behaviors from which they find satisfaction. Events aimed at influencing and directing motivated behavior represent a significant aspect of a child's public school life. Students' experiences influence their determinations of need and desire, thereby influencing their behavior choices. When students are not motivated by assigned school tasks or the potential outcomes, this lack of motivation may influence the behavior choices they make. Researchers implore professionals who are concerned with the underachievement of gifted students to first evaluate established school goals and to determine whether or not such students are motivated to achieve those goals.

When a behavior is self-determined, the regulatory process is one of choice, because the person perceives the locus of control to be internal, but when a behavior is controlled the regulatory process is one of compliance (or in some cases defiance), as the person perceives the locus of control to be external (Deci, Vallerand, Pelletier, & Ryan, 1991). The important point in this distinction is that both self-determined and controlled behaviors are intentional, and therefore motivated, but their regulatory processes are very different. Moving students from the external regulation of being motivated by aspects outside of themselves, such as rewards or punishments, to intrinsically motivated behaviors could become a significant attribute of any formal educational system and would have a significant impact on reversing persistent underachievement.

Influencing intrinsic motivation. Deciphering what thought processes motivate student behavior is the definitive goal of any education professional. A teacher's job can be boiled down to a very simple construct, motivating students to desire the knowledge being presented. Even the most comprehensive curriculum and most effective, research-based instructional strategies will not matter if students are not motivated to learn the material being taught to them. Motivation originates from various locations and ranges along a continuum from existing outside the individual (an external locus of control) to being internally driven by individual choice in order to meet the needs of competence, autonomy, and relatedness (an internal locus of control). When an individual is intrinsically motivated to select actions that secure the three basic needs, he/she is exhibiting self-regulated, autonomous behaviors (Deci & Ryan, 1987).

Intrinsic motivation concerns active engagement with tasks that people find interesting and that, in turn, promote growth (Deci & Ryan, 1987, p. 233). However, this active engagement – expressed as involvement with and commitment to interesting activities – requires need fulfillment, and, indeed, people will become more or less interested in activities as a function of the degree to which they experience need satisfaction while engaging in those activities. Therefore, intrinsically motivated behaviors are those that are freely engaged in out of individual choice, without the presence of an external, controlling aspect in the environment, and they require satisfaction of the needs for autonomy, competence, and relatedness in order to be maintained or continued. If a gifted student in a public school classroom does not perceive that his/her needs are being fulfilled, intrinsic motivation toward that environment will decrease.

Intrinsic motivation and autonomy. Certain aspects of an individual's experience support autonomy, thereby leading to increased intrinsic motivation, whereas other aspects of experience support external control of one's choices, thereby decreasing motivation. Compared to controlling experiences, autonomy support has generally been associated with positive social growth such as more intrinsic motivation, more creativity, more cognitive flexibility, better conceptual learning, higher self-esteem, greater persistence of behavior change, and better physical and psychological health (Deci & Ryan, 1987). Thus, a primary function served by specification of the needs for autonomy (with respect to intrinsic motivation) is that it allows for the selection of social

circumstances and task characteristics that enhance, rather than diminish, intrinsic motivation. The predominant assumption of SDT is that intrinsic motivation will be supported by conditions that are favorable to psychological need satisfaction, whereas discouragement of such motivation will result when conditions tend to thwart need satisfaction. Deci (1975) has suggested that intrinsically motivated behaviors represent the pinnacle of self-determined activities: they are activities that people do naturally and spontaneously when they feel free to follow their inner interests. Many studies have confirmed that intrinsic motivation is positively associated with better learning, improved performance, and enhanced well-being (e.g., Benware & Deci, 1984; Deci, Schwartz, Sheinman, & Ryan, 1981; Grolnick & Ryan, 1987). Accordingly, considerable attention should be given to the students' school experiences that extend and encourage motivation.

The cumulative and undermining effects of a gifted student's experiences in a typical classroom on his/her intrinsic motivation cannot be overstated. Additional studies have supported the view that autonomy is essential to intrinsic motivation by showing that other events such as negative feedback (Deci & Cascio, 1972), adult monitoring (Lepper & Greene, 1975), assessments (Harackiewicz, Manderlink, & Sansone, 1984), and deadlines (Amabile, DeJong, & Lepper, 1976) also result in undermining intrinsic motivation, ostensibly because they also represent external control of behaviors. In contrast, providing student choices (Zuckerman, Porac, Lathin, Smith, & Deci, 1978) and acknowledging a student's inner experiences (Koestner, Ryan,

Bernieri, & Holt, 1984) prompted more of an internal locus of control, enhanced intrinsic motivation, and increased feelings of competence.

Intrinsic motivation and competence. Additional studies examining the links between performance and positive feedback have revealed that positive feedback supports intrinsic motivation only when individuals feel responsible for their own competent performance or when it is provided in a way that does not diminish their feelings of autonomy (Ryan, 1982). The optimal circumstances for intrinsic motivation are those that provide or enhance satisfaction of the needs for autonomy and competence. More specifically, Ryan (1982) suggests that whereas perceived competence is necessary for any type of motivation, perceived autonomy is required for the motivation to be intrinsic (Deci & Ryan, 1980). Fulfillment of need for competence, which is prototypically manifest in intrinsically motivated activity, spurs on cognitive, motor, and social growth, whereas thwarting the need for competence reveals the opposite. It is often true that gifted students attain high levels of achievement early in their school career with little to no effort, so their need for demonstrated competence is unfulfilled and, therefore, the motivation toward similar tasks diminishes.

Intrinsic motivation involves people freely engaging in activities that they find interesting, which provide novelty and optimal challenge. Research on intrinsic motivation for initially interesting activities has shown: (a) events such as rewards that foster an external locus of control tend to undermine motivation, whereas events such as choice that foster an internal locus of control tend to enhance motivation; (b) events such as negative feedback that foster perceived incompetence tend to undermine

motivation, whereas events such as positive feedback that foster perceived competence tend to enhance motivation; and (c) people must feel responsible for their own competent performance in order for perceived competence to have positive effects on intrinsic motivation (Deci & Ryan, 2000).

Intrinsic motivation and relatedness. Although autonomy and competence have been found to be the most powerful influences on intrinsic motivation, research suggests relatedness also plays a role, albeit more distant, in the development and support of intrinsically motivated behaviors (Deci & Ryan, 1980). Intrinsic motivation is more likely to flourish in situations that support a sense of relatedness, as evidenced, for example, by the 1986 research of Ryan and Grolnick, which demonstrated greater intrinsic motivation in students who perceived their teachers as warm and caring. Gifted students often perceive they do not fit in the regular classroom setting: they feel different, isolated, and as though their needs are not being met and this resultant dissatisfaction is often targeted at the closest responsible adult, the classroom teacher. This perceived isolation leaves the need for relatedness unfulfilled and exacerbates any decline of intrinsic motivation.

Substitutes for thwarted needs. When people's motivated behavior is more autonomous, the outcomes are more positive in terms of the quality of their behavior, as well as their health and well-being, because autonomous regulation is sustained by greater need satisfaction. When people's motivated behavior is more controlled, the outcomes are "thwarted" satisfaction of the three basic needs and negative development of health and well-being (Deci & Ryan, 2000). Considerable evidence has

been amassed that demonstrates the variety of negative mental health consequences due to extrinsic motivation and controlling environments. These effects can be understood as the negative consequences of having one's basic needs thwarted. The presence of strong extrinsic motivation and control supports development of compensatory motives and patterns of behavior that are risky, antithetical to personal growth, and that interfere with future satisfaction of basic needs. Accordingly, these environments turn individuals toward goals and activities that serve to compensate for the lack of need satisfaction but may involve serious "risks for physical and psychological health" (Deci & Ryan, 2000).

A lack of need satisfaction involves developing need substitutes (Deci, 1980) or patterns of behavior that do not satisfy the thwarted basic needs, but provide some replacement satisfaction instead. For example, if people's need for relatedness is substantially thwarted when they are young, they might compensate by pursuing material means to support their self-image. Another component of the accommodation resulting from thwarted need satisfaction is the development of negative regulatory styles and motivational orientations. Gifted students are no different. When they feel their needs are thwarted, they will develop patterns of behavior that support substitute need fulfillment, not necessarily aligned with the academic pursuits desired by their parents or teachers.

The academic and social environments that block satisfaction of the need for autonomy promote a controlled motivational position, and environments that also block satisfaction of the needs for competence and relatedness tend to promote amotivation.

Controlled and amotivational orientations have negative effects on performance and well-being (Deci & Ryan, 2000). Experiences in an amotivational or controlling environment lead to the development of rigid behavior patterns that are as adaptive as possible under antagonistic circumstances, and they develop to help protect people from the “inner hurts resulting from the thwarted needs” (Deci & Ryan, 2000, p. 251). However, these patterns have the maladaptive features that tend to keep people from dealing with their inner experiences, impacting new situations in which such features are not needed, and may result in negative consequences. Once these behavior patterns are established in response to unfulfilled needs, they are difficult to change. Even optimal challenges will not prompt an intrinsically motivated orientation unless people perceive themselves to be acting autonomously when carrying them out—that is, unless the behaviors manifest an internal locus of control.

An assessment is required in order to evaluate the motivation of any particular student. By investigating the aspects that distinguish achieving gifted students from underachieving gifted students, and viewing these distinctions through the lens of a motivational theory, we can begin to discern which, if any, factors help reverse an individual student’s underachieving patterns, thereby changing his/her very life trajectory.

Summary

Collectively, the unique characteristics of a gifted child – in conjunction with the lack of an accepted definition from researchers and the inadequacies of the public school system – put these children paradoxically at a distinct disadvantage. This can be

devastating to an individual gifted child trying to navigate through adolescence and into adulthood. Whereas gifted students may have an intellectual advantage over their peers in relation to the content being taught, the circumstances in which that content is presented undermines their motivation to apply that advantage, as demonstrated by their disappointing school achievement. While some gifted children are able to reverse this emerging trend, thereby improving their school achievement and, in turn, future opportunities, the vast majority of such underachievers are not able to do so. The research conducted in this study, as described in the following chapter, identifies factors that may assist in reversing these trends and provides recommendations as to how best to translate this information into educational practices that may help the latter group.

CHAPTER 3: RESEARCH METHODS

As previously stated, defining underachievement, identifying underachieving gifted students, and explaining the factors related to underachievement continue to be elusive goals. Although much of the research on underachievement has focused on characterization of underachievers, the most important unresolved issue is how to reverse this process (Siegle & McCoach, 2009). Fitzpatrick (1978) noted the “relative paucity of research” (p. 645) concerned with the early identification of underachievers and the variables associated with this phenomenon. McCoach and Siegle (2003a) suggest that future research should examine whether interventions to reverse underachievement can increase motivation/self-regulation and whether increased motivation translates directly into increased academic achievement.

By investigating underachieving gifted students and sorting them by their achievement patterns this study seeks to identify factors that can be used to discern the groups, to establish what, if any, factors contribute to or hinder student achievement, and to determine if such factors can lead to early identification of underachievers. It is my hope, through the identification of such factors, that this study may assist in stemming the tide of falling GPAs among this population of students, which may help to decrease the dropout rate among such students and simultaneously improve their options for future successes.

Research Questions

The following questions guided this research project:

- 1: In what ways do the motivational characteristics and patterns of academic achievement for underachieving gifted students differ between students who increased their achievement by 10th grade and those who did not? What is the relationship between these patterns and gender, special education needs, and race/ethnicity?
- 2: How do the perceptions of self and school differ between underachieving gifted students who increased their achievement by 10th grade and those who did not?

Mixed Methods Design

Gifted populations tend to be small. Accordingly, most research investigating underachieving students has employed a qualitative, clinical, or single-subject methodology (McCoach & Siegle, 2003b). Quantitative methods typically require access to a larger number of subjects than do qualitative methods, as well as adequate instruments to measure student achievement and perceptions, which can be difficult to quantify. Johnson, Onwuegbuzie, & Turner (2007) define mixed methods research as the type of research in which “a researcher...combines the elements of qualitative and quantitative research approaches for the purposes of breadth and depth of understanding and corroboration” (p. 123). This combination of rich data sources provides a “multiple way of seeing” the full story (Greene, 2007, p. 20).

Inasmuch as qualitative studies are criticized for not being generalizable (Higgins, 2009), utilizing a mixed methods approach offers specific advantages. Mixed methods approaches often refer to qualitative studies that incorporate statistical analysis for the purposes of triangulation (Yu, 2012), thereby strengthening the reliability of the results. Additionally, these approaches are not mutually exclusive methods for data gathering, and the use of quantitative and qualitative approaches in combination provides a more complete consideration of research problems than either approach alone (Creswell & Plano-Clark, 2007). Indeed, similarities exist between the two methodologies as both methods use empirical observations to address research questions, describe data, develop illustrative arguments from such data, and speculate about why the data occurred in a specific manner (Johnson & Onwuegbuzie, 2004). Johnson & Onwuegbuzie describe mixed methods as “expansive” and “inclusive,” rather than “restricting.” The authors conclude that the most fundamental aspect of a valid and reliable research study are methods that are derived from the research questions in a way that offers the best chance to obtain useful answers.

Researchers have been studying the causes of underachievement among gifted students in order to illuminate the phenomenon and to assist school personnel in targeting services. Personal interviews and case studies are the “preferred method” of research when the researchers are asking “how” and “why” questions (Yin, 2009). For example, educators may want to know why some students who have been identified as gifted are not being successful in the classroom. How do these students view their experiences in school? Why don’t they work harder in school? How can teachers and

schools be more responsive to their unique educational needs? Many researchers have utilized a mixed methods approach to answer such questions.

Personal stories can be merely anecdotal and numbers do not always fully illuminate an issue. Both qualitative and quantitative methodologies gather valuable data while simultaneously obscuring other significant aspects of an issue. By applying both research methodologies in this mixed methods study, I hope to augment the strengths of each to begin to generate a more complete picture of the complex world inhabited by the gifted underachiever. By combining the statistical achievement data and motivational assessments with qualitative data that capture the perspective of the students themselves, a complete analysis of all relevant factors was conducted in a way that neither methodology alone allowed.

Site and Subject Selection

Typically, individual, family, and school-related factors are discussed as contributing to problems of underachievement (Baker, Bridger, & Evans, 1998). Researchers tend to measure learners' preexisting value system, interest, or intrinsic motivation as it relates to a learning activity, then make predictions about individual differences in the engagement patterns of those learners. However, they rarely seek to establish and nurture such motivation where it is not already present (Brophy, 2008). This mixed methods study has focused on factors that affect students' motivation and achievement inasmuch as school personnel have little to no control over the individual, family, or economic factors related to student achievement.

Subjects involved in this study are identified gifted students attending the Washington Public School district (WPS, a pseudonym) in a mid-western state. Students in this district are identified for gifted services based on either a minimum full-scale (FS) or a minimum general ability index (GAI) score on the Weschler Intelligence Scale for Children - Fourth Edition (WISC-IV). The GAI is a composite of Verbal Comprehension Index (VCI) subtests (Similarities, Vocabulary, and Comprehension) and Perceptual Reasoning Index (PRI) subtests (Block Design, Picture Concepts, and Matrix Reasoning) (see Appendix F). Minimum qualifying scores for eligibility for the gifted program include either: (a) a full scale IQ score of 130, (b) a GAI scaled score of 130, or (c) a scaled score of 130 on either the VCI or PRI subtests. Subjects are typically identified for gifted programming as rising third graders but can be identified in any subsequent grade level.

As achievement patterns have revealed a significant difference between the grades of achievers and underachievers beginning at grade six (Fitzpatrick, 1978), the sample consisted of identified gifted students in 10th grade during the 2012-2013 school year who earned below a 3.0 grade point average (GPA) in any semester since 6th grade. In the WPS, personnel working with secondary gifted students check student grades four times every semester and target any individual child earning a grade in any class below a B. As any grade of C or lower represents either effort or performance below expectations for a gifted student, a grade point average below a 3.0 indicates a pattern of either effort or performance below expectations and draws the attention of the gifted staff. It is these students in particular toward whom local staff focuses attention in order to help them raise their achievement as swiftly as possible. Although

copious amounts of standardized achievement data exist, classroom GPAs were used as they provide a measurement of student achievement within a classroom environment (Siegle & McCoach, 2009). Grade point average is one of the measurements used by post-secondary institutions for admission and scholarship decisions, and a low GPA limits a student's future opportunities. In addition, to some extent, grades reflect student motivation in the classroom and represent a valid way to sort achievers from underachievers (Siegle & McCoach, 2009).

Additionally, WPS maintains a student population with low mobility (Beesley, Moore, & Gopalani, 2010) and low dropout rates (DESE, 2012) compared to the state averages. For this reason, many students in the sample have been in the district since at least 6th grade; accordingly, aspects such as school resource or curriculum disparities have been eliminated as a factor in their underachievement. Sixth grade was selected as the initial target group since this is the first grade level at WPS where letter grades are issued. Additionally, there are too many inconsistencies between and among elementary school buildings relating to how and when feedback is provided to parents, since most feedback is in the form of written teacher narratives. Teachers and administrators do not want to wait until students progress too far into their secondary school career exhibiting a pattern of low performance to try to get them back on track. Thus, the goal of this study was to identify factors that help distinguish the groups in a way that will help identify students likely to underachieve as early as possible.

Instrument – SAAS-R

McCoach and Siegle (2003a) conclude that few quantitative research studies on gifted underachievers exist due in part to the lack of a valid and reliable instrument that can identify these students. Because the “first step toward reversing adolescent underachievement” (McCoach & Siegle, 2003b, p. 427) is to isolate factors that contribute to academic underachievement, the authors created and validated the School Attitude Assessment Survey (SAAS), an instrument that was designed to evaluate gifted students’ perceptions on five specific constructs: 1) academic self-perceptions, 2) attitude toward teachers, 3) attitude toward school, 4) goal valuation, and 5) motivation/self-regulation. Initially, an analysis was able to discern differences between academically able achievers and underachievers along these five constructs. While the motivation/self-regulation and the academic self-perception factors exhibited a very high correlation, approximately 0.80, the authors decided to revise the 20-question version of the SAAS to provide stronger evidence of discriminant validity among the academic self-perceptions and motivation/self-regulation factors. McCoach and Siegle’s revised edition (SAAS-R, see Appendix G) includes confirmatory factor analyses revealing that the goal valuation and motivation/self-regulation factors were highly correlated ($r = 0.79$) with the other factors exhibiting moderate (0.48 to 0.66), positive intercorrelations. Indeed, whether students value the goals of school is a necessary precursor to their being motivated to put forth the effort required to achieve in school.

Subsequent investigations demonstrated validity in SAAS-R’s ability to discriminate among high school gifted students based on these five factors (Suldo,

Schaffer, & Shaunnessy, 2007). Suldo et al. further expounded on the potential use of the SAAS-R:

Regarding the use of the SAAS-R in educational practices, practitioners may consider administering the SAAS-R to entire student bodies as part of a needs assessment or progress monitoring effort, or to students identified as at risk for school failure to pinpoint specific attitudes in need of intervention...In the latter case of an individual approach, educators can identify student attitudes that may be disrupting the relationship between instruction and learning, then implement appropriate individualized interventions such as increasing the salience of school to one's career aspirations or providing skill-level appropriate academic tasks followed by frequent positive feedback (p. 81).

Use of the SAAS-R assessment tool in this study was influential in discerning the motivational characteristics of the participants.

Data Collection Methods

Although obtaining signed authorization forms may become a barrier for researchers by limiting the response rate, it does provide superior protection for the researcher compared to email, opt in, or opt out protocols and is the preferred method of documenting consent (Bolcic-Jankovic, Clarridge, & Fowler, Jr., 2005). There are currently 127 identified gifted students in 10th grade in the WPS district. Consent forms and a postage-paid, addressed return envelope were sent via the US Postal Service to the parents of all 127 students seeking signed authorization for student data access. I sent an e-mail message in advance of sending the letters and consent forms to delineate the purposes of the study. Additionally, two reminder emails were sent subsequent to the arrival of the letters. These efforts resulted in 71 of the consent forms returned with a parent signature (55.91%).

All accessible student data were analyzed in search of any distinguishing factors or patterns that can be used to differentiate the groups and/or help local school district staff to identify any students likely to underachieve early in their school career. Information that would identify a student's socioeconomic group, including qualification for the Free or Reduced Price meal program, was not made available for this study.

Other available data for all gifted students were analyzed, including:

- Demographic data (race, gender, special education designation)
- Attendance records
- Discipline records
- 2nd grade Cognitive Abilities Test (CogAT) scores
- 3rd grade WISC-IV scores (and subsequent administrations, if available)
- 3rd–8th grade Missouri Assessment Program (MAP) test scores in both
Communication Arts and Math
- 8th grade Explore Test scores
- 9th-10th grade End of Course (EOC) exam scores, where applicable
- 10th grade PLAN test scores
- SAAS-R inventory scores

Special education designations include a written Individual Education Plan (IEP) and/or a written 504 Plan. Both are legal documents delineating the services required to

ensure a student receives the necessary modifications relative to a disability; a 504 plan outlines modifications that are to be made within the regular classroom and an IEP is written when services outside the regular classroom environment are required (Holler & Zirkel, 2008). In addition, the SAAS-R inventory was administered to all willing students within the sample, allowing for a control group of identified gifted students who did not demonstrate any behaviors related to underachievement; data from this cohort were used for comparison with the at-risk cohort.

Data from identified gifted 10th grade students were reviewed during the Fall 2012 semester. None of the children in the original cohort of WPS identified gifted students had dropped out of school prior to or during the time frame in which this research was conducted. Thus, underachievers were identified based on GPAs and sorted into the groups. Once the groups were identified, the SAAS-R inventory was administered to these students in the fall of 2012. Permission for student participation in this study was obtained from the public school district. Consent was also obtained from the parents of all subjects prior to the data review, interviews, and the administration of the SAAS-R inventory.

The expected number of subjects within each group was difficult to predict and the study revealed 17 underachievers. Within the classification as an underachiever, the discrepancy between expected and actual achievement could be the direct result of a diagnosed learning disability or other special education designation (Reis & McCoach, 2000). Therefore, any students with Individual Educational Plans (IEPs) and/or 504 Plans were considered separately, as the cause of their underachievement may be related to a

disability. Any emerging data trends leading to the early identification of underachievers and highlighting any factors that were instrumental in helping underachievers improve their school performance will greatly benefit the educators who work with gifted students in the future.

Interviews. Furthermore, underachievers were interviewed to further identify differentiating characteristics. The student interviews were designed to obtain student perceptual data as it relates to student interest, motivation, school experiences, faculty, staff, curricular opinions, and school involvement. The interview protocol is presented in Appendix H. Participants' identities were protected at all times and students had the right to choose not to participate at any time. The questions were shaped from the literature allowing the opportunity to explore student perspectives in a personal manner. Participants were given pseudonyms in the final summary and analysis of themes to ensure confidentiality. A semi-structured interview technique was employed to assess the viewpoint of the interview subjects. Interviews are a common tool for gathering data that is difficult or impossible to quantify. Interviews provide the interviewee a chance to share his/her perspective on the subject. Information obtained through the subject narratives provides rich data that can be used for planning or adjusting services, updating policies, and analyzing theoretical assumptions (Al-Yateem, 2012).

The interviews, a data collection process that has "been with us for centuries," (Merriam, 2009), were carried out for this study individually in order to facilitate the data collection process. A comfort level was established in the interview setting, which

mitigated the potential drawbacks associated with attempting to conduct an open, honest conversation and obtaining accurate student responses. The interviews were designed to draw out the most persuasive and telltale responses from participants by allowing their responses to shape the discussion (Massey, 2011).

Critics have noted that interviews lack a standardized method for analysis and interpretation (Webb & Kevern, 2001). For that reason, some scholars suggest that interviews are better used only as an “ancillary” measure to complement and/or supplement other measures (Bloor, Robson, & Frankland, 2001). However, without actually asking students to describe their experiences it would be impossible to learn about the typically unspoken social norms, expectations, and cultural understandings that impact student choices (Bloor et al., 2001). By combining the components of recorded participant responses and researcher observation, the interviews provided an opportunity to inquire further into each participant’s responses (Vaughn, Schumm, & Sinagub, 1996) in way that facilitated an understanding of the “why” behind the attitudes and behaviors of underachieving gifted students (Greenbaum, 2000). This study utilized the interviews for data collection because there is an inherent value in student perspectives regarding their own experiences, which provided insight beyond the descriptive numbers and statistics. The following section will summarize the analyses that were conducted to answer Research Questions One and Two.

Data Analysis

Students’ permanent school records were reviewed for the sample of 71 students participating in this study. All identifying student information was removed to

protect student privacy. Data were collected both by accessing the district's database electronically and by direct researcher analysis of the students' records to ensure that the most complete and accurate information was collected. Once students were selected for the sample, they were sorted into groups based on the patterns of achievement. Expected groupings included "Group One" - students who were once underachieving but were able to reverse the trend as defined by a GPA above 3.0; "Group Two" – students whose underachievement continued (or worsened) as defined by a GPA below 3.0; and "Group Three" – students who dropped out of school (if any appear in the sample). After the qualitative and quantitative data were collected, they were analyzed for patterns distinguishing the groups in terms of demographic categories and traits that comprise motivational/self-regulation factors.

Analysis of Data: Research Question One. This component of the study was a non-experimental analysis of existing data as the method of sampling was non-random and purposeful (Merriam, 2009). Initial analyses were mostly descriptive in nature, organizing and summarizing the data set (Brennen, 2006) in order to highlight any discernible and identifying patterns of performance between and among the variables. First, a set of descriptive statistics was generated from the background characteristics of the students participating in the program. The data for this question originate in the permanent school records of the 10th grade identified gifted students in the local public school district, with the overall analysis conducted using the Statistics Package for Social Sciences (SPSS) version 21. Student data were classified based on race/ethnicity

(minority/non-minority), gender (male/female), and special education status (IEP/no IEP and 504 Plan/no 504 Plan). Descriptive statistical analyses were used to examine the nominal and ordinal data (Gravetter & Wallneau, 2008) in terms of the frequency and percentage of students within each group in search of any over-representation, under-representation, or unique data outliers.

Additional inferential statistical procedures, used to draw conclusions about a population based on a data sample (Brennen, 2006), were applied to analyze the data. A non-parametric test, the Chi-square test of independence, is a “statistic based on the simple idea of comparing the frequencies you observe in certain categories to the frequencies you might expect to get in those categories by chance” (Field, 2005, p. 682). A Chi-square test for independence was applied to the data first to expose any statistically significant differences in the data sets other than expected by random opportunity or likelihood. Results were considered significant if $p < 0.05$. Once a Chi-square analysis reveals differences other than would be expected by chance, further exploration is warranted utilizing either the Mann Whitney U test or an analysis of variance (ANOVA), depending on the data type.

When the dependent variable is dichotomous and the independent variable is continuous, an independent samples T test is used (Field, 2005) to determine whether the mean difference between the groups is statistically significant. In an independent samples test, there must be no relationship between the participants in the groups such as in this research study. An individual student cannot be in both the achieving and underachieving groups. The purpose of the independent-samples T-test is to determine

whether the population means of the groups are different, and not just a consequence of natural sampling variation. The Mann Whitney U test statistic, the non-parametric version of the independent samples T-test, is calculated when normality cannot be assumed as with the small sample size in this study (Gustafson, 2000). It is considered robust to violations of normality, meaning that violations of this assumption can be tolerated and the test will still provide valid results (Laird, 2013). Therefore, the Mann Whitney U test was used to compare the data to determine if the patterns of growth among the groups were statistically different. Analysis of variance (ANOVA) was used when two or more means were being compared (Nelson, Nelson, & Zaichowsky, 1979) in order to establish whether or not there exist any statistically significant differences in the data sets that discriminate among the groups. Two-tailed tests were conducted so as not to presume directionality of differences, if they existed. All calculations - the Chi-square test for independence, Mann Whitney U tests for unknown population means, and ANOVA - were conducted in search of any statistically significant performance differences within the groups based on gender, special education needs, or race/ethnicity, attendance records, discipline incidents, and standardized testing data. Historically, gifted education has been beset by concerns regarding equity in terms of who is identified for services and who is not, and a significant underrepresentation of minorities and students from low income families persists (Ford, 1998, McLaughlin & Saccuzzo, 1997). Gender was categorized as male/female, race/ethnicity was categorized by racial descriptions of minority (Black, Hispanic, and Multiracial) and non-minority (Caucasian and Asian) based on the student-selected category indicated on the

information section of the Missouri Assessment Program (MAP) test booklet. Special education needs were categorized by IEP/504 Plan in place/no IEP/504 Plan in place. Results were considered significant if $p < 0.05$. A brief description of all statistical comparisons that were run is as follows:

- GPA compared by groups;
- Groups compared by race, gender, IEP/504 status, attendance, discipline issues;
- Standardized test data compared by groups (IQ, MAP, Explore, PLAN); and
- SAAS-R administered to 10th grade EEE students (achievers and underachievers alike).

Analysis of Data: Research Question Two. Student perceptions were assessed using interviews in order to obtain first-person accounts of school life. Interviewing participants using open-ended and less structured questions “assume[d] that individual respondents [would] define their world in unique ways” (Merriam, 2009, p. 90). Students were invited to participate in interviews; parental permission was obtained in advance. Students had the option to withdraw from the discussion at any time to ensure maximum comfort with the process. The data were analyzed through a process consistent with the conceptual framework of applying the development of emergent themes (Merriam, 2009) and were compared with the quantitative data for deeper understanding and assessment with regard to reversing underachievement.

An open coding process was employed to avoid any predetermination of themes and to allow flexibility in the analytical process (Corbin & Strauss, 1990). Emergent data collection and open coding (Massey, 2011) allowed for new insights to be highlighted by what was found to be important by the participants and what emerged from the underlying discrete, collective, or cultural issues elicited via the questioning, which provides the richest form of qualitative data for analysis.

Ten of the 17 students identified as underachievers agreed to participate in an individual interview; nine of these interviews were conducted at school during the school day, while the remaining interview was conducted after school hours by phone due to an illness. A semi-structured interview protocol (see Appendix H) was followed; this allowed for both a consistency among the interview questions asked and the flexibility to follow the thoughts and ideas raised by the interview subjects. The interviews were audio recorded and transcribed by the researcher verbatim. The researcher wrote field notes immediately following each discussion to record thoughts and observations not readily apparent in the transcription (Patton, 2001). The transcription was then returned to the participants to member check. Additionally, all subjects were afforded the opportunity to correct or elaborate upon any answers given in the interview. By offering participants a chance to review the transcripts for accuracy, member checking increased trustworthiness of the data (Merriam, 1998). Furthermore, the member checking aspect of the data analysis process created the triangulation necessary to support the validity of an emergent framework (Creswell, 2003).

Utilizing student interviews informs this research study as there are aspects to student life that are difficult to quantify. This “emic” or insider’s view (Merriam, 1998) delivered the perspective necessary for the researcher to examine the school life of an underachieving gifted student in his/her own words. According to Creswell (2003) this mixed method of analysis creates a process with “enhanced validity” as the results from one method of data collection can help “develop or inform” the other method (p. 15). This examination further explicates the implications gained through the quantitative statistical data, reducing the effect of any of the researcher’s preconceived notions that might potentially skew conclusions (Merriam, 1998). All emergent qualitative themes were compared with the quantitative data analysis and were utilized to develop conclusions.

SAAS-R survey responses. The School Attitude Assessment Survey – Revised (SAAS-R) was administered to willing 10th grade gifted students during the school day. The student response data were sorted by groups and analyzed using a Spearman Rank Order Correlation test, which measures the strength of association between two ranked variables, when one or both variables is ordinal (rather than interval) and/or when normality cannot be assumed such as with small sample sizes (Gustafson, 2000). For all constructs for which a statistically significant correlation is revealed, a Mann Whitney U test was conducted to determine if the mean differences were also significantly different from zero.

Protection of Human Subjects

The collection of data was conducted in accordance with all requirements necessary to successfully complete the Campus Internal Review Board (IRB) process. The school district studied and approved the use of student data in advance of the research study. In addition, all data collection procedures implemented by the researcher were reviewed and approved. The data were recoded and displayed in a manner that protects the anonymity of all participants. Any participants who were discussed as individuals were assigned a pseudonym in the final report. Finally, all research data collected were strictly monitored and secured from anyone other than the researcher.

Reliability

The researcher-observer is an inherently flawed instrument for data collection (Stake, 1995). Acknowledging this, I made efforts to improve the reliability of the study by checking observations and inferences with my advisor and, whenever possible, with stakeholders. In addition, I chose a mixed methods approach specifically because of its ability to enhance reliability through triangulation of the findings. Each component of the design was intended to add a layer of data with which to compare and contrast assumptions and inferences. Any notable instances of discrepancy or disagreement were explored so that the conclusions drawn could be re-checked from a different angle, thereby improving reliability.

Validity

Greene (2007) suggests that the use of triangulation to increase the validity of the conclusions reached in mixed methods evaluation studies is important for the purpose of "generating empirical puzzles" that emerge from the collection of divergent

data (p. 44). This position has informed the process of mixed methods data collection and analysis in this study, as it serves to collect multiple sources of data to assess the same phenomena in order to increase the breadth of the picture that materializes.

Since this study involves inferences based upon researcher judgment and inductive reasoning, not intending to imply or prove causation, the theoretical question of validity does not arise in this context. Nevertheless, notwithstanding the fact that the question of causation and generalizability is unanswerable, the conclusions reached in this study will add to the experience that the researcher utilizes to face the next situation with increased confidence and will serve as an addition to the collective wisdom of practitioners working with gifted students and their administrators.

Positionality

Finally, the researcher is an inherently biased observer. I have worked with gifted students for my entire professional career. As an undergraduate student, I chose specializations in gifted education and psychology to earn my Bachelor's degree, and I earned my Master's degree in Gifted Education. I was the Supervisor of Gifted Education Programs for the state Department of Education for five years, and I have taught gifted students in grades Kindergarten through twelfth grade. I feel strongly that gifted students deserve appropriately modified educational opportunities, and I work diligently in the local public schools trying to provide such opportunities. Although every precaution has been taken to reduce researcher bias, I am personally connected to the issue and to my students.

Limitations of the Study

All research investigations have limitations, the present research study included. This study did not include a random sample of gifted high school students. The purposeful sampling was necessary as the target population is gifted students in the local public school district, which could potentially limit the results. Since this study focuses on the achievement patterns of identified gifted students, the methods and definition applied within WPS to identify giftedness potentially limits the type of student in the cohort. Choosing to identify “underachieving” gifted students based on GPA is limiting in and of itself. The ambiguity of the term “underachieving” and its application in the field of gifted education, as established in the literature review, affects those students who earn the label and, therefore, the results of the data analyses and the interviews conducted with those students. One possible limitation is the completeness and accuracy of the quantitative data available, which are only as accurate as the data entry personnel and procedures. Since the researcher was not allowed access to the qualifications for free or reduced price meal program participation, it was not possible to evaluate the effects of poverty on gifted student achievement or to account for poverty as a potential mitigating or contributing factor in any analyses, which is a significant limitation to the study.

It is also important to note that an unusual grading policy adjustment took place between the sixth and seventh grade years for the students in this sample that might have affected the results of the study. Initially, the students in 6th grade earned only

pass/fail grades in their elective courses, grades that would not influence their average GPA unless they earned a failing grade. During the students' 7th grade year, however, the middle schools began issuing letter grades, A through F, in these same elective classes. For instance, students could earn a 65% in an elective course in 6th grade (a passing grade) without adversely affecting their GPA, while the same score in a 7th grade class would be calculated as a grade of D in their GPA. This grading policy change could have detrimentally influenced a student's GPA starting in 7th grade.

Although I was pleased with the overall response rate for returned consent forms, and the sample of 71 students was reasonably representative of the population of 10th grade gifted students in this district, 71 students is a small sample size and may not generally represent the population of gifted students as a whole. Additionally, even fewer students chose to take the School Attitude Assessment Survey, possibly limiting the generalizability and applicability of those results. Furthermore, relying on student self-reported data is itself problematic. Adolescents might not be the most accurate self-assessors, and the reliability of the student surveys are as limited as the honesty and reliability of the students' answers themselves. I can only hope that the students fully understood the questions posed by the inventory, and that they took the exercise seriously and answered thoughtfully.

Gathering accurate qualitative data during an interview is another potential limitation (Stake, 1995). All efforts were made to establish a warm and unthreatening environment for the discussion and to reassure the students of the anonymity that will

be provided in the final report. Data collected in student interviews has reliability limits since the data are only as good as the questions asked and the answers given. Five of the ten students interviewed had previously been students in my gifted education class, either in middle school grades 6-7 or junior high grades 8-9. The possibility exists that familiarity with me as a teacher influenced their choice to participate in the interview itself and/or their interview responses.

Summary

In summary, this research study sought to qualitatively and quantitatively establish any factors that were supportive of underachieving gifted students who managed to improve their school performance between grades six and ten. This study also sought to establish whether these differentiating characteristics can be identifiable early in a student's secondary school career. Results of the analysis will be important to the practitioners working with such students on a daily basis as well as providing relevant data to the administrators in charge of allocating and directing resources.

CHAPTER 4: RESULTS

This purpose of this study was to investigate whether data analysis of student records could be used to identify potential underachievers and to describe student perceptions of self and school via individual student interviews. This chapter presents the results of the study, including descriptive and inferential statistical analyses of the data and a thematic analysis of the interviews conducted to address the research questions. The research questions guiding the study are:

- 1: In what ways do the motivational characteristics and patterns of academic achievement for underachieving gifted students differ between students who increased their achievement by 10th grade and those who did not? What is the relationship between these patterns and gender, special education needs, and race/ethnicity?
- 2: How do the perceptions of self and school differ between underachieving gifted students who increased their achievement by 10th grade and those who did not?

For all categories of data analysis related to Research Question One, the null hypotheses state that there is there no significant difference between the achievers and the underachievers; $H_0: \mu_1 = \mu_2$.

Quantitative Analysis of Student Data

This study examined all possible data sources made available by the WPS, including GPAs, standardized test scores, intelligence test scores, attendance and discipline records, demographic characteristics, and perceptions expressed by 10th grade students in the gifted education program on the SAAS-R inventory. The study sought to determine if there were any discernible differences between achievers and underachievers that might help educators identify students needing support before their GPA decreased significantly. Data for this study were obtained from students' permanent files and from Eschool, the district wide data program. Data were then converted into an SPSS version 21 database, with achievement status assigned dummy codes of <0> for achieving; <1> for underachieving Group One, <2> for underachieving Group Two, and <3> for underachieving Group Three.

Population characteristics. During the 2012-2013 school year, there were 127 10th grade students identified as gifted (n = 127). Of the 127 students, 62 (48.8%) were female and 65 (51.2%) were male. The demographic characteristics of the population include: one Black student (0.8%), three Hispanic students (2.4%), eight Multiracial students, (6.3%), 14 Asian students (11.0%), and 101 White students (79.5%). When compared with the racial demographics of the WPS district as a whole (see Table 3), it is clear that White and Asian students are overrepresented in the gifted population and minority students are underrepresented, as is described in the research on gifted students (Ford, 2004).

Table 3

Racial demographic comparison of all WPS and 10th grade gifted students, 2012-2013.

Race	WPS N = 17,425	10 th grade gifted N = 127	Δ
White	62.7	79.5	+16.8
Black	20.2	0.8	-19.4
Hispanic	5.7	2.4	-3.3
Asian	4.9	11.0	+6.1
Multiracial	5.8	6.3	-0.5
Total Minority	37.3	9.4	-27.9

Note: All values included are percentages. Source: Missouri Department of Elementary and Secondary Education, 2013.

Among the 127 gifted students in the 10th grade population, 15 (11.8%) currently have, or had at one time, an Individual Education Plan as required for a special education diagnosis. Among the 127 students, 5 students (3.9%) have, or have had at one time, a 504 Plan in place. The types and varieties of any specific special education diagnoses or other health impairments were not requested or analyzed. Moreover, of these 127 students, three students (2.4%) within this group had both an IEP and a 504 plan at some point in their school career.

Sample characteristics. Signed parental consent forms were obtained from 71 of the 127 tenth grade gifted students. Among these 71 students, 33 (46.5%) were female and 38 (53.5%) were male. The demographic characteristics of the sample include one Black student (1.4%), three Hispanic students (4.2%), four Multiracial students, (5.6%), six Asian students (8.5%), and 57 White students (80.3%). The demographic characteristics of the sample are a very close approximation of the population of 10th grade gifted students.

No Black or Hispanic 10th grade females are identified as gifted, so none appeared in the sample. Similarly, when compared to the demographic characteristics of the WPS district as a whole (see Table 4), black students are underrepresented and White and Asian students are overrepresented in the sample.

Table 4

Racial demographic comparison of all WPS and the sample of identified gifted students, 2012-2013.

Race	WPS N = 17,425	Sample n = 71	Δ
White	62.7	80.3	+17.6
Black	20.2	1.4	-18.8
Hispanic	5.7	4.2	-1.5
Asian	4.9	8.5	+3.6
Multiracial	5.8	5.6	-0.2
Total Minority	37.3	11.3	-26.0

Note: All values included are percentages.

Additionally, among the 71 gifted students in the sample, nine (12.7%) currently have, or had at one time, an Individual Education Plan as required for a special education diagnosis. Among the 71 students, three students (4.2%) have, or have had at one time, a 504 Plan in place. The types and varieties of any specific special education diagnosis or other health impairments were not requested for analysis. Moreover, one male student (1.4%) within this group had both an IEP and a 504 plan at some point in his school career.

A Chi-square test was conducted to test the hypothesis that the presence of an IEP or 504 Plan would not be different for achievers and underachievers in the sample.

According to Field (2005), the Chi-square nonparametric test does not require normality of distribution, is applicable when testing for an association between two variables that are dichotomous, and each entry should be independent of other measurements. In the past, individual cell frequencies were expected to be greater than five, but due to the sophistication of the computing software available, that convention is no longer applicable (Bradley, Bradley, McGrath, & Cutcomb, 1979). Results are considered significant if $p < 0.05$.

Of the achieving gifted students ($n=54$), four (7.4%) had an IEP and two (3.7%) had a 504 Plan. Of the underachieving gifted students ($n=17$), five (29.4%) had an IEP and one (5.8%) had a 504 Plan. The difference in proportions between the achieving and underachieving group is statistically significant for the presence of an IEP, $\chi^2(3, n = 71) = 6.876, p = .029$, but not for the presence of a 504 plan, $\chi^2(3, n = 71) = 0.152, p = .697$. Therefore, the null hypothesis is rejected for the presence of an IEP but not for the presence of a 504 Plan.

Grade point average. Following the demographic analyses, an examination of the students' grade point averages (GPAs) was conducted to identify those students classified and targeted as gifted and underachieving. Grades were collected for both semesters in grades six through nine and for the first semester of grade ten. Grade point averages were available in the Eschool system for grades nine and ten. Grade point averages had to be calculated by hand for grades six, seven, and eight and were entered into an Excel spreadsheet to ensure accuracy. Among the sample of 71 students, there

were four students with a 4.0 cumulative GPA, and the mean cumulative GPA for all students in the sample during that time was 3.64 out of 4.0 ($SD = 0.4133$). As described in the research (Reis & McCoach, 2000), any student with a GPA below 3.0 in any semester was labeled as an underachiever. Within the sample of 71 gifted students, 17 (23.9%) students were identified as underachievers based on this definition, six (35.3%) were female and 11 (64.7%) were male. Among the 17 underachievers, 12 (70.6%) were White, one (5.9%) student was Black, two (11.8%) were Hispanic, two (11.8%) were Multiracial, and zero were Asian. An analysis of the gender and racial characteristics of the 17 underachievers reveals an over representation of males and students of color compared to the demographics of the population.

The mean cumulative GPA for all 71 gifted students was found to be 3.64 ($n = 71$, $SD = 0.413$) The mean GPA for the achievers was 3.83 ($n = 54$, $SD = 0.157$) and the mean GPA for underachievers was 3.18 ($n = 17$, $SD = 0.330$). Not only were the achievers found to have higher average GPAs, 3.83 compared to 3.18, but the achievers' GPAs were also found to have less variance than underachievers with a smaller standard deviation; 0.157 compared with 0.33, respectively.

A Chi-square test was conducted to test the hypothesis that cumulative GPA would be no different for achievers and underachievers in the sample. Results are considered significant if $p < 0.05$. As stated above, results revealed the cumulative GPAs of achieving gifted students were on average 3.83 whereas the cumulative GPAs of underachieving gifted students were 3.18. The difference in GPAs between the

achieving and underachieving group is statistically different from what would be expected by chance; $\chi^2(1, n = 71) = 50.192, p = .001$.

The non-parametric version of the independent sample T-tests, called the Mann Whitney U test, was used to analyze data from unknown population means (Gronlund, 1985) with small samples when normality cannot be presumed (McDonald, 2009). A Mann Whitney U test was conducted as the GPA data are continuous. The difference in cumulative GPAs between achieving and underachieving gifted students was statistically significant, $U = 23.0, z = -5.875, p = .001, r = .78$. Therefore, the null hypothesis is rejected for the difference in GPAs between achievers and underachievers.

Additionally, not only were the cumulative mean GPAs between achievers and underachievers significantly different, but the GPAs of the achievers and underachievers were significantly different for each semester of each grade level, 6, 7, 8, 9, and the first semester of 10th grade (see Table 5).

Table 5

Analysis of grade point averages (GPAs) for achievers and underachievers for each semester in grades 6-10, 2012-2013.

Grade, semester	Mann Whitney U	z statistic	p value	r value
6,1	169.3	-3.762	.000***	.18
6,2	74.5	-5.802	.000***	.08
7,1	30.0	-5.611	.000***	.07
7,2	40.5	-2.848	.000***	.07
8,1	92.0	-4.860	.000***	.10
8,2	137.0	-4.214	.000***	.15
9,1	41.5	-5.673	.000***	.05
9,2	12.0	-6.058	.000***	.01
10,1	45.0	-5.602	.000***	.05

*** $p < .001$

My analysis demonstrated that there were no dropouts among the gifted students in this grade level, which is a very positive occurrence. Upon further evaluation, no student presented the expected achievement pattern for Group One: low achievement early in their secondary school career then showing improvement over time. This outcome is disappointing as it would be illustrative to understand what influenced students who were able to raise their achievement levels. Therefore, the criteria for group assignment were changed following the data review. As a result, three distinct achievement patterns emerged among the 17 students labeled as underachieving gifted students (see Table 6). Five students distinguished themselves from the others by having only one semester below 3.0 during the nine semesters reviewed. They were labeled Group One. Five other students differentiated themselves by having GPAs above 3.0 in both 6th and 7th grade, then decreased achievement of for

up to four semesters; they were labeled Group Two. A third group of seven students is characterized by consistently low performance, including five or more semesters below 3.0, occurring anytime since 6th grade.

Table 6

Characteristics of the underachieving students categorized in Groups One, Two, and Three, 2012-2013.

Group	Pattern	semesters below 3.0	# of students
One	One isolated semester of poor achievement	1	5
Two	Good start early then achievement declines	2 – 4	5
Three	Consistent underachievement	5+	7

The cumulative GPAs of the four clusters of students; achievers and underachiever Groups One, Two, and Three; are presented in Table 7.

Table 7

Cumulative GPA by achievement status; achievers, Groups One, Two, and Three, 2012-2013

Achievement status	Cumulative GPA
Achievers	3.833 (0.157)
Group One	3.506 (0.075)
Group Two	3.233 (0.210)
Group Three	2.863 (.0323)

Note. Standard deviation in parentheses.

An Analysis of Variance (AONVA) test was conducted in order to determine if differences exist among the three groups of underachievers. An ANOVA test is an extension of the independent-samples T-test that is used to determine whether there are any statistically significant differences between the population means of more than two unrelated groups. The ANOVA test reduces the probability of a Type I error that could be created by conducting successive independent samples T-tests (Gravetter & Wallnau, 2008). The mean cumulative GPA of Group One is 3.506 ($SD = 0.075$), Group Two is 3.233 ($SD = 0.21$), and Group Three is 2.863 ($SD = 0.323$). The average GPA among the underachieving groups decreased while the variance increased. Not only are the GPAs of underachievers significantly different than those of achievers as confirmed by the previous statistical results, but the AONVA test revealed that the mean differences among the three groups of underachievers were statistically significant from each other; $F(6, 64) = 9.714, p = .004$. Therefore, the null hypothesis is rejected for the difference in GPAs among the three groups of underachievers.

Gender. Gender is evenly divided among the 54 students in the achieving group, 27 (50.0%) were male and 27 (50.0%) were female, however, among the 17 underachievers, there were 11 males (64.71%) and 6 females (35.29%). I utilized a Chi-square test to test the hypothesis that gender would be no different for achievers and underachievers in the sample. Results are considered significant if $p < 0.05$. The proportion of female underachievers was 35.3% whereas the proportion of male underachievers was 64.7% and, although males outnumbered females by nearly two to

one, the difference in proportions is not statistically significant from what would be expected by chance, $\chi^2(1, n = 71) = 1.124, p = .289$.

There were, however, some unusual gender differences among the three groups of underachievers (see Table 8) that deserve examination. Females were seven times more likely than males to be in Group One, having only one of the nine semesters below a 3.0 GPA. The average cumulative GPA for Group 1 is 3.506. Males were nearly three times more likely than females to be in either Groups Two or Three, having two or more semesters below a 3.0 (see Table 9). The average number of semesters below 3.0 for Groups Two and Three combined was 4.67 semesters out of nine, meaning the students in these two groups earned, on average, below a 3.0 GPA more than half the time from 6th to 10th grade. The average cumulative GPA of the students in Groups Two and Three combined is 3.017, 0.49 GPA points lower than Group One and 0.82 GPA points below the achievers.

Table 8

Gender breakdown and cumulative GPAs of underachieving students in Group One, Group Two, and Group Three, 2012-2013.

Group	Males	Females	Cumulative GPA
One	1	4	3.506
Two	4	1	3.233
Three	6	1	2.863

Table 9

Probability of gender distribution among underachieving students in Group One and Groups Two - Three, 2012-2013.

	Gender	n = 17	# students	%	probability
Group One	Male	11	1	9.1	1
	Female	6	4	66.6	7.3
Groups Two- Three	Male	11	10	90.9	2.7
	Female	6	2	33.3	1

Race. The racial demographics of the underachievers were also analyzed. The racial breakdown of the 17 underchievers is 12 White students (70.59%), one black student (5.88%), two Hispanic students (11.76%), two Multiracial students (11.76%), and zero Asian students. Compared to the demographic data of the sample (n=71), White and Asian students are underrepresented among the 17 underachievers and students of color are overrepresented (see Table 10).

Table 10

Racial demographic comparison for the sample and underachievers in the gifted program, 2012-2013.

Race	Sample n = 71	Underachievers n = 17	Δ
White	80.3	70.6	-9.7
Black	1.4	5.9	+4.5
Hispanic	4.2	11.8	+7.6
Asian	8.5	0.0	-8.5
Multiracial	5.6	11.8	+6.2
Total Minority	11.3	29.4	+18.1

Note: All values are percentages

In order to test the hypothesis that racial characteristics would not be different for achievers and underachievers in the sample, a Chi-square test was conducted. Results are considered significant if $p < 0.05$. A Chi-square analysis of the racial demographics revealed results that significantly differ from the expected ratios, $\chi^2(4, n = 71) = 9.825, p = .043$, indicating racial characteristics differ from what would be expected by chance and verifying the disproportionate representation among the racial groups.

Attendance data. In order to determine whether achievers were present at school more consistently than underachievers, I analyzed the students' attendance records. Attendance is counted by the hour, and attendance data are reported as a percentage of hours of the school year present. The length of each school year since the 2002-2003 school year, when these 10th grade students were in Kindergarten, has varied between 174 and 176 school days. Annual attendance data were entered into an Excel spreadsheet and averages calculated for all years each student attended WPS district, through ninth grade. The district-wide attendance goal is 95% attendance overall and per student. Achievers had an average attendance of 96.93% ($SD = 2.15$) while the underachievers average attendance was 94.89% ($SD = 2.63$). Achievers had higher overall attendance rates with a smaller variance than the underachievers. The Chi-square analysis of attendance reveals results that are significantly different from expected ratios, $\chi^2(1, n = 71) = 8.275, p = .004$. A Mann Whitney U test statistic was calculated, since the attendance data are continuous. These differences in attendance

rates were statistically significant; $U = 237.0$, $z = -2.991$, $p = .003$, $r = .36$. Therefore, the null hypothesis is rejected for the difference in attendance rates between achievers and underachievers.

Discipline data. Another data set that was analyzed relates to the students' official discipline record of all school incidents resulting in an office referral occurring between sixth and tenth grade. Incidents occurring before 6th grade were not considered because the process for evaluating and entering discipline decisions differs at the elementary level and would be impossible to fairly represent or quantify. Incidents were categorized as either minor or major, with minor incidents being classified as any incident resulting in one of the following consequences: principal conference, detention, parent call or conference, warning, spending time in the office, or no consequence. Major incidents were classified as any incident resulting in an in-school or out-of-school suspension. Conveniently, all incidents for which a written referral was created were handled by an Assistant Principal, assigned an incident and consequence code, and entered into the Eschool system. The minor and major incident types earned by at least one gifted student between sixth and tenth grade are listed in Table 11.

Table 11

Minor and major discipline incidents earned by gifted students in grades 6-10 resulting in an office referral, 2012-2013.

Minor incidents	Major incidents
tardy	drug possession
disruptive behavior	alcohol possession
disrespectful, insubordination	vandalism
defiance/disrespect/non-compliance	weapons
unprepared/no materials	property abuse/vandalism
cafeteria issue	computer misuse
harassment/intimidation	electronic violation
abusive/bad language/profanity	
obligations/overdue materials	
physical contact horseplay	
missed detentions	
fighting	
truancy	

There were a total of 126 minor incidents and 23 major incidents among the 71 gifted students between sixth and tenth grade, an overall average of 1.77 minors ($SD = 3.001$) and 0.32 majors ($SD = 1.24$) per child. However, the data are skewed toward a small percentage of the sample of students: Thirty-eight students (53.5%) have zero discipline incidents over the four and a half year period and 20 students (28.2%) have three or fewer minor incidents and zero major incidents during that same time, an average of less than one incident per school year. Five students had between 5-11 minor incidents (but no major incidents), whereas eight students accounted for nearly half of all minor incidents ($n = 56, 44.4\%$) and all 23 major incidents. Three of those eight students are in the underachieving sample and are the worst offenders. One white

female earned 12 minor and 9 major incidents, one white male earned 10 minor and 3 major incidents, and another white male earned 11 minor and no major incidents during the time span investigated. Achievers average 1.41 minor and 0.15 major incidents per child while underachievers average 2.94 minor and 0.88 major incidents per child (see Table 12). Underachievers had higher averages and more variability for both minor and major incidents.

Table 12

Analysis of discipline incidents for the achievers and underachievers, 2012-2013.

Achievement status	minor incidents	major incidents
Achievers	1.41 (2.48)	0.15 (0.53)
Underachievers	2.94 (4.13)	0.88 (2.31)

Note. Standard deviation in parentheses.

The Chi-square analysis of discipline incidents reveals results that are not significantly different from expected ratios, $\chi^2(2, n = 71) = 4.428, p = .109$. A Mann Whitney U test statistic was calculated, since the discipline data are continuous. Although achievers had lower averages for both major and minor incidents, these differences were not statistically significant; $U = 366.5, z = -1.359, p = .174$ for minor incidents and $U = 410.0, z = -1.105, p = .269$ for major incidents.

Intelligence test data. The data analysis also included an evaluation of the intelligence test scores among the 71 students in the sample. Intelligence test scores were reviewed as they are the main data point used in the initial identification of gifted students and, if statistically significant, could therefore be used to begin the process of

targeting potential gifted underachievers. While the mean full scale (FS) intelligence test score of the 71 students in the sample was 132.84 ($SD = 6.51$), there were differences between the scores of the achievers and underachievers. Overall the underachievers had lower mean scores and less variance on the Verbal Comprehension Index (VCI) subtests (Similarities, Vocabulary, and Comprehension), the Perceptual Reasoning Index (PRI) subtests (Block Design, Picture Concepts, and Matrix Reasoning), and on Full Scale scores as shown in Table 13. Additionally, the average underachievers full scale IQ score is below the minimum full scale score required for identification of 130 indicating they were identified using a qualifying score on either GAI index or the VCI or PRI subtests.

Table 13

Analysis of Intelligence test score (VCI, PRI, and Full Scale) averages for achievers and underachievers, 2012-2013.

Achievement status	VCI	PRI	Full Scale
Achievers	135.04 (8.56)	127.37 (9.09)	134.0 (6.37)
Underachievers	133.82 (6.10)	125.88 (6.54)	129.29 (5.75)

Note. Standard deviation in parentheses.

The Chi-square analysis of intelligence test scores reveals results that are significantly different from expected ratios; $\chi^2(3, n = 71) = 8.530, p = .036$. A Mann Whitney U test statistic was calculated, since the IQ data are continuous and results revealed a significant difference in the full scale IQ scores between achievers and underachievers, but not in the VCI or PRI scores (see Table 14). Therefore, the null

hypothesis is rejected for the difference in full scale IQ scores between achievers and underachievers.

Table 14

Analysis of intelligence test scores (VCI, PRI, and Full Scale) for achievers and underachievers, 2012-2013.

IQ score	Mann Whitney			
	U	z – statistic	p value	r value
VCI	392.0	-.589	.556	n/a
PRI	377.5	-.795	.427	n/a
Full Scale	248.0	-2.708	.007**	.3

**p < .01

Cognitive Abilities Test (CogAT) data. The Cognitive Abilities Test (CogAT) is administered to all WPS second graders and is used as a screening tool in the identification process for gifted program placement. Achievers had higher average scores in all four subtests and more variance in all subtests except non-verbal ability as shown in table 15.

Table 15

Analysis of Cognitive Abilities Test (CogAT) score averages for achievers and underachievers, 2012-2013.

Achievement status	verbal	quantitative	Non-verbal	Composite
Achievers	124.44 (12.30)	122.31 (11.66)	124.07 (12.53)	127.49 (12.15)
Underachievers	120.40 (12.11)	113.67 (10.94)	117.27 (15.93)	119.27 (11.02)

Note. Standard deviation in parentheses.

A Chi-square analysis revealed no significant differences for average CogAT scores; $\chi^2(4, n = 71) = 7.693, p = .104$. However, an evaluation of the CogAT subtest scores for the 71 students in the sample was conducted using a Mann Whitney U test since the CogAT data are continuous. Values for the statistical examination of the verbal, quantitative, non-verbal, and composite scores are shown in Table 16. The analysis reveals significant score differences for the quantitative and composite scores and insignificant differences for the verbal and non-verbal scores. Therefore, the null hypothesis is rejected for the difference in CogAT scores on the quantitative subtest and the composite score between achievers and underachievers.

Table 16

Analysis of Cognitive Abilities Test (CogAT) subtest scores for achievers and underachievers, 2012-2013.

Subtest	Mann Whitney			
	U	z - statistic	p value	r value
Verbal	264.0	-1.256	.209	n/a
Quantitative	170.5	-2.855	.004**	.31
Non-verbal	256.5	-1.384	.166	n/a
Composite	189.0	-2.538	.011*	.28

* $p < .05$, ** $p < .01$

Missouri Assessment Program (MAP) test data. An evaluation of the Missouri Assessment Program (MAP) test scores for both Communication Arts and Math subtests for grades 3-8 was also conducted in this study. Upon the analysis of Communication Arts MAP scores in grades 3-8, it was found that achievers had higher average scores in

all grades, with higher variance in grades 3-5 and lower variance in grades 6-8 as shown in Table 17.

Table 17

Analysis of Missouri Assessment Program (MAP) Communication Arts test score averages in grades 3-8 for achievers and underachievers, 2012-2013.

Grade	achievers	underachievers
3	696.56 (30.47)	679.86 (26.39)
4	724.78 (33.36)	700.17 (27.38)
5	721.69 (25.04)	710.11 (19.95)
6	713.27 (15.16)	694.73 (15.67)
7	731.86 (24.59)	706.13 (28.92)
8	745.18 (23.35)	720.94 (28.59)

Note. Standard deviation in parentheses.

The Chi-square analysis of average MAP test scores for grade levels 3-8 reveals results that are significantly different at the $p < .05$ level from expected ratios ; $\chi^2(6, n = 71) = 12.686, p = .048$, warranting further analysis. A Mann Whitney U test statistic was calculated, since MAP data are continuous. An analysis of MAP Communication Arts grade level test results revealed a significant difference in scores at the $p < .05$ level for 4th grade Communication Arts scores, a significant difference in scores at least at the $p < .01$ level for 6th, 7th, and 8th grade Communication Arts scores, and no significant difference for Communication Arts scores in grades 3 and 5, as shown in Table 18. The null hypothesis is rejected for the difference in MAP Communication Arts scores in grades 4, 6, 7, and 8 between achievers and underachievers.

Table 18

Analysis of Missouri Assessment Program (MAP) Communication Arts test scores in grades 3-8 for achievers and underachievers, 2012-2013.

Grade Level	Mann Whitney			
	U	z - statistic	p value	r value
3	68.0	-1.340	.180	n/a
4	47.0	-1.963	.050*	.31
5	119.0	-1.221	.222	n/a
6	138.0	-3.344	.001**	.46
7	179.0	-3.052	.002**	.39
8	167.5	-3.652	.000***	.38

* $p < .05$, ** $p < .01$, *** $p < .001$

Similarly, an analysis of MAP Math test results was conducted as shown in Table 19. Achievers had higher average scores in all grade levels, 3-8, with higher variance in all grades except grade 3.

Table 19

Analysis of Missouri Assessment Program (MAP) Math test score averages in grades 3-8 for achievers and underachievers, 2012-2013.

Grade	achievers	underachievers
3	678.69 (38.01)	662.0 (38.41)
4	687.09 (64.30)	683.5 (24.64)
5	707.39 (62.19)	697.67 (30.80)
6	730.98 (33.48)	699.53 (28.25)
7	751.60 (32.22)	724.73 (30.97)
8	777.59 (32.99)	740.47 (25.68)

Note. Standard deviation in parentheses.

A Mann Whitney U test revealed a significant difference in scores of at least the $p < .01$ level for 6th, 7th, and 8th grade Math scores and no significant difference for Math

scores in grades 3, 4, and 5 (see Table 20). The null hypothesis is rejected for the difference in MAP Math scores in grades 6, 7, and 8 between achievers and underachievers.

Table 20

Analysis of Missouri Assessment Program (MAP) Math test scores in grades 3-8 for achievers and underachievers, 2012-2013.

Grade level	Mann Whitney			
	U	z - statistic	p value	r value
3	86.0	-1.107	.268	n/a
4	71.5	-.981	.326	n/a
5	109.5	-1.490	.136	n/a
6	134.5	-3.405	.001**	.38
7	154.0	-3.442	.001**	.34
8	99.0	-4.657	.000*	.45

** $p < .01$, *** $p < .001$

EXPLORE test data. Further data examination continued with an analysis of the Explore test results. All 8th graders in the WPS district take the Explore test, which is administered by the Educational Testing Service (ETS), the same company that writes and administers the ACT. The results of the analysis of the Explore subtest scores for achievers and underachievers is shown in Table 21. Achievers, again, had higher average scores and less variance in all Explore subtests.

Table 21

Analysis of 8th grade Explore subtest score averages for achievers and underachievers, 2012-2013.

Explore subtest	achievers	underachievers
English-usage/mechanics	10.98 (1.00)	9.06 (2.33)
English-rhetorical skills	10.85 (1.01)	9.24 (1.99)
English - total	22.71 (2.14)	18.41 (4.29)
Reading	20.60 (2.97)	17.94 (3.66)
Math	21.75 (2.68)	18.59 (3.04)
Science	21.81 (2.29)	19.88 (2.89)
Composite	21.72 (1.93)	18.88 (2.87)

Note. Standard deviation in parentheses.

The Chi-square analysis of all Explore test scores reveals results that are significantly different at the $p < .01$ level from expected ratios, $\chi^2(7, n = 71) = 25.015, p = .001$, warranting further analysis. A Mann Whitney U test was conducted, since the Explore test data are continuous. Analysis of Explore results revealed a significant difference in all subtest scores; specifically significant differences of at least the $p < .01$ level for the subtests of English usage/mechanics, English rhetorical skills, English total, Math, and Composite scores and a significant difference in scores at the $p < .05$ level for the Reading and Science subtests (see Table 22). Therefore, the null hypothesis is rejected for the difference in Explore test scores for all seven subtests between achievers and underachievers.

Table 22

Analysis of 8th grade Explore subtest scores for achievers and underachievers, 2012-2013.

Explore subtest	Mann Whitney U	z – statistic	p value	r value
English- usage/mechanics	190.0	-3.385	.001**	.50
English-rhetorical skills	188.5	-3.400	.001**	.39
English - total	141.0	-4.031	.000***	.55
Reading	242.5	-2.506	.012*	.34
Math	176.5	-3.490	.000***	.44
Science	239.0	-2.558	.011*	.32
Composite	161.5	-3.713	.000***	.49

* $p < .05$, ** $p < .01$, *** $p < .001$

School Attitude Assessment Survey-Revised (SAAS-R) data. The final quantitative measurements were conducted on the answers to the School Attitude Assessment Survey - Revised (SAAS-R) questionnaire (see Appendix G), which was administered during the school day. Student participation was optional; among the students in the sample who were in attendance that day, 51 elected to participate. These students included 14 (27.5%) classified in the underachieving group and 37 (72.5%) students classified in the achieving group. The 35 items in Part I, scored on a Likert scale with values of one through seven, seven being the highest value, were designed to measure five constructs, and the two items in Part II were self report items for GPA and hours per week devoted to homework. The items in Part II were assigned a numerical value for the purpose of performing calculations. The time per week for homework question was coded with scores 8 through 1, with the value of eight corresponding to the most hours

of homework per week and one corresponding to the fewest. The GPA question was not coded for evaluation from this instrument, as GPAs were collected from the district's Eschool system and are expected to be more accurate than the student's estimation of their GPA. The average scores for the groups of achievers and underachievers are specified in Table 23. The achievers scored themselves higher in all five constructs and reported they spend more time per week on homework compared to the underachievers.

Table 23

Analysis of the SAAS-R inventory results for achievers and underachievers, 2012-2013.

Construct	SAAS-R items	Average achievers' score	Average underachievers' score
Attitudes towards teachers and classes	1, 9, 14, 16, 17, 31, 34	5.27	5.18
Academic self perceptions	2, 3, 5, 11, 13, 20, 22	5.95	5.61
Attitudes towards school	6, 7, 12, 19, 23	5.59	5.47
Goal valuation	15, 18, 21, 25, 28, 29	6.53	5.63
Motivation/self regulation	4, 8, 10, 24, 26, 27, 30, 32, 33, 35	5.05	4.52
Average hours on homework, self report	2, part II	4.14- Just over "5-10 hours per week"	2.86 - Just under "3-5 hours per week"

The Chi-square analysis of all SAAS-R construct scores reveals results that are significantly different from expected ratios for only the Goal Valuation (GV) construct, $\chi^2(17, n = 51) = 27.435, p = .05$, warranting further analysis. A Spearman's Rho

calculation was conducted as the data are ordinal, with the results revealing a negative and significant correlation for only the goal valuation construct: Spearman's Rho; $\rho = -.327, p = .019$. A Mann Whitney U test statistic was calculated on the GV items only, indicating a significant difference: $U = 152.5, z = -2.312, p = .021$. Therefore, the null hypothesis is rejected for the difference in goal valuation between achievers and underachievers.

Finally, results of the PLAN test, taken by all WPS 10th grade students, were not available in time for the data analysis for this research study. Additionally, End of Course (EOC) exams are administered in a few high school credit classes, mostly in Algebra I and Algebra II. EOC exam scores were available for only a few students and did not comprise a large enough sample to analyze.

Qualitative Analysis of Student Interviews

Student participants were interviewed for this study so that I could capture their experiences and perceptions of being underachieving gifted students in WPS. Interview questions were chosen in an attempt to address the conceptual and theoretical frameworks associated with SDT. Analysis of the data revealed several emergent themes. The characteristics of the 10 interview subjects are summarized in Table 24.

Table 24

Interviewee characteristics

Name	Race	Gender	School	IEP	504	Group	Semesters below 3.0	Cum GPA
Ana	White	Female	1	Y	N	1	1	3.59
Bonnie	Multiracial	Female	2	Y	N	1	1	3.43
Chris	White	Male	2	N	N	2	2	3.41
Danny	White	Male	2	Y	N	2	2	3.31
Emily	White	Female	1	N	N	2	3	3.10
Franklin	White	Male	2	N	N	2	4	3.41
Gary	White	Male	2	N	N	3	5	2.97
Harry	Hispanic	Male	2	Y	N	3	5	2.84
Ingrid	White	Female	2	N	N	3	7	2.48
Jerry	White	Male	2	N	N	3	8	2.53

Note: All in interviewees were given pseudonyms in order to ensure participant confidentiality.

All ten of the students interviewed expressed a clear distinction between motivation to complete school assignments and the motivation to complete or participate in activities outside of school. All ten students mentioned aspirations for a post-secondary goal, including college attendance. All students but one, who will be discussed later, described themselves as motivated learners who like to learn with varying levels of motivation as a student. Four themes emerged from the comments made by the nine students during these interviews that are illustrative of the issues typically faced by gifted students: time, teacher characteristics/quality, relationships, and instructional strategies.

Time. With regard to time, nearly all students made various comments relating to the amount of teacher interaction they received, the pacing of the content within their courses, and a decrease in their intrinsic motivation. These comments relating to

time can be summarized as follows: 1) time getting attention from the teacher, 2) time in class spent on the curriculum, and 3) time spent at home on homework assignments. One aspect of class mentioned by a few students is the high teacher/student ratio in their classes, which limits the amount and quality of time and attention they receive from their teachers. Chris relayed this concern concisely by saying

There's too big of a student to teacher ratio and so the classes have to be based on what the average or lowest ability student can achieve...I get things faster than a lot of people and then I don't like doing the busy work that's based off that same material. I tend to find myself in environments that something will be taught and then I have to still do the [home]work once I know it, which is frustrating.

Students commented on the amount of time in class that they felt was wasted, and they longed for choices and flexibility in how they progress through the curriculum during class time. Ingrid stated that her motivation in classes where she was allowed to make curriculum choices was greater than in classes in which the tasks and assignments were all prescribed by the teacher. She stated, "I love art, and I participate a lot in art, and I put actual thought and creativity in. But, there's classes...that I just want to get through and get done."

Secondary to the idea of making choices regarding the curriculum of the class is the pacing of the curriculum, whether the students got to make choices or not. Most of the students expressed dissatisfaction with the slow tempo of their classes and a strong desire to progress at their own pace, even in honors level classes. I asked Bonnie to describe a class she liked and she commented bluntly that her favorite classes were the ones "where I can go at my own pace for things." Several students used the word

“freedom” to describe the increase in motivation that accompanied the flexibility and choices they preferred. Harry described it as “the freedom to do whatever work needs to be done. Or not do the work if it doesn’t need to be done.” Ana also articulated this feeling, describing a class in which she was allowed to choose the topic of a long-term project and felt as though she was able to progress as needed. She stated:

There’s a very big [project] we are doing. They basically are giving you, like, here are the [tasks] that have to be done. No particular order but also these are how you have to do them. And, just being able to know what you have to do but not like ‘do this, then this, then this, then this.’ It’s structured so you know what’s expected of you, but not so structured that you feel, like, smothered. I feel like it’s an invitation for independence.

Chris took the opposite approach, describing classes he didn’t like:

...Classes where the content being taught isn’t flexible, or [where the] teacher is on a rigid schedule and teaches by the book exactly what the book wants to teach isn’t as good for me because I can read the book... having a teacher there doesn’t change anything. It might as well be a course that’s given to us online or something.

Students elaborated on the theme of time expressing a desire for more effective use of the block schedules that would limit the time off task during class. Again, Chris stated,

And it’s a little bit frustrating when I’ve been done with one assignment for 30 minutes and haven’t really been doing anything and then 5 minutes before class is done I get homework. The time can be a lot more efficient if all the work is handed out and then those who can do [the class assignment and] the homework in class actually have that chance.

Most of the students commented frequently on the idea of being held accountable for learning the concepts and then not having to spend time completing the

assigned tasks, which for other students may be necessary, but is not necessary for them. Franklin aptly called these the “formalities” of schooling. During the interview, he used the word ‘formality’ a few times so I asked him to define its application. He stated,

Formality, any, like, set of rules, like, I’d say even punctuation falls under this. Any, like, the minutia of stuff. The minutia of the complicated things they make you follow because it’s school and that’s what they like to do now...I feel like the content of an idea is much more important than the little things they require for you...Cause the little things they require, I know cause, um, I’d almost say content is more entertaining for me. Um, but uh, really is the format really that important once you have the idea? Without the idea, the format is great, but it’s just, it’s boring is all. It’s not important if you grasp the grand concept of the idea.

Chris describes the perfect school as a place where the assessments are

based on your ability to get the information in your head. You do the homework but it’s never graded because you have to do the homework if you’re going to do well on the tests. The homework has a purpose. And, if you get the idea, then you don’t have to do the homework ‘cause you don’t need that extra practice, and so that way... It’s more of if you can [learn it]... It’s self-evaluated, do I get this or don’t I?

The students articulated their motivation to learn new concepts and were not motivated to spend time doing school work they do not see as advancing their learning.

Gary said, “It becomes work that I don’t really see the necessary ends to. I don’t really see what I’m getting out of it. I feel that, [if] I understand the curriculum enough...I don’t see the point of doing all the work. It seems very lazy of me but it’s just how I feel.”

Building on this point is the desire for adequate challenge and, therefore, less wasted time in their classes. Classes that were too easy were described as un motivating. Gary stated that a challenging class really “brings the information to life and not just because

some Johnny Pencil Pusher put it on a page and here I am having to read it. There's meaning to it."

The students acknowledged that their outside school activities often take precedence over their school work, and several used the word 'procrastinate,' especially when they viewed the homework as repetitive or unnecessary for concept acquisition. Danny was very honest stating, "When it comes right down to it, I always think of something better to do...Like, procrastination is like a huge [problem] I have." And Chris added, "[Am I] a motivated learner? I would say, yes, but... the thing that gets me is the homework I don't see the point of."

A few students clearly articulated a difference in their motivation between school and home. Bonnie honestly admitted,

You know, I am motivated, sometimes not so motivated to do things outside of school. That's so hard. Like, to continue what we are learning here outside of school is really hard for me... Like, I'll sit on my bed, and I'd rather stare at the wall than do the work outside of school.

Harry said he would be much more likely to complete the work at school even if it meant lengthening the school day. He stated, "Probably I'd be willing to go to school for an extra 30 minutes if they had classes just set up for you to do homework in. Like I'd seriously be willing to do this." Bonnie concurred with Harry stating, "I would do more in class work. I feel like when there's something going on around me and everyone's working on the same thing, then I work on it too. And I feel that's better."

Each student mentioned that they find the time to complete school work and homework that they find interesting. Ana commented that in general she likes “understanding the world and figuring stuff out. I think that’s fun. I don’t really need much motivation for learning other than learning for the sake of learning.” Franklin, a teenage boy, confirmed “For the past three weeks, I have been working on a C++ lab. I’ve been staying up til 1 am on many separate occasions...If that doesn’t scream of motivation, I don’t know what does.”

Teacher characteristics/quality. A second theme that emerged from the interviews dealt with the characteristics and quality of a teacher whom the students find motivating. Students wanted teachers who were enthusiastic, knowledgeable, and caring and were not shy about sharing their thoughts. Gary stated “They have to be enthused about what they are doing. Because sometimes, if the teacher is just not into it, then it’s hard for the class to be into it as well.” Ana said she is motivated by teachers who

you know, take it seriously, and not like, ahh, [say] here [just copy] these notes. Teachers who enjoy what they’ve been doing. Who clearly are passionate about... that’s a tall order but...passionate about what they are teaching.

Ana further related this issue to the previously discussed issue of adequate challenge. She said, “They talk to you, they challenge you, [and] they keep you involved.” Harry described a motivational teacher like an onion.

Like, you got your teacher layer, you got your friend layer, you got your education layer. So the teacher level, they tell you what to do, they tell you how to get it done, and then they help you. On the friend level, they like make jokes and you can joke with them. Then there's the education level. Like, you're hoping they have their education together.

Students also said they desire constructive and copious amounts of communication from teacher to students. They want constructive feedback on their work given in a timely fashion. Ana stated that timeliness helps her stay focused and up to date in her classes. "I think just the teacher/student communication [helps], and I feel like is very important." Collectively, the students wanted teachers who know their content well, can ask and answer questions at a high level of depth and complexity, and seem to care about the students. This issue of caring converges directly with the third theme emerging from the interviews: relationships.

Relationships. The topic of relationships permeated the comments during all of the interviews. The students spoke candidly about their relationships, or lack thereof, in regards to parents, the teachers in their school, and peers and the presence of a positive relationship supports the students' intrinsic motivation. Often, it was difficult to tease out students' comments relating to teacher quality or instructional strategies from their thoughts about the relationship with a particular teacher. These two issues seem to be finite entities but also inextricably linked. Students want to feel that the teachers care about them and see them as individuals. When this aspect of a class is missing, it affects their motivation. Ana stated, "I get very frustrated when teachers talk down to me like I

feel they do. And I get irritated with that. And so I don't hold that class as [a] high priority because I didn't respect or like the teacher."

Students want flexibility and more individual assistance when struggling with the course content. Emily described a class where she can go over previous material, which helps her to both learn the material better and improve her grade. She states,

Like, we can do quiz corrections where we just write the thing that we missed a bunch of times, and we can also retake the quiz. Like before, I just thought it was for improving my grade but actually if you do a lot of them, and you write them down multiple times, it makes it easier to remember what they are.

Students also want positive relationships with their peers and they find they mostly get this from outside of school activities. Many students expressed a desire to work in a group project in class to enhance their learning but Ingrid

noticed that there's some downfalls, like, if you are paired with some group members that don't do any work, you end up doing it all just to get a good grade. Not all of them don't care. But [when it's good] you can get people's opinions and make it a better project usually.

Ana described her activities outside of school as being in a place with you are "with other kids like you" and "when I'm there, I'm whole-heartedly there, I want to do things, I'm here, let me be helpful." Gary is motivated in his athletic activities more because "in the end, I'll know I'll have made relationships with people that are going to be everlasting and I'll physically better myself, and I'll be more fit, and that will lead to a healthier life."

Two of the female students interviewed seemed to couch most of their responses from the point of view of a relationship. No matter the question I posed, Bonnie often expressed her thoughts about school using words and phrases such as “uncomfortable,” “low self esteem,” “being judged,” and “feeling stupid.” She worried that teachers were “picking on” her, would be “mad” at her, or that she’s “wasting their time.” Her eyes lit up when she shared a story about one “amazing” teacher she had in junior high school who happened to be the teacher in the gifted program. This teacher created an atmosphere where she felt like she “fit in.” She stated “I’ve always felt, like, the really weird awkward friend, like who’s not really anybody’s friend. Like, they are just pitying me somehow.” Even when discussing her outside of school activities, in which she said she was motivated to participate, her comments still centered around her feelings of inferiority among the other students in the group. Sadly, she states that she just does not like people and that school would be better if there were no other people around. She states, “Group work has always been, like, people don’t like me. Like, there’s other kids that are like ‘No, we’re gonna do it this way.’ I feel like it’s really hard when I feel like nobody likes me at school.” Ingrid responds to the questions in a similar manner using phrases like “being judged,” “feeling accepted,” “being tolerated,” and being called a “freak.” These students are motivated to work for and with teachers and groups where they feel they have a positive relationship. Bonnie and Ingrid responded to different situations the same way, emotionally, and evaluated their desire and motivation toward that situation accordingly.

Interestingly, although most students discussed their parents as being concerned and reasonably involved in their academic performance, parents did not exert as high an influence on motivation as was expected. Harry mentioned his parents “try really hard” to encourage him to do better in school with little positive effect, and Danny said it helps when his parents check the online Eschool system to help him track his grades. However, none of the students seemed to believe their parents could have a big impact on their motivation. Several mentioned they believed incentives worked better than punishments in influencing their motivation toward school and homework. Ingrid, who comes from a family that has experienced some turmoil over the last few years, expressed the most direct opinion on her parents’ influence on her performance. She said it would help “if my mornings didn’t start out with some[one] screaming horrible things” and if her mom could “be more excited when I bring home things, like my grades. ‘Hey mom, I got a bunch of A’s’ and she’s like, ‘That’s great, go away.’” Ingrid also said she’s working toward graduating a year early and joining the military; it appears her negative experiences at home are strongly influencing that goal.

Instructional strategies. The fourth theme supporting intrinsic motivation emerging from the student interviews was a longing for a certain type, variety, and implementation of effective instructional strategies in their classes. Many of the students expressed their general motivation to learn new things. Several elaborated on that topic to include a desire to learn about subject matters in greater depth and complexity than they typically get to do. Chris described himself as “someone who tries

to learn about something as much as possible before it's talked about in class, so I'm prepared to ask questions so that I can learn deeper than what I could normally." Gary wants to experience topics in class with meaning attached and "some kind of depth or complexity or application" to the real world. In the same vein, Danny wants "smaller classes, less homework, [and] less emphasis on grades" and more focus on gaining knowledge.

A hands-on approach to learning is preferred by many of the students interviewed. Most of those who stated a preference for hands-on learning also mentioned that they take Career Center classes for the opportunity, as they seldom experience hands-on learning in core class subjects. The local area Career Center is housed on the campus of one of the two high schools. It offers classes that combine workplace readiness skills with real life training in areas such as computer programming, culinary arts, nursing, firefighting, welding, and veterinary science, among others. Students can take classes during the school day, earn dual credit through local universities, and leave high school with certifications in many career paths allowing them to get a job immediately after graduation. Harry elaborated why the hands-on approach offered at the Career Center is preferable:

It's hands-on. It's entertaining. And, [now] I know how to do it, I can explain it to myself. Hands-on, connects [it] to the other hands-on things. I like those. That's why I like Career Center classes. I prefer the hands-on because it, uh, you know, I can think about it as [I'm] doing it and I just I don't like lectures. [When] they are like lecturing, lecturing, lecturing, then [they give us a] handout. And, I'm like 'one more time?' [Lectures are] long and they make me sleepy.

These students prefer open communication and clear expectations focused on learning the concepts being presented. Ana said she prefers teachers who “like, take a really hard thing and [break it] into small tasks” so she can see how the tasks are connected to each other and to the curriculum as a whole. Harry describes how he feels his advisory class – a 90-minute study hall class all 10th graders take – is best structured:

In the beginning of the year it was a good thing. Forty-five minutes of study, then go do what you want. [If I were the teacher, I'd say] “You, kid, tell me what you need to do. Ok, 15 minutes, go [do that], nothing else. Do it.” After that, go do whatever you want. But tell them like before they get started on anything else. The moment they walk in the room, like, “What do you need to do? Go do that, don't even start anything else. Other people, don't talk to him while he's doing that.”

When I asked why that kind of communication and direction were helpful, Harry responded, “I get distracted easily I guess. Like ‘ohhh, a nice shiny ball. <laugh>” Harry was very animated during the interview, often using his hands to express himself, and he and I laughed a lot during his interview.

The students I interviewed like to think creatively, analytically, and critically and to be asked to do so in their daily classes. Ana says not all lecture scenarios are bad as long as opportunities for critical analysis are present. “I like class lectures where, like, they ask questions and they ask us to infer things. I really like that.” Franklin concurs, stating that if the lectures are interactive

it gives you the opportunity to bring out ideas, have other people view them, and then have them bring out their own ideas that you can think on. I just can't stand somebody just throwing ideas and concepts at me and non-stop. I just don't like it as opposed to where I can interact with others. Even a Socratic [seminar] is just an interaction with an idea.

Gary discussed why he thinks his 7th grade Algebra teacher was a good teacher:

He knew that the district wanted him to teach certain things. And so he would give us those almost up front the first day because this is what we had to learn. But then he would go beyond and show us where these things came from. And, he would take it so much deeper; it was more learning about why not just how. He showed us where the formulas come from and why they made sense.

Teachers must establish meaning in order for students to feel motivated to learn the material. Ingrid talked about the nature of most of her classes; “They don’t really elaborate on [concepts], and they don’t really explain to us what it means. It’s just, like, [telling us] this is the definition, this is an example, write it down.” The students I interviewed like to learn new things. However, somewhere in their years in the educational system, the fun of learning became work, and they became unmotivated to do that work. Bonnie said “I’m a really good learner when I want to be learning what I’m learning.” Gary went on to say that classes are best when “they [teachers] ask you why and they ask you to look at a bigger picture.” When no meaning is established for the concepts in the curriculum, these students view it as unnecessary work and as a result, often do not complete it.

All of these students understand and can describe their learning style, and they want teachers to plan accordingly. Gary sees himself as

a pretty adaptable learner, although more recently I’ve been seeing that I sort of go with auditory learning better. Like if a teacher is standing up and physically speaking about what they are trying to teach us, I take it in better. That, like, coupled along with, like, if I have something like to read

off of, like bullet points, that summarizes what they are saying but then they go more in depth is what works best for me.

But they also understand that a good teacher can accommodate multiple learning styles in the classroom. As Danny put it, “just because I want to learn one way doesn’t mean somebody else doesn’t want to learn another way, ‘cause we’re all different people. We’ve all gone through different experiences in school.” These students are motivated when they feel there is a fit with their learning style and the instructional strategies presented in their school work, as Gary said, otherwise the work is “mundane” and “restricting.”

Collectively, these students expressed that they had an internal desire to learn new content, at least when they were younger. They each differentiated their desire to learn and their desire to complete school related assignments impacting their grades. Unfortunately, through years of public school experiences, the students’ motivation has been negatively affected by the structure and orientation of their schooling. The four themes of time, teacher characteristics/quality, relationships, and instructional strategies work in concert to either enhance or diminish a student’s intrinsic motivation to complete the necessary “formalities” to achieve at a high level as measured by their GPA.

Motivation. Each student might have approached learning differently, but collectively they all had a reason why they were motivated to learn in a certain subject matter but not motivated to do the work, a distinction that made a big difference. Chris explains, “the motivated student is more based on the grade system [and] a motivated

learner is based on how much you really care about learning.” Gary added “I’m the Victor Frankenstein of learning. I gotta learn,” while in the next breath explaining why he often does not do the homework. Franklin said he feels a good student

sees [the importance] of the system, they go through a set number of classes and a set number of things but I don’t think I’m necessarily a motivated student. I feel like there’s a lot of classes I put a minimal amount of effort into because I can. And that’s *just* because I can... but then there’s classes like AP World and C++ which have tasks I’m genuinely interested in. And, honestly, several of them I probably would have studied anyway if it had been up to me. And, um, so I feel like that’s the distinction whether you enjoy self-directed learning or whether you enjoy just being part of the system. And, I understand the need of the system and I understand that I have to do well in the system if I want to do well in life. Usually.

Ana expressed her opinion that internal motivation originates from justifying her abilities to herself. “I take it as, like, part of my self-identity that I’m very smart so when I don’t understand things I get frustrated. So that is irritating but it does help motivate me more. And I think, ‘I’m smart, I should be able to do this.’”

Several students described their lack of motivation directly related to the simplicity of the curriculum or the quality of the teacher relationship. Emily stated that in many of her classes, the content was so easy that motivation was not necessary to earn a good grade. She said, “I don’t really feel motivated to try because I don’t really need to try. I don’t need, like, an extra boost of motivation to do work and get a good grade on it.” Bonnie stated, “If you don’t feel like you’re clicking with that teacher [then] motivation for that content changes.”

The motivation for participation in extra-curricular activities (ECAs) was distinctly different for many of the interview subjects. There were multiple and varied types of ECAs mentioned in the interview sessions. Collectively, these students participated in after-school sports (i.e., volleyball or track and field), school sponsored clubs (i.e., Robotics, Drama, or the Zombie Defense League, where students dress up like zombies and chase each other around school), or engaged in volunteer work (i.e., judging poultry competitions or working with disabled students through a local organization that provides therapy through horse-riding lessons). The students described their intrinsic motivation to participate in these activities very differently. The volume and tone in their voices increased as they discussed their immersion in these events. Their eyes were brighter, more connected to their words, and they made better eye contact with me during these discussions.

Additionally, it was not just their thoughts about these activities that were different. The actions taken on behalf of the organizations were qualitatively different than those actions taken on behalf of themselves and their grades in school. For example, Chris described his leadership role in his local Boy Scout troop. He said that weekend troop camping trips that had fallen through the cracks in past years were held “mainly because [he had] been able to push for it.” On the other hand, Chris describes his efforts toward getting his homework completed as if he has “extra time in class I’ll work on it. Um, but if I don’t have any extra time in class then it doesn’t get done.” He

did not imply any “push” involved in the homework aspect of school the way he described his contribution to scouting.

Franklin, who earned less than a 3.0 GPA for four semesters, participates in a competitive Robotics league, which in the scheme of his ECAs, “is really the big one ‘cause that’s 3 hours a day after school.” Three hours a day after school is quite a commitment of time and energy for a 10th grade boy. Franklin is the student who summarized his late hours dedicated to a computer programming class as “scream[ing]” motivation. Together, these students are not universally unmotivated. Rather, they are situationally unmotivated and selectively choosing the activities to which they will give their full effort and attention, in contrast to activities that get, at best, a cursory glance.

Goals. Although each student approached his/her future goals and aspirations differently and with varying degrees of certainty, they all had their sights on a work- or school-related goal after high school. Ingrid wants to graduate early and join the military ROTC program “as soon as I’m 18.” Danny said he is not sure what he wants to study but “I want to go to college. I want to be successful. I don’t want to be a deadbeat hobo.” Gary saw life lessons connected with working for and achieving his goals in athletics. “There’s a rush I get out of it that I don’t get anywhere else. There’s a sense of freedom and then it’s also something I’m good at and I feel a sense of accomplishment with.” Danny articulated a common need for help focusing on future goals when he stated,

Yeah, age comes with wisdom. I understand how everything works now and what I need to do. Back then, like, college and everything seemed so

far away, and like graduating high school seemed so far away. Now I know I need to do things so I can become an educated adult.

Ana got very animated when I asked her what she wanted to do with her life.

She had a very specific answer stemming from a book she read as a child.

Oooh, this question. Um, ok, so my absolute dream had been since I read *All Creatures Great and Small*, is to move to Wales and be a veterinarian for horses and large farm animals. I love animals, I love veterinary science. I love Wales. That is my absolute dream.

Ana expressed doubt about the challenges in pursuing a veterinary career but that was clearly her future goal.

With a few slight exceptions, all of these students specifically mentioned college. As previously mentioned, Ingrid wants to join the military first, but in part because she can get help with college costs. Bonnie did not mention attending college as a goal specifically but she did state she wants to be a social worker, which requires a college degree. Emily focused on post-secondary aspirations in her own way. She said, ultimately, she wants to be a nature photographer. Although she did mention college as a goal, she also expressed her desire for high schools to put less emphasis on college and more emphasis on goals related to other post-secondary options.

I think that most of the teachers here are only concerned about getting kids into college. Which I'm not saying that it is a bad thing, but also like looking in the big perspective of life there's other good job opportunities out there that could help people [get good paying] jobs that don't necessarily require you to go to a good college. Or if you wanna like take a year off and travel abroad somewhere or do something like that. I don't think college should be like the number one priority, and I think people should focus on more of the big picture and what's actually important to them and what people value in their life. I think if more kids started to

think for themselves about what they actually wanted to do, then maybe they wouldn't all be so focused on doing what the teachers think is the best for them. Because I mean, you can take your life in any direction that you want to.

Together, these students have goals and aspirations for future achievement. They do not always, however, see the connection between the courses and content they are expected to learn in high school and those future endeavors. Again, even with their goals in mind, they select the activities to which they will give their full attention, employing an inherently different assessment on the grading system than do their parents or teachers.

Jerry: The stereotypically unmotivated student. Jerry poses a unique caricature of an underachieving gifted student and thus warrants his own analysis. He has the poorest achievement among the group of students interviewed. He earned below a 3.0 GPA for eight of the nine semesters under investigation, the most of any of the 17 underachievers, and he once earned a GPA below a 2.0. Jerry distinguishes himself by his statements as the only student who is unmotivated in both categories of learner and student, both inside and outside of school. He is not just unmotivated to complete the “formalities” of school. Jerry often used the word “passive” as he described a reluctance to complete assigned tasks for any class.

I just don't like doing a whole lot of stuff. Like, if I can get stuff done passively, then I can get it done. I don't do stuff that I need to get done for classes [even if] I feel [they] are really important. I try not to let my grades slip too low but I'm not, like, shooting for the top... I kind of, like, memorize stuff. Not so much when I'm trying to, but more of just when

I'm listening to it passively. I'm not exactly the most, like, productive person.

Another way in which Jerry diverged from the others is in his description of his outside of school activities, or lack thereof. He was the only student not meaningfully involved in any extra-curricular activity, school-sponsored or otherwise. When I asked him to describe his activities outside of school, he responded "Nothing really. I've got kind of a lame life right now. I don't do much. I play a lot of computer [games]" alone at home after school. Jerry took the conflicting approach from the other interview subjects who prefer enthusiastic, caring teachers. When characterizing enthusiastic teachers, Jerry called them "annoying, [with] no real world application but just like this thing with [certain] teachers...they're always so enthusiastic. I just don't get it."

Jerry also did not discuss a relationship with anyone – students, parents, or teachers. On the contrary, Jerry states his mother's enthusiasm for reading is also "annoying" (his mom is a local school media specialist). He continues, "I'm not just a fan of people, people just get on my nerves." Jerry describes his grades as "alright" and himself as a "good" learner "by [his] standards [but] by most of the school's and probably my parents' [standards], maybe not." Jerry continues, "if what we're learning is fairly interesting then I grasp it pretty well," as long as he doesn't have to complete any assignments related to the content. He did not distinguish between "grasping" the concepts and doing well on a graded assessment related to that concept, so I was unable to determine the criteria he was utilizing to determine if he had "grasped" a concept. Jerry mentions college as an eventuality, not as a personal goal. When asked

what he wanted to do with his life Jerry replied, "Um, well, I don't know. I am going to college, probably [the local university] cause I get half off cause my dad works there." Jerry does not make the connection between a cumulative GPA of 2.53 at this point in his high school career and diminished likelihood of getting accepted into the local university, even if his father is an employee.

Jerry's body language and demeanor during the interview also distinguished him from the others. Jerry wore all black, with a hoodie pulled over his head, slouched very low in the chair, spoke softly and without inflection, and often threw his head back over the top of the chair staring at the ceiling while thinking of an answer. Additionally, he made one particularly interesting comment related to grades when I asked him what he could do to help motivate himself more. He replied,

I guess if I actually concentrated on my grades a little more and actually thought about it more often 'cause I kind of have this thing where I kind of push thoughts about grades and school off to the side when I'm at home...So that I can relax. If I thought about that more I could, uh, do [better] but then I worry that I might freak out about that and get all stressed out. So that's why I push everything off to the side and just relax.

I found it interesting that Jerry related focusing on school and grades to getting "stressed out" and "freak[ing] out." Jerry did not relate to the themes of time, teacher characteristics/quality, relationships, and instructional strategies in the same manner that the other nine students did. He is seemingly not motivated inside or outside of school, choosing to spend very little time on any school tasks. He also does not seem interested in establishing a relationship with a teacher, describes the same teacher characteristics preferred by the other nine students as "annoying," and does not seem

to respond to any particular variety of instructional strategy, instead viewing all school-related tasks as unnecessary work. Jerry is the student that the gifted staff would spend an inordinate amount of time working with and trying to accommodate with little to no appreciable results. Jerry is the most challenging type of gifted underachiever; the one who is, by his own admission, seemingly motivated by nothing.

Summary

In summary, the data analysis demonstrates it is possible to begin to identify and target students whose demographics and test scores mirror the profile of a gifted underachiever: typically a male with a low but qualifying IQ score, more than one semester with a low GPA, and standardized test scores that begin to drop in the middle grades. These data are crucial in the important task of knowing students' needs and beginning to target appropriate services to help them achieve at a high level. The interview data demonstrate that gifted students are motivated to learn relevant, engaging, and challenging material; the school environment is not consistently or conducive to promoting that sentiment; and they can identify the modifications necessary to promote their motivation. The final chapter will discuss the implications and recommendations stemming from these results.

CHAPTER 5 – CONCLUSIONS

This chapter provides an analysis and discussion of the quantitative and qualitative results presented in Chapter Four. The data depict a gifted student population mostly in good stead: the majority of gifted students (76.1%) achieve at a level commensurate with their potential, have acceptable levels of school attendance and discipline issues, and are progressing successfully toward graduation. These students also require and should be entitled to quality teachers, positive inter-personal relationships, and effective instructional strategies. However, the data also expose the fact that almost one fourth (24.9%) of gifted students are not progressing successfully. Therefore, it is imperative to use all possible means to identify and serve those students with high potential who are not yet achieving at a high level - those to whom we refer as gifted underachievers.

Using Data to Identify Underachieving Gifted Students

Research Question One questioned whether a review of the student data collected by the school district could identify underachieving gifted students. The study findings support the notion that gifted students at-risk for underachievement can be identified using a data review in middle/junior high school. Therefore, targeted intervention services could be provided early in their academic careers. I never anticipated that the data, summarized in Table 26, would differentiate the achievers from the underachievers so clearly. Gifted students are a small portion of the

population, especially in the WPS, which uses a minimum score on an intelligence test of 130, or the top one to two percent of students, to identify giftedness. As the 71 students are all gifted, I did not expect differences in standardized test scores, much less in twenty different categories of information analyzed to be statistically significant.

There are a myriad of opportunities to collect and assess student data beginning in elementary school, which could help district officials and teachers to begin targeting students who exhibit one or more of the at-risk indicators, thereby creating an environment where student data would truly be used to design an appropriate educational program. Attendance data is collected annually, beginning in Kindergarten, with underachievers having 2.24% lower attendance rates than achievers. The Cognitive Abilities Test (CogAT), which is used as a screening instrument in the gifted identification process, is administered to all Washington Public School (WPS) students in second grade. Identified gifted students in this study who were underachieving earned scores more than 8 points lower than achievers on both the CogAT quantitative and composite subtests.

Furthermore, intelligence test scores can be used to identify underachievers, according to the results of this study, as those individuals had a significantly lower full scale score (4.71 points) than achievers. Typically, an individual intelligence test is administered to students during the summer before third grade, and most gifted students are tested and identified as such before 6th grade; therefore, these data are usually collected in elementary school, as well.

Testing in grades three through eight, as required by NCLB, is conducted annually using the Missouri Assessment Program (MAP) tests. The Communication Arts MAP test scores for fourth grade discriminated between the achieving and underachieving groups, with the underachieving students earning scores an average 24.61 points lower than achievers. Both MAP Communication Arts and Math tests at each of the 6th, 7th, and 8th grade levels can be used to differentiate achievers from underachievers, with underachievers' scores ranging from 18.54-37.12 lower than achievers. Additionally, the presence of an Individual Education Plan (IEP) - which is written as soon as the student's needs are identified, often in elementary school - can be used to target underachievers. Furthermore, the goal valuation (GV) construct of the SAAS-R discriminated between achievers and underachievers, with underachievers self-scoring nearly a full point lower (.904), and can be administered by the school district at any time.

Table 26

Summary of statistically significant data categories differentiating achievers and underachievers, 2012-2013.

Data category	Achievers (n=54)	Underachievers (n=17)	Δ	<i>p</i> value
Cumulative GPA	3.830	3.180	0.650	.001**
GPA 6 th	3.919	3.459	0.461	.000***
GPA 7 th	3.883	3.215	0.668	.000***
GPA 8 th	3.829	3.278	0.551	.000***
GPA 9 th	3.800	2.862	0.938	.000***
GPA 10th (sem. 1)	3.833	2.998	0.835	.000***
IQ Full Scale	134	129.29	4.71	.007**
Attendance	96.93%	94.69%	2.24%	.004**
IEP	4	5	1	.029*
CogAT quantitative	122.31	113.67	8.64	.004**
CogAT composite	127.49	119.27	8.22	.011*
MAP Comm Arts 4	724.78	700.17	24.61	.050*
MAP Comm Arts 6	713.27	694.73	18.54	.001**
MAP Comm Arts 7	731.86	706.13	25.73	.002**
MAP Comm Arts 8	745.18	720.94	24.24	.000***
MAP Math 6	730.98	699.53	31.44	.001**
MAP Math 7	751.60	724.73	26.87	.001**
MAP Math 8	777.59	740.47	37.12	.000***
Explore English usage	10.98	9.06	1.92	.001**
Explore English rhetoric	10.85	9.24	1.62	.001**
Explore English total	22.71	18.41	4.30	.000***
Explore Math	21.75	18.59	3.16	.000***
Explore Reading	20.60	17.94	2.66	.012*
Explore Science	21.81	19.88	1.93	.011*
Explore Composite	21.73	18.88	2.85	.000***
SAAS-R Goal Valuation	6.529	5.625	.904	.021*

p* < .05, *p* < .01, ****p* < .001

WPS could implement a system to collect and analyze data annually at a cost that would be minimal in comparison to the anticipated benefits. A spreadsheet should

be created as soon as a child is referred for evaluation and should be edited annually as new data are available; any child possessing data points resembling the underachievers should be noted, especially a child with more than a few data points resembling underachievers. This information would enable teachers to identify students who, based on the data, warrant extra time, communication, and consideration.

It is important to note here that the present study diverges from the more customary application (and implication) of the label “underachiever,” as all of the 17 students categorized herein as underachievers are persisting toward graduation and are not exhibiting behaviors that would suggest they are at risk for failure or dropping out of school. On the contrary, even the students in Group Three, like Jerry, are achieving at a higher level than many students who will ultimately earn enough credits to graduate from high school. The term “underachiever” in the field of gifted education does not necessarily denote, and should not be construed within this study to denote, the same level of low academic performance as might be applied to a typical at-risk high school student for whom graduation is in doubt. Nevertheless, given the high academic potential of identified gifted students, low levels of performance should warrant the attention of the professionals diligently working to increase their achievement. In the increasingly competitive environment of college entrance requirements, a student’s post-secondary opportunities – and particularly scholarship opportunities – become limited as the cumulative GPA approaches or falls below 3.0. As gifted educators, our world view dictates that we provide the requisite guidance to assist all gifted students

throughout high school, enabling them to produce the highest academic performance possible in order to broaden their options beyond high school. Fortunately, it is now clear as a result of this study that professionals need not focus only on GPA, but can utilize other data points as well to assist in providing suitable educational interventions.

I was taken aback by several aspects of the data results I found in seeking answers to Research Question One. First, none of the students in the study presented the achievement pattern expected for Group One; honestly, the pattern I was hoping to find; doing poorly in the early grades of their secondary school years but then showing improvement. It would have been extremely useful to analyze the factors that enabled students to increase their academic performance. That was disheartening, and I sat with my fingers hovering quietly over the keyboard for quite a while trying to make sense of it. Ultimately, however, I noticed that three distinct groups had materialized from the data:

- Group One consisted mostly of girls, with only one “bad” semester;
- Group Two included mostly boys who started school well early on and then, in 8th or 9th grade, exhibited decreased performance of not more than 4 semesters total; and
- Group Three included mostly boys with persistent underachievement of 5 or more semesters below 3.0.

Ries (1998) distinguishes between prolonged and situational underachievement: situational underachievement can be attributed to stressful situation or event (i.e., divorce, loss of a friend, problems with a teacher), while the chronic underachiever is one who has a history and a pattern of underachievement that appears to cut across circumstances. The data significantly differentiate Group One – the situational underachiever – from the other two groups. Group One students earned a 3.506 GPA on average, still earning mostly A's and B's in school, not eliminating too many post-secondary options. Teachers need to be aware of the one "bad" semester to support these students with the goal of insuring it is an isolated occurrence, keeping in mind that these Group One students are not yet making choices that severely limit their future opportunities.

In my experience working with gifted students at the secondary level, the three distinct groups that revealed themselves more adequately describe the type and variety of challenges presented to teachers who work with gifted students than did my original expectations for the achievement patterns of the groups of students. Teachers of gifted students must be equally adept at fostering the growth of gifted students who achieve at a high level, students in Group One who make an isolated mistake, and students who are consistently underperforming. More importantly, teachers also must be perceptive enough to distinguish the patterns defining situational and chronic underachievement and the varying strategies necessary to combat each type.

It is likely a misnomer to even label the students in Group One as underachievers, given that they do not exhibit a pattern of low performance. All students can and will make mistakes. All students can have a bad semester. It is possible there were extenuating circumstances that contributed to the students' performance during the semester, perhaps there were issues at home, such as a divorce, or trouble with a boyfriend or girlfriend (Klein & Zehms, 1996). It could be that a certain teacher or subject matter contributed to the low GPA rather than it being representative of low academic achievement. It is likely the existence of a personal relationship between a student in Group One and a teacher would suggest an answer, and the teacher could provide the direction and encouragement necessary to ensure that the one semester was, indeed, an isolated incident.

I anticipated that the GPAs of achievers and underachievers would be significantly different, as that was the criteria used to distinguish the groups. However, I was surprised to observe, in addition, that the GPAs among the three groups of underachievers were significantly different from one another. This information should be used when analyzing GPAs data collected over time and categorizing the need and level of support interventions for individual students. As a student's GPA diminishes, service alternatives should be chosen accordingly.

I was also surprised when I saw that the mean full scale score on IQ tests for the underachievers was significantly different than that of the achievers. It may be politically problematic to suggest that gifted kids with a lower IQ score are at risk. The

perception may be that they are all highly capable students, and an IQ score of 130 still puts them in the top 1-2% of students their age, but the data suggest that students are more likely to underachieve when just meeting the minimum IQ score required. Additionally, the mean full scale score for underachievers was 129.29, just under the published minimum score of 130. This fact indicates the underachievers were likely identified using only a qualifying GAI, VCI subtest, or PRI subtest score, and not full scale IQ scores, providing an additional source of information which can be used to begin to monitor students.

Finally, the three underachieving groups scored slightly lower on the SAAS-R inventory than the achievers group, on a scale of one to seven with seven being the highest score, in the categories of attitude towards teachers and classes (ATC), academic self-perception (ASP), and attitude towards school (ATS), with achievers' average score on those three constructs only 0.18 higher than the underachievers. There was a slightly larger difference (0.53) in scores in the category of motivation/self-regulation (MSR), and there was a statistically significant difference (0.9) in goal valuation (GV) between achievers and underachievers. However, five-and-a-half out of seven is a reasonably high score on these constructs, indicating a fair amount of confidence among all the participants regardless of their GPA. Although underachievers need more guidance and support in the goal valuation category, all of the students appear confident enough in their abilities and perspectives to assess themselves reasonably high on the SAAS-R inventory.

Students Perceptions of Self and School

The interviews conducted for this study were enjoyable and enlightening. Although some of the students knew me from having been in my class in middle school, each student represented themselves well during the interview, seemingly comfortable with the process and even excited to be helping with my research (as I was informed later by the high school teacher who assisted with the scheduling). All of the students appeared very open and honest, and ready to share their thoughts with me.

I avoided using the term “underachieving” during my conversations with the students. Indeed, none of the students asked how they were chosen for an interview. All students I interviewed described themselves and their school experiences in generally positive terms and most believed they were good learners. Further, through the interviews the students continuously addressed the ideas of time, teacher characteristics/quality, instructional strategies, and relationships, all of which indicated the students’ desire to have more opportunities for *autonomy, competence, and relatedness* in their school experiences.

Autonomy. The themes of time, teacher characteristics, and instructional strategies endorse the students’ desire for more autonomy in their school experiences. As increased autonomy assists with sustaining intrinsic motivation in tasks that are “not consistently pleasant” (Burton, Lydon, D’Alessandro, & Koestner, 2006, p. 753), such as required courses or other classes the student might not have chosen individually, more autonomy can motivate students to progress in otherwise uninteresting classes.

Students wished for more and varied choices in their overall educational program and within each class. The students clearly yearn for the freedom to select courses based on personal interests and abilities. Due to their ability to learn more quickly than a typical student of their age, the students wished they could have the freedom to make choices in using their time more constructively, with increased flexibility in the pacing and timing of the classes they take, and opportunities to progress through the required material at an appropriately differentiated pace. Increased teacher communication, also desired by the students, aids in this endeavor by helping students monitor and assess progress enabling them to make better choices when the option is presented.

Additionally, students expressed an interest in obtaining a better match between their learning style and the instructional strategies they encounter in the classroom. Nearly all the students interviewed appreciated the hands-on learning environment of the Career Center classes. They long for classroom environments that are engaging and require them to think critically, and there were specific teacher characteristics and instructional strategies that they felt accomplished that goal. The factors that supported the construct of autonomy supported student motivation. A sense of autonomy among the students could be fostered by promoting a differentiated classroom environment, allowing students to make choices regarding their time on task and the time spent on relevant homework, and implementing effective instructional strategies that allow for flexibility of both content and pacing.

Competence. The themes of time, teacher characteristics, and instructional strategies also support the students' desire for a focus on learning in their school experiences. The students thoughtfully and intelligently expressed their desire to learn new concepts, to develop *competence* in the subject matter, and to be held accountable for learning the topic being taught. This mastery orientation is an important part of nurturing and maintaining intrinsic motivation (Gardynik & McDonald, 2005). However, I found that once students mastered certain concepts, they felt they should no longer be expected to complete in-class assignments or homework that provided the additional practice for those who needed it, as those assignments were viewed as unnecessary and repetitive.

Students identified as gifted in elementary school but who later dropped out, showed a significant deterioration in their school achievement and become noticeably disconnected from their school experiences over time (Kanevsky & Keighley, 2003). Kanevsky & Keighley (2003) showed in their research that students who dropped out reported a lack of challenge in their school experiences, while defining appropriate challenge to include opportunities to move more quickly through simpler material, to spend more time to go in depth with more challenging material, for more complex thinking, and for working with new and "hard" material. Intellectual curiosity is a characteristic of gifted students, and they long for the opportunity to demonstrate mastery of the specified content, then move ahead at their own pace; to work with peers of comparable ability; and to select topics for study based on personal preference

(Gallagher, 2009). The student comments made during the interviews corroborate this diminishing motivation as the students progressed into and through the secondary levels of school, as the fun of learning became viewed as unnecessary work.

According to the students interviewed, the absence of these experiences diminishes their intrinsic motivation. Students stated they are intrinsically motivated to learn new material but not to spend time on the “formalities” of school. Additionally, the students felt that the mismatch or misapplication of certain instructional strategies diminished their desire to learn new material in the classroom. This idea of a mastery orientation is not exclusive to the K-12 school environment. College students were asked to describe their favorite and least favorite courses. Consistently, the courses students preferred were those which they found at least moderately challenging. Additionally, the students were frustrated by courses that were too hard and they preferred challenging courses over courses that were too easy (Martin, Hands, Lancaster, Trytten, & Murphy, 2008). Indeed, I believe students of all ages want these same constructs of autonomy and competence present in their learning environment.

Relatedness. The issue of relationships was also found to significantly influence a student’s motivation to perform in school. Each student, especially the female students, described their feelings about certain classes, teachers, and activities in a way that associates them with the quantity and quality of the *relationships* they nurtured by participating. If they felt a relationship was not present, either with the teacher or with their peers, they were more likely to lack motivation. The feelings expressed during the

interviews are corroborated in the research. Adolescence has been found to affect girls' achievement in high school, as the self-concept of gifted girls declines in middle school and gifted girls had more negative senses of self in areas of behavior, intellectual ability, and school status than was typical of other girls (Arnold, 1993; Klein & Zehms, 1996; Reis, 2006). As adolescent females start to lose self-confidence in elementary school and throughout their teens, appropriate curriculum decisions and a relationship with a dedicated teacher could make all the difference.

Implications of the findings

The results of this study corroborate the findings of researchers in both the fields of gifted education and those of overall school improvement measures. Hattie's (2009) meta-analyses highlight strategies with higher than average effect sizes including several that relate directly to supporting intrinsic motivation according to Self-Determination Theory (SDT) and the students' comments. These include, in order of their effect size (ES):

- Self-reported grades – ES 1.44
- Constructivist learning programs – ES 1.28
- Providing formative evaluation – ES 0.90
- Acceleration – ES 0.88
- Quality feedback – ES 0.73
- Teacher-student relationships – ES 0.72

- Mastery learning – ES 0.68
- Challenging goals – ES 0.56

Indeed, it is remarkable how clearly the comments made by students during their interviews speak to those factors that were identified by Hattie’s research as increasing student achievement. Students expressed their desires for enhanced communication from a caring teacher that allows them to focus on mastery of challenging content. Additionally, Hattie describes how the variance in student achievement is mostly accounted for between the student (50%) and the teacher (30%). Focusing on improving quality instruction in the classroom, according to research and to the students themselves, accounts for most of the variance in student achievement. Students’ comments concur with conclusions that expert teachers *can* influence student outcomes (Hattie, 2009; Schultz, 2002). The psychosocial aspects underpinning the patterns and behaviors related to underachievement provide the determinative influence on achievement (Subotnik, Olszewski-Kubilius, & Worrell, 2011); these effects begin to occur in elementary school necessitating effective early intervention (Reis, 2006).

As nearly half of high achieving students “lose altitude”—fail to remain at or above the ninetieth percentile in test scores—from third to eighth grade (Xiang, Dahlin, Cronin, Theaker, & Durant, 2011), it is imperative to identify gifted students who exhibit factors consistent with underachievement as soon as those behaviors materialize, even if it is in grade school. Teachers must be focused on establishing relationships with the

students in their charge so they can assess whether the underachievement is episodic or chronic. Teachers at all levels must also be capable of matching students learning styles/needs with the available resources within their schools in a creative and imaginative manner that creates opportunities for gifted students to experience classes that foster autonomy and a mastery orientation. Because much of the variation in student learning can be influenced within the classroom setting, there is hope that all students who experience an ebb in their motivation do not have to make that their habit.

It appears the transition to middle school affects the achievement levels of gifted students. None of the students presented with the expected pattern of low achievement in middle school and improvement in later years. On the contrary, Group Two students had adequate achievement in middle school which dropped in later years. Additionally, the 6th, 7th, and 8th MAP scores in both Communication Arts and Math and all subtests of the 8th grade Explore test are statistically different for achievers and underachievers. A middle school student's daily life is dramatically different than it is in elementary school. Students transition from a self-contained classroom in elementary school to multiple classes and teachers per day in middle school. There are hourly transitions between classes and there are increased organizational requirements for keeping track of assignments. Students also begin changing clothes for physical education class in 6th grade. These structural changes coupled with the important

personal and physical transitions students begin around 6th grade highlight the necessity for services easing the transition from elementary school and into middle school.

The evidence supporting the importance of the peer group in establishing relationships and reversing underachievement supports the need for an advisory time available to all gifted students in middle and high school in WPS. For some students who appear to be transitioning from sporadic to chronic underachievement, this advisory class should be required. Encouraging an underachieving student to find an activity outside of school, whether it be sports, clubs, internships, or volunteering, creates the opportunity for that student to find a place where they feel as though they “fit,” fostering the relatedness that can seem to be elusive during adolescence. Psychological interventions are not a magic solution. They can take time and patience, and require dedicated work on the part of a teaching professional (Yeager, Walton, & Cohen, 2013). Students, parents, and teachers need to establish a growth mindset that focuses on changes made over time, reinforcing the feeling of belonging to reduce stress, setting and maintaining high standards, and using a wise and reflective decision-making process (Pintrich & DeGroot, 1990).

Research specific to the field of gifted education also corroborates the students’ interview comments. In a comprehensive meta-analysis of research on gifted students conducted by Colangelo, Assouline, & Gross (2004), the authors present their findings in an educator-friendly way to guide programming decisions. They identified 18 research-supported modifications categorized into the five dimensions, including: 1) pacing, 2)

salience, 3) peers, 4) access, and 5) timing. All of these dimensions substantiate the student's desires for more autonomy, a mastery orientation, and positive interpersonal relationships. The dimensions of appropriately differentiated pacing and timing draw a parallel to the SDT component of autonomy as it relates to the education of a gifted child. Salience, or the level of visibility or nature of the interventions, and importance of the peer group draw a parallel to the students' comments regarding relationships. The expressed desires of the students, Colangelo et al.'s findings (2004), and SDT correlate well. Students emphasized their wish to influence the pacing of their progress in class and of the importance of classroom relationships in elevating their motivation.

The fifth and final dimension, access, relates to the resources of the school district and the availability of staff and courses that would be able to provide appropriate modifications to meet the needs of the students (Colangelo et al., 2004). In the WPS, there are currently two comprehensive high schools; with a new comprehensive high school will be opening in the fall of 2013. Each building will have at least one full time teacher dedicated to the gifted students. Additionally, WPS has an inclusive Career Center, offering high school and adult education classes from agriculture to welding to cuisine, providing wide-ranging curriculum options to meet the needs of a variety of students. By giving students choices for suitable curriculum and pacing, teachers can support students' intrinsic motivation to learn. Competent staff can work with a child to provide maximum flexibility and non-traditional options to meet the needs for a mastery orientation as much as possible. Gifted staff at high schools in WPS

are skilled at utilizing flexible schedules, online and distance education courses, dual-enrollment courses, and college classes at the local university (for qualified students) to offer the maximum possible level of differentiation and flexibility. It is vital to combine student data with creative and flexible scheduling of classes in order to match student needs with appropriate content, supporting underachieving students when the regular classroom orientations and strategies do not sustain their motivation to learn. In WPS, access should not pose a significant barrier to student learning.

Boredom and its devastating results. The ultimate result of failing to identify and serve the needs of gifted students during their school day is boredom. This term is not used flippantly, as might be applied when a child runs out of things to do on the weekend. Boredom is not merely the absence of curiosity or satisfaction in an activity; rather, it is an emotion that reflects the absence of value in said activity, including an element of “desire to avoid the activity” (Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010, p. 532). This emotion on the part of gifted students cannot be ignored; the students’ perspective on their schooling must be respected and acknowledged.

Researchers have discovered that learning is both the opposite of and the antidote to boredom (Kanevsky & Keighley, 2003). Five interdependent features that distinguished boring from engaging classes emerged from Kanevsky & Keighley’s study, including: 1) control, 2) choice, 3) challenge, 4) complexity and 5) caring teachers. The extent to which these five C's were present determined the extent of students' engagement and productivity and, therefore, either supported or diminished a students’

motivation. Participants attributed their increasing boredom to a gradual decline in the five C's beginning early in their school career and reported a growing sense of "moral indignation" toward the activities they were offered as an "education" (Kanevsky & Keighley, 2003, p. 25). They felt the honorable action in response to an inappropriate curriculum was to quit producing. These 5 C's correspond to the dimensions that enhance intrinsic motivation as described in SDT. Mastering the implementation of these factors in a regular classroom setting should be part of all teachers' professional development as they reinforce the necessity for fostering student motivation in the classroom.

Thwarted needs. When gifted children feel as though their needs are not being met, they can develop the behaviors of a selective consumer (Delisle & Galbraith, 2000). Whether selective consumers are a distinct, separate subsection of underachieving students or simply students who underachieve for different reasons, like all underachievers, they are making choices detrimental to their future. Whatever we call them, the outcomes are the same (Flint & Richote, 2012). A semantic debate is less useful in the current context than acknowledging the failure of the system to properly serve gifted children and take the steps necessary to rectify the situation.

Furthermore, a gifted child is smart, obviously, but can exhibit age appropriate social and emotional growth (Peterson, 2009). Experiencing year after year of unchallenging, unmotivating curriculum leading to boredom also may lead a child, with poorly developed coping strategies, to make poor choices. Once students grow

accustomed to less challenging courses in elementary school, it is difficult for them to choose to participate, and subsequently succeed in, more rigorous coursework in middle and high school (Trusty, Niles, & Carney, 2005). Additionally, the choices middle school students make, particularly academic choices, have a strong bearing on their educational and career development for decades to come. National longitudinal studies show that the variables that make the most difference in students' success in college are the courses that students take in high school. The courses that make the biggest difference are high school math and science courses and they have enduring effects that extend above and beyond the effects of early ability (Trusty & Niles, 2003). Remediating the poor motivation a gifted child who has concluded that school is not something worth their full time and attention is a daunting task. It is preferable for public school teachers and administrators to create an environment in which the child's needs are met so he/she never arrives at that conclusion in the first place. If the students in this study had seldom experienced the mismatch between their unique educational needs and their school experiences, it is unlikely that the behaviors related to boredom, avoidance, and selective consuming would have ever materialized.

Recommendations for Educational Leadership and Policy

The data from this study support the notion that school officials can begin to target at-risk gifted students via data analysis and should make modifications to their educational program that will increase their intrinsic motivation and, subsequently, their achievement. The recommendations that logically follow the conclusions in this

study vary in terms of implementation, time, cost, and complexity. Hall and McGinty (1997) posit “policies are vehicles for the realization of intentions” and are meant “to solve problems” (Hall & McGinty, 1997, p. 441) and it requires leadership to see change is implemented. There are several leadership and policy recommendations emerging from these results that will serve the intention to solve the problem of underachieving gifted students.

District leadership. The implications for district level leadership that emerge from the data analysis and student interviews are complex and comprehensive. It is the responsibility of district level leadership to make the difficult choices when seeking appropriate educational interventions that have research support demonstrating an increase in student achievement. Additional implications support the need for changes to create opportunities for the public school district to foster students’ mastery orientation by removing the features of classes that tend to diminish it. The focus of underachievement is often on student behaviors, while some students who underachieve do so as a result of an inappropriate, unchallenging curriculum, the solution to which is not always “fixing the student” (Assouline & Colangelo, 2006, p. 69). The school and classroom structure that fosters intrinsic motivation, according to the students’ interviews, are those that allow them to find a good fit with their learning style and the instructional strategies in a class that meets their needs in terms of the autonomy, competence, and relatedness.

Change is never easy and organizations are notoriously slow to change. Being in a leadership position and navigating a significant sea change is problematic, as the restrictions of school structure, politics, varying levels of authority, and individuals' logics of action are often "vague" and "ill-defined" (Bacharach & Mundell, 1993, p. 424). It is necessary for the leadership seeking change to devote attention to multiple dimensions of the organization and examine the "fit" and implications for any policy decisions. The evidence demonstrates the "significant effects of such leadership on school conditions and students' learning" (Leithwood & Jantzi, 2006, p. 201) and without a rich understanding of how and why the current environment exists, our understanding of said leadership is incomplete (Spillane, Halverson, & Diamond, 2001).

In WPS, the dispersed nature of the secondary gifted program services - delivered in eight separate school buildings by six and a half staff members - increases the challenge in creating and implementing a cohesive program. Significant additional challenges are present in facilitating a cultural change in the manner in which all gifted students are perceived and served throughout the 19 elementary and eight secondary school buildings that comprise the school system. Suggesting serious overhaul to a K-12 gifted education program that seems to successfully meet the needs of 76% (54 of 71) of its students presents enormous challenges. Gifted students comprise a small segment of the student population, and the underachievers comprise an even smaller group. Burns (1978) introduces us to the transformational perspective on leadership defining it as the "ability to empower others" with the purpose of bringing about a "major change

in form, nature, and function of some phenomenon” (p. 422). Quality leadership will be of paramount importance in convincing the district administration and staff that, not only is there a problem needing attention, but that the current process of providing services fails to meet the needs of a group of students who require support to be successful.

Garnering support for programmatic change from all levels of administration, from central office administrators to each building level principal may be difficult. The person in charge of this navigation must be adept at separating an individual’s espoused theories from their theories of action (Argyris & Schon, 1996). Espoused theories are the proclamations people make about what they believe while their theories of action are the interpretation of what they believe based on their actions. Often people are not self-aware enough to notice any discrepancies. Effective leaders must be adept at assessing their own espoused theories and theories of action, as well as those operating within and among the people in decision-making positions. In addition, they must be able to analyze actions effectively to determine the best way to proceed.

The published goals of the WPS are 1) raising the achievement of all students, 2) reducing achievement disparities among groups of students, and 3) maximizing resource efficiency. These are the espoused goals, posted on the wall at the entrance of every district building on professionally-made placards. However, many of the actions taken by district administration belie these espoused theories as they relate to the achievement of gifted students. For example, the standard elementary grade level

curriculum includes very little to no differentiation for students who can learn the prescribed material faster than a typical child and little teacher training in differentiated instruction; each of these factors limits the achievement of high ability and gifted students. Indeed, there are no honors or advanced classes available until 7th grade Algebra, which only serves those students advanced in mathematics. Additionally, until last year this Algebra class was taught before the school day, at 7 am, limiting student enrollment to only those students whose parents could provide transportation, disproportionately affecting low income gifted students. Opportunities for advanced classes in the 8th grade are limited to Honors English and Honors Algebra and the first opportunity for advancement in Social Studies or Science occurs in 9th grade.

Identified gifted students participating in the district's gifted program are served by specially trained teachers knowledgeable in curriculum design and implementation. However, elementary school gifted students attend one day per week and middle school gifted students can attend the gifted class daily for 45 minutes, leaving them in undifferentiated classrooms for nearly 80% of their instructional time. By the time gifted students are provided an opportunity to take an honors or accelerated class, many have languished in undifferentiated classrooms for several years, have had their needs for autonomy, competence, and relatedness thwarted, and have developed perceptions of and behaviors toward their school work that are extremely difficult to change.

Getting WPS district leaders to admit the failure of a long-standing program is a delicate task requiring a steady hand. I recommend a "deep change" for the WPS, requiring vision, leadership, risk tolerance, wholesome trust relationships between

people in the organization (Christenson, 2007). Deep change *can* happen, when attempted for the right reasons, slowly adjusting along the way while building the new reality. When change happens there are losses that must be considered, and an effective leader can maneuver the administration and staff through challenging waters. Del Favero (2003) suggests committed “internal cooperation is necessary, if not imperative” (p. 904) between staff and the administration. The defined role of administrators is to manage, sequence, and coordinate tasks. The role of faculty is to be immersed in work of a specific discipline with a much narrower focus. Focusing on the shared goals of increasing student achievement, these efforts should be collaborative with the common goal of improved institutional performance (Del Favero, 2003).

There are many aspects to accomplishing organizational change. In this instance, two organizational shortcomings are illuminated by this study, one structural and one related to human resources (Bolman, & Deal, 2003). Structurally, WPS must reconsider the restrictive age-based grade level placements at the elementary level and allow gifted students to progress at a faster pace and reorient course placement decisions at the secondary level to accommodate the choices that support and enhance a student’s intrinsic motivation to learn; autonomy, competence, and relatedness. The structural frame (SF) of organization management allows us to assess the structure of the entity, in this case the WPS, and assess alignment of responsibilities and tasks to achieve the organizational goals. Two important aspects illuminated by the SF are differentiation, or how to allocate work, and integration, or how to coordinate these various efforts.

WPS can be analyzed in terms of the differentiation required to produce results, in this case, student achievement derived from enhancing the existing differentiation inherent in the public school structure. When individuals or sections within an organization only focus on their small area of purview without coordination, the result is “suboptimization” (Bolman & Deal, 2003, p. 53), and overall performance suffers. In the elementary grades teachers teach multiple subjects, whereas secondary teachers are responsible for a specific content area, from math or science to art or industrial technology. This inherent specialization can and should be exploited to allow students to progress through the core content areas at their own pace, either through acceleration into appropriate course content, or in a grade appropriate course with a teacher trained in multiple instructional strategies permitting students with varying abilities to progress at different paces (Collangelo, Assouline, & Gross, 2004). A knowledgeable teacher of the gifted can assist with identifying individual students’ needs, collaborating with the staff in the building to find a course and teacher that will produce the best fit, with the full support of an administration that supports those endeavors. These diverse, coordinated efforts can achieve the espoused goals of the school district, to educate each child to her potential.

Coordination of these efforts must occur vertically and laterally (Bolman & Deal, 2003). In vertical coordination, authority must be given and received by all and rules must be in place that establishes the goals and hierarchy of the organization. Lateral coordination is “less formal and more flexible than authority bound systems and rules;

they are often simpler and quicker, as well” (Bolman & Deal, 2003, p. 57). In the case of WPS, vertical coordination is required as the district-level administration must concur with the needs for and approve of the changes. Lateral coordination occurs at the ground level, between the building administration, who receives its authority from the district level, and the staff of the building as they collaborate to provide an environment conducive to fostering the intrinsic motivation of students. Additional lateral coordination is required as elementary students transition to the middle schools, and middle school students transition to the high schools, to insure a continuity of service. Further enhancing the benefits of this organizational transition is the value of enhanced instruction provided to all students, not just the gifted students. All students deserve a challenging, engaging classroom environment with a caring teacher who allows them some autonomy over their educational progress. The training received as a result of the efforts of the gifted staff are not exclusive to meeting the needs of the gifted and should be applied to improve the educational opportunities for other students.

The other recommendation for organizational change stems from the human resource (HR) frame as school systems are comprised of people, and personal and organizational needs are not always aligned. A “person-structure” conflict results in people looking for one of 6 ways to escape; withdraw physically, withdraw psychologically, resist by restricting output, try to climb up to a better job, form alliances to redress power imbalances, and, finally, conclude that work is unrewarding (Bolman & Deal, 2003, p. 129). These escape strategies ensure that future personal and

organizational goals will not align. These escape mechanisms mirror the emotional responses of a gifted student sitting in yet another unchallenging class. From an HR perspective, the gifted program is understaffed because staff positions were reduced after the state funding was eliminated, and additional reductions have since been made due to other budget constraints. WPS utilizes six and a half full-time staff positions to serve eight secondary school buildings. The average caseload among these seven individuals is over 100 students each, and the caseloads of the two high schools teachers, in particular, are over 200 students per staff member. Relationships and individual attention necessary to accommodate students' unique learning needs take time. The personal goals of a dedicated teacher trying to meet the needs of his/her students are undermined by a structure creating excessive caseloads. More staff is needed to create an environment in which a teacher can properly monitor and counsel the students in their charge.

Change takes time and effective leadership to navigate and implement. An effective leader must incorporate skills of interpersonal reflection, analyzing one's approach, and selecting the right choices at the right time, to effect the change needed to meet the needs of the students. Quibbling about which avenue is theoretically more effective does not change the daily life of an unmotivated gifted child. Energy must be devoted to collaboration and cooperation between and among administrators and teachers to make necessary changes, even in small steps, to gradually improve the

services WPS provides to gifted students. Leadership is essential in developing a “shared sense of direction” (Bolman & Deal, p. 186) and can be derived from multiple sources.

Maxcy and Nguyen (2006) admonish us not to ignore the political implications of organizations. As leadership is naturally distributed in organizations, the skills of the members are critical as are the personalities and politics of those interacting to accomplishing the goal of increasing student achievement. Therefore, effective leadership compels group members to be better and more efficient. In this case, the metric measuring effectiveness and efficiency is improvement in the intrinsic motivation and achievement levels among secondary level gifted students.

District policies. Through the effective application of strong leadership skills, the WPS should establish policies and procedures that maximize a student’s opportunities for autonomy, competence, and relatedness, beginning with a district-wide policy to evaluate the achievement patterns of each gifted student. The district must design and implement an annual process of data mining to become aware of students whose data profile approaches a profile similar to any of the underachieving groups. The gifted program should institute a policy requiring administration of the School Attitude Assessment Survey–Revised annually to every secondary level gifted student in order to evaluate and explore student perceptions and to look for changes over time as the students progress through adolescence and high school. If students score low in goal valuation, or if there is a noticeable decrease in their scores over time, a teacher should be aware of the issue and should make opportunities to confer with the student, solidify

their relationship as an advocate, consider the reason for the change, and evaluate the steps to be taken, if any.

Another recommendation that should be implemented to support underachieving gifted students is requiring an advisory class as soon as a student experiences a semester below 3.0, especially if that student is male, as this study reveals boys are more likely than girls to be chronic underachievers. The advisory classes in WPS middle schools occur daily and on alternating days for high school students. Currently, the advisory class is optional, and often the students who need the increased teacher contact the most do not take the class. Arrangements should be made for an older gifted student previously exhibiting behaviors related to underachieving and/or selective consuming to speak to and mentor younger students before they spend years exhibiting these bad habits. Behaviors are linked to intrinsic motivation; therefore, changing student behaviors requires an assessment of their motivation. A required advisory class would provide the contact time necessary for a teacher to build a rapport and provide indispensable guidance and resources to try to get a student back on track.

Additionally, the data in this study corroborate existing literature that finds an overrepresentation of White and Asian students and a tenacious and dogged underrepresentation of Black, Hispanic, and Multiracial students in gifted programs (Ford, 2004; Naglieri & Ford, 2003). The data also reveal the converse is true among the underachievers: minorities are overrepresented and White and Asian students are underrepresented. Nationally and internationally, this issue receives considerable

attention within the research community. Locally, in the WPS, the result is failing to identify and serve the gifted students of color who need dedicated attention in order to succeed. As Ford (2004) aptly stated, it is everyone's problem when we fail to support our brightest minority students, and we all benefit when they thrive. The barriers to effectively identifying and programming for minority students are three-fold: entrenched white privilege, pervasiveness of a colorblind ideology, and a systemic focus on student deficits (Ford, 2004). These factors "permeate the educational system and affect the promotion and retention of minority students in all facets of their school career" (Ford, 2010, p. 32). Unfortunately, one Midwestern public school district cannot singlehandedly overcome the enormous societal and cultural obstacles that have created this problem. However, local teachers and administrators cannot ignore the overwhelming evidence when it is presented to them; no matter how small, and steps must be taken to rectify the situation.

WPS must first admit that there is a racial discrepancy between identification rates of White/Asian and Black/Hispanic/Multiracial students that requires attention. WPS gifted staff should conduct workshops to inform regular staff of the data and the issues creating the disparities, establish a culture where difficult issues can be encountered and discussed openly, and promote the creation of a referral and identification process that is culturally fair and reliable (Callahan, 2009). WPS should make a concerted effort to recruit appropriate role models to teach minority students and begin to recruit community resources such as preachers, businessmen, and

representatives from local organizations to initiate a mentoring program in support of gifted minority students. The foundation for this recommendation already exists, as WPS currently has a district-level Coordinator tasked with identifying and supporting high achieving minority students. The Coordinator and the Director of Secondary Gifted Education are currently collaborating and coordinating services to incorporate high achieving middle and high school age minority students into services provided through the gifted program and staff. This collaboration should be expanded to all grade levels to help support the performance of high achieving minority students.

In addition to the failure to identify gifted students from diverse backgrounds, WPS currently has no procedures to identify or services in place to meet the needs of musically, artistically, or creatively gifted students. The current band, music, and art classes at the secondary level serve students who express an interest; however, there are no mechanisms in place to encourage students from low income or diverse backgrounds to pursue these interests, as private art/music lessons and materials are expensive. In many families already struggling financially, the exposure to these creative endeavors must come from the public school. This failure to recognize and develop artistic and creative talents could be the cause of some of the disconnect between a child and his/her educational experiences.

In addition to the evidence of additional support needed for minority and artistically gifted students, the findings of this study support the conclusion that boys are more at-risk for poor academic performance. Indeed, within the entire sample of 71

gifted students, males had an average GPA of 3.59, while females had an average GPA of 3.76. Once underachieving, boys in this study were more likely than girls to earn multiple semesters with GPAs below 3.0 and have a lower cumulative GPA, affecting their post-secondary prospects. Gifted boys are in need of specific targeted support services, allowing the teacher of the gifted to help them identify and select classes that will nurture and enhance their natural inclination to learn and improve their academic performance.

J. S. Alspaugh (1999) explored the relationship between gender and low achievement and found that boys have a harder time transitioning to high school and that consistently more males than females underachieve. In her book, *The trouble with boys; A surprising report card on our sons, their problems at school, and what parents and educators must do* (2008), Peg Tyre found that compared to girls, “boys read less well, study less often, hand in less homework, and have lower grade point averages” (p. 125). The findings of this study corroborate these results and reinforce the need to target support services to gifted boys, matching student needs with appropriate curriculum and instructional strategies, beginning in elementary school.

While more research is needed to address the interrelation among the issues of gender, giftedness, and adolescence (Dixon & Moon, 2006), the results of this study should encourage WPS officials to begin to target support services to gifted boys as they transition to adolescence and enter secondary level schooling. It is imperative that gifted educators understand this potential for internal conflict and bridge the gap

between gifted boys and the services available at the school by coordinating with other services such as those provided through the guidance office. Adolescence is a time of great change, both physically and emotionally, and students need guidance from a caring and knowledgeable teacher to successfully navigate these changes.

Targeted responsiveness to the needs of gifted boys can be achieved by providing more male role models (Pauley & Johnstone, 2009). Interestingly, among the six full-time staff members in the local WPS secondary gifted education program, only one is male and next school year he will serve in one high school building, leaving the boys at the other two high schools and all six middle schools taught by women. The importance of a male presence guiding boys through adolescence and high school cannot be overestimated (Kiselica, Englar-Carlson, & Horne, 2007). The exposure to adult male role models nurtures leadership and conflict resolution skills. Further, it provides an opportunity to establish a mutually beneficial relationship (Whiting, 2006). By knowing a boy's learning style, a teacher's instructional style, and the courses offered in non-traditional avenues such as the Career Center and online options, a knowledgeable and caring male teacher can guide all students, but specifically boys, into classes in which they will find a "good fit" with their natural curiosity early and often to support and foster their intrinsic motivation.

The data in this study can be used to improve and increase the programming options available to all secondary gifted students who are struggling. By annually gathering data on all secondary level gifted students, following any individual student

the first semester he/she earns below a 3.0 GPA, and paying attention to cumulative GPAs, gifted program staff can place students into one of the three underachieving groups identified in this study and implement services designed specifically for them. Counseling a student who just had an isolated bad semester is different than guiding a student who is a persistent underachiever, and the findings of this study suggest they can be distinguished from one another by summarizing and analyzing student data annually. An additional implication supported by this study is the need for advocacy for gifted students among the general school faculty and with the school administration. This study provides evidence to support the need for the improvement and implementation of various services in order to meet the students' needs.

Small group sessions related to goal setting should be implemented for the students who, by an analysis of their data, fall into one or more of the risk factors distinguishing underachievers (Delisle & Galbraith, 2000; Reilly, 2009). This could be accomplished during the mandatory advisory class. Goal setting appears to increase achievement in gifted students (Reilly, 2009) and students can benefit from help developing the skills needed to set and work toward a goal. By focusing on goal setting, both short- and long term, teachers can encourage students to view a particular class in terms of achieving a personal goal, especially in classes they don't find engaging, and they might express more intrinsic motivation to succeed.

At the same time as teachers of the gifted work to support struggling students, a tremendous burden is placed on a regular classroom teachers, often they are asked to

teach an overcrowded class where students possess a myriad of learning differences and deficiencies with not nearly enough time or resources. As gifted students spend the majority of their instructional time in a regular classroom, regular classroom teachers cannot be continually asked to “go it alone” (Sisk, 2009, p. 270). They require the training essential to understanding a variety of teaching techniques including differentiation and questioning skills, to improving their communication skills, and to evaluating and addressing students needs (Sisk, 2009). These skills point to the need for the regular classroom teachers to have professional development opportunities to learn appropriate teaching techniques and the psychology of the gifted student. These services must begin in the elementary grades and be standardized among the buildings within the WPS to insure all faculty receive the same information annually from a trusted source.

Moreover, a significant improvement in the professional development available to regular classroom teachers is essential. Currently, training for regular classroom teachers in the nature and needs of gifted students is nearly nonexistent. As a result, perceptions of the gifted students in their classrooms waver “between tolerance and outward dislike” (Jolly, 2009, p. 47). Often, regular classrooms teachers are simultaneously the main portal through which services are provided to gifted students and source of the student’s discontent (Callahan, 2009) and it is imperative that those teachers fully understand the needs of gifted students and how to successfully meet them in a regular classroom setting. Currently, the gifted education teachers in

secondary schools in WPS provide professional development opportunities within their building and these inservice opportunities can be effective. However, identification of and discrimination against gifted students begins in the elementary grades, as do the patterns of underachievement, with little to no collaboration between regular classroom teachers and a teacher of gifted students. The elementary level must be the focus of the improvements in teacher training.

Finally, these data should be used to improve and increase the programming options available to all secondary gifted students. There is no one service option or programming strategy that meets the needs of all gifted students. The NAGC programming standard (NAGC, 2010) recommends a “continuum of services” designed to meet the needs of a gifted child in all settings. Currently, the gifted education classes that are offered weekly or daily are the main service option. A varied and diverse range of available services should be selected based on the particular needs of the individual child, supplement and enhance the regular grade level curriculum, and be assimilated within the child’s school day. The NAGC standard describes services that are coordinated among the faculty, providing - in collaboration with the student, the parents, community resources, and the administration - appropriately challenging opportunities that support a gifted child’s intrinsic motivation to learn. These programming standards, in conjunction with the standards for gifted child learning/development, student assessment, curriculum and instruction, learning environments, and professional development provide a blue-print for the WPS to begin

to make the necessary changes so that gifted students can engage in more effective curriculum offerings earlier in their school career, supporting their intrinsic motivation to learn, thereby preventing the insidious underachieving behaviors to grow and develop.

Suggestions for Future Research

No single research study can ever completely explain a phenomenon. There are several additional, longitudinal studies that would elaborate, expand, or build upon these research results. These analyses should be run including all secondary gifted students to increase the sample size and the reliability and validity of the results. An in-depth analysis of the GPAs of the underachievers is warranted. It is possible that a certain subject area contributed to the low grade point average, indicating that the student needs particular assistance in that content only. A student might have transferred school buildings or had other extenuating circumstances contributing to the low GPA and that information would be beneficial to ascertain. Additionally, more sophisticated statistical analyses could provide insight into which factors contribute more to the phenomenon of underachievement.

I would like to follow these 71 tenth graders through their final two years in high school and track whether they all graduate on time and/or graduate from college. I would investigate the post-secondary opportunities available to these students upon graduation, including college entrance exam test scores and college acceptance or rejection rates. Likewise, of utmost importance for many high school students in the 21st

century is the increasing cost of attending college, and I think it would be illustrative to track these same students to see if there are differences in the type, variety, and amount of grants or financial aid available to them after high school graduation.

Even though in this particular study the SAAS-R survey revealed significant results related only to the construct of goal valuation (GV), the instrument was created and validated to identify gifted underachievers and to differentiate them relative to all five constructs. I would administer the SAAS-R to all secondary gifted students each year to examine their responses over time. As part of such an effort, I would disaggregate and examine the SAAS-R data by gender, race, IEP/504 status, and by survey item, not just by achievement status and constructs. Additionally, it would be necessary to examine the data for both achievers and underachievers. Just because students achieve initially does not mean they require no extra attention, as indicated by the performance of the students in Group Two. If a student, whether previously achieving or not, showed a distinctive drop in self-reported scores in any of the five constructs, that alone would be a useful indicator for the staff of the gifted program.

More in-depth analyses of the underachievers' perceptions of self and school is necessary, including additional one-time analyses and the ability to track changes longitudinally. I would conduct follow-up interviews with the students who participated in this study to track any changes in perception of self and school over time. I would interview as many additional students as were willing, in order to build upon these initial results and help create high school experiences for gifted students that support

their internal motivation to learn. Additionally, interviews with some of the achievers would further explicate the phenomena. Do achievers view the same courses as more engaging or motivating, or do they possess other characteristics that compel them to complete the work where other students do not? Further study of the correlations between a particular service option or intervention and the effects on increasing student achievement, for both achievers and underachievers, would be beneficial to help the staff of the gifted program choose and target services to the students in need.

Anecdotally, there is another group of gifted underachievers – not represented in this research study – who warrant further consideration. These are identified gifted students with significantly lower achievement, including those with multiple D’s and F’s, and it is unfortunate none of them appeared in my sample. These students mimic the more common application of the term “underachievers” - those who will fail to earn required credits in high school, who may be assigned mandatory summer school for credit recovery, possibly delaying or preventing graduation and putting them at risk for dropping out. In WPS, teachers of gifted students receive reports four times each semester listing any student earning a D or F. Appendix I is the most recent D/F report generated for one of the eight secondary schools in the WPS. Of the approximately 90 identified gifted students in this school, there are 13 students (14.4%) earning D’s or F’s, some students earning D’s or F’s in several classes, and it would be informative to have their data analyzed, the SAAS-R administered, and the students interviewed to compare them to the groups of students in the sample. It is possible these students would prove

to be similar to the students in Group Three; on the other hand, they might distinguish themselves enough to comprise a fourth group.

Finally, although by definition, no dropouts appeared in this sample, it is unfortunately true that each year a few identified gifted students in the local school district choose to leave high school before graduation. Further research should seek to interview these students with very low school performance and those who have made the choice to drop out so that their responses could be compared to those of the other underachieving groups. It is important for the staff to know how these students are different and how they are similar in order to learn more about the warning signs for a potential gifted dropout.

Summary

Although gifted students need positive motivation in order to realize the full expression of their gifts, that motivation can be helped or hindered by the actions of others, including peers, teachers, school administrators, and parents (Patrick et al., 2006, p. 188). Gifted students are a unique segment of the student population, and those of us who get to work with them every day know and truly appreciate that quality. Nevertheless, however capable they may be, they still require encouragement, guidance, and support from their teachers. This study examined the characteristics of those gifted students who need and deserve a little extra assistance to help them successfully navigate their way through middle and high school. We can and should identify and target these struggling students early in their school career. Although there

are significant limitations, as there are with all research projects, this study contributes to the knowledge in the field of gifted education. I hope that its results can be applied in our school system and elsewhere so that gifted students in need of additional support get the recognition and attention they deserve.

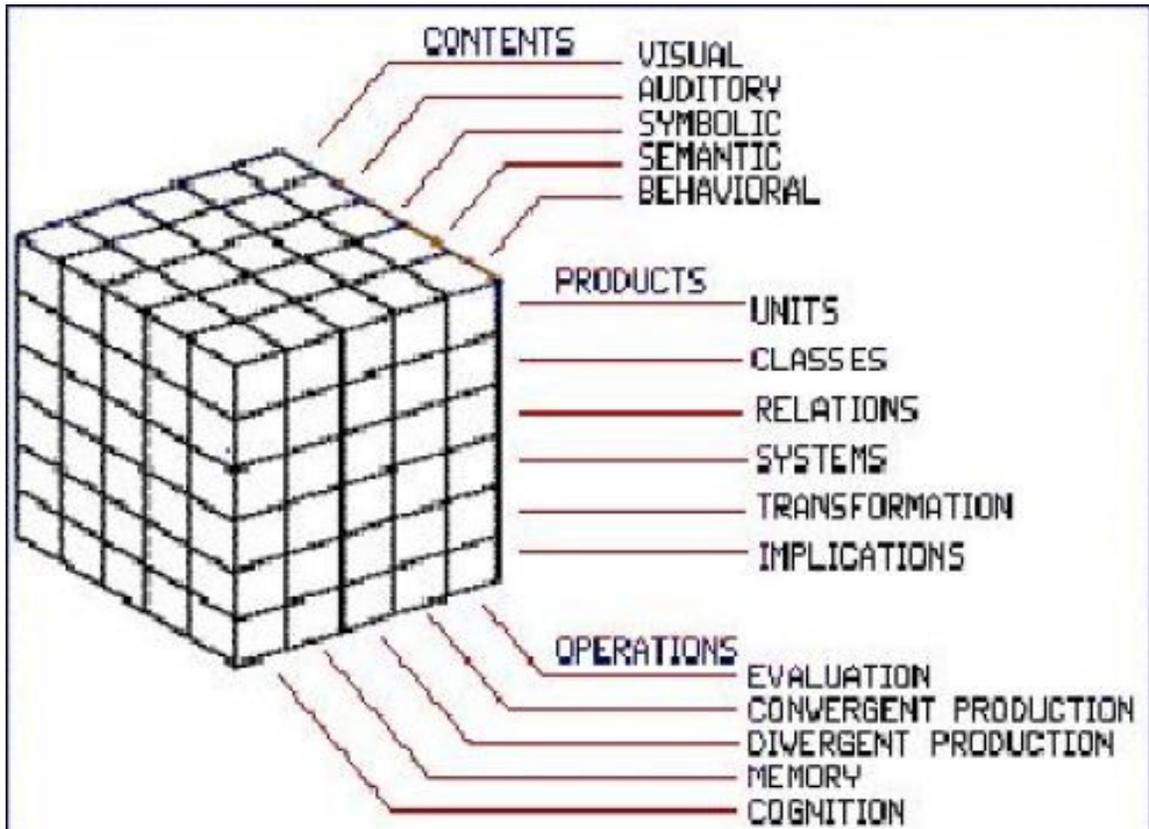
Appendix A: Missouri Department of Elementary and Secondary Education

STATE ASSISTED PROGRAMS FOR GIFTED CHILDREN GROWTH CHART

School Year	Number of Districts with Programs	Number of Students Served in Programs	Number of Teachers Working in Programs	State Aid	Percent of Reimbursement
1974-75	7	1,465		\$249,311	50%
1975-76	10	2,343		\$323,651	50%
1976-77	13	3,943		\$1,325,264	50%
1977-78	27	6,196		\$1,339,362	50%
1978-79	39	7,663		\$1,360,583	50%
1979-80	58	8,346		\$1,988,336	50%
1980-81	68	8,737		\$2,017,492	50%
1981-82	79	18,078	244	\$2,391,692	50%
1982-83	89	18,666	250	\$2,886,139	50%
1983-84	108	11,686	233	\$3,493,822	50%
1984-85	132	12,375	306	\$4,184,807	50%
1985-86	162	13,333	333	\$5,022,991	50%
1986-87	189	13,643	353	\$5,886,109	50%
1987-88	214	16,361	551	\$6,529,338	50%
1988-89	227	17,472	590	\$10,663,156	75%
1989-90	259	17,921	641	\$13,398,433	75%
1990-91	266	18,030	653	\$15,400,199	75%
1991-92	278	22,511	674	\$15,474,704	75%
1992-93	264	24,082	700	\$16,249,489	60%
1993-94	269	24,877	817	\$16,249,489	65%
1994-95	289	25,644	863	\$16,249,489	64%
1995-96	292	27,000	810	\$16,249,489	56%
1996-97	291	28,323	790	\$20,000,000	72%
1997-98	293	26,219	804	\$20,000,000	70%
1998-99	303	27,916	831	\$21,000,000	70%
1999-00	310	27,738	839	\$23,100,000	72%
2000-01	320	28,860	877	\$24,671,739	74%
2001-02	333	30,487	933	\$24,864,133	67%
2002-03	330	30,487	899	\$24,864,133	65%
2003-04	307	32,339	829	\$23,413,962	65%
2004-05	293	32,673	820	\$24,870,104	65%
2005-06	295	32,641	842	\$24,870,104	62%
2006-07	291	40,670	865	*\$24,870,104	0%
2007-08	296	42,375	884	*\$24,870,104	0%
2008-09	255	37,262	760	*\$24,870,104	0%
2009-10	274	34112		*\$24,870,104	0%
2010-11	268	40931		*\$24,870,104	0%

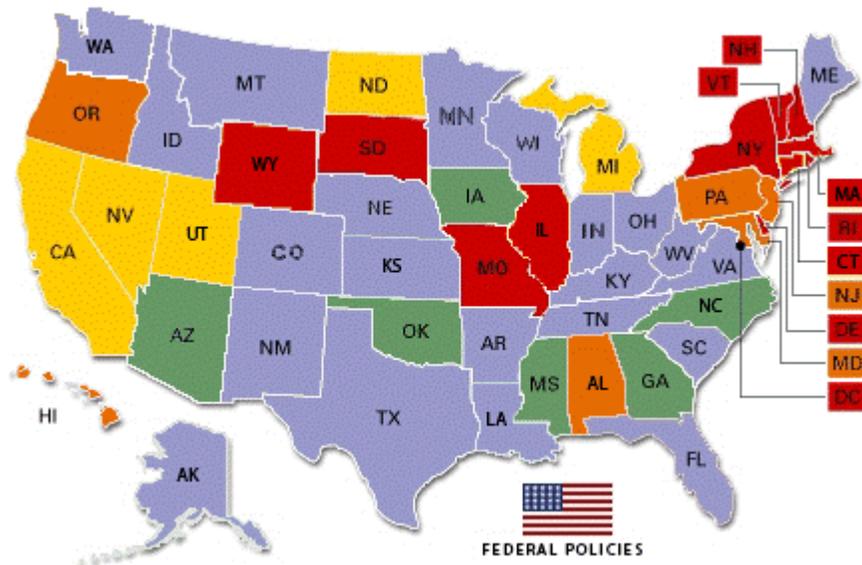
*SBE 674 established funding for Gifted at 50% reimbursement.
 SBE 797 increased State Aid from 50 to 75% effective July 1, 1988.
 *22 elementary certification endorsement licenses effective September 1, 1995.
 *Gifted funding shifted into the Foundation Formula.

Appendix B: Guilford's Faces of Intellect Model



Guilford, J. (1959)

Appendix C: NAGC State of the State results



LEGEND

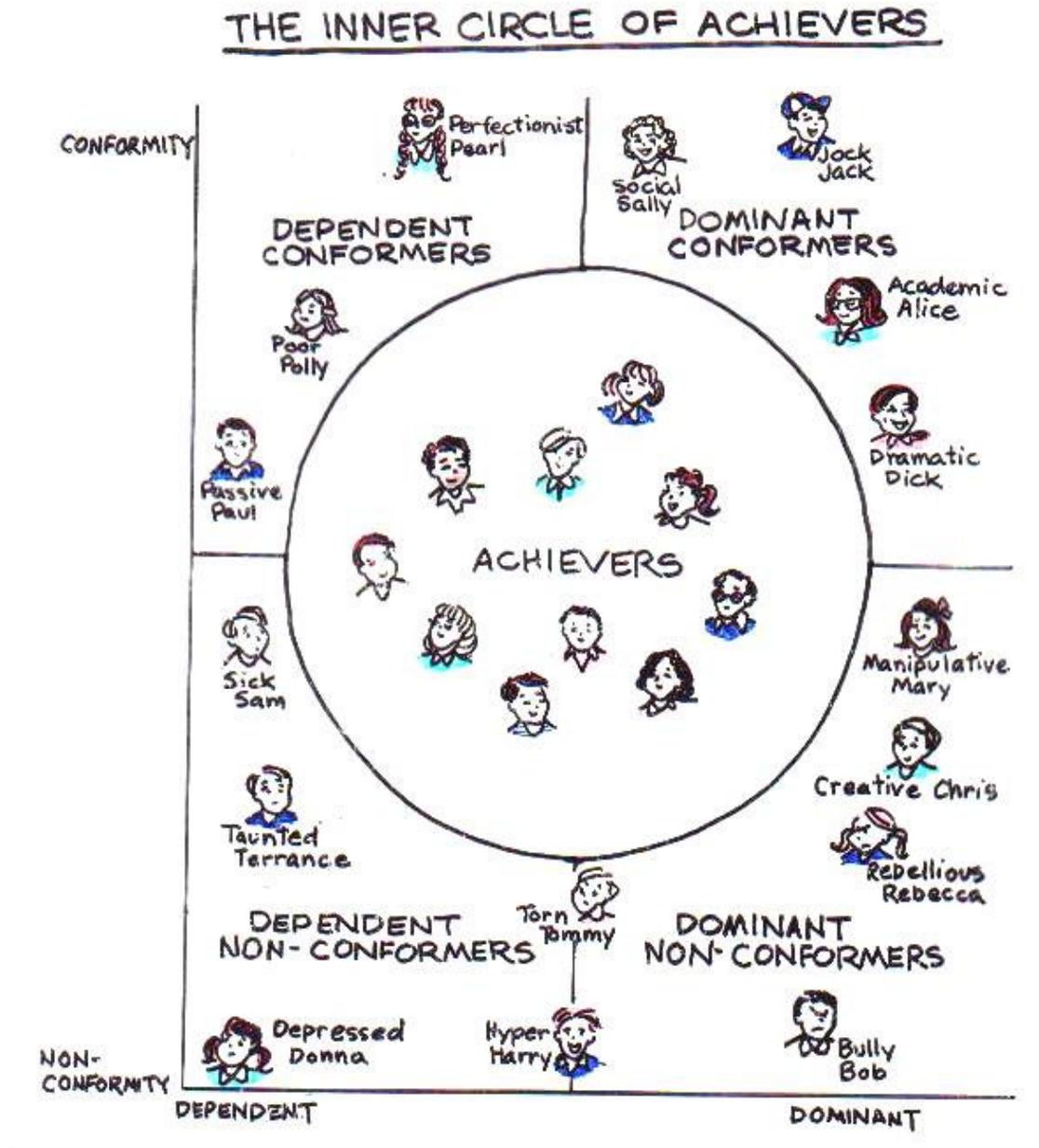


Appendix D: Table 5. Recommendations for Research

1. Impact of gifted programs on student outcomes (longitudinal)
2. Regular curriculum modification
3. Teacher training/staff development necessary for curriculum modification or development
4. Grouping patterns and impact on learning outcomes
5. Individual vs curriculum approaches to education
6. Motivation
7. Effectiveness of differentiated programs for economically disadvantaged, underachieving and other special populations
8. Self-efficacy
9. Cultural/community reinforcement
10. Policy implications
11. Teachers as assessors
12. Grouping by special populations
13. Program options in relation to student characteristics
14. Process vs content
15. Use of research
16. Impact/understanding of gifted/talented "differences"
17. Effects of grouping on all students are grouped
18. Assumptions/stereotypes of underachievement
19. Student characteristics associated with success
20. Cooperative learning
21. Relationship between community and program

Renzulli, Reid, and Gubbins (1991)

Appendix E: Inner Circle of Achievers by Sylvia Rimm



Rimm, S. (1997)

Appendix F: The General Ability Index (GAI) measurement

Summary:

The General Ability Index (GAI) is an 'other' way to look at the WISC-IV tested results, one which accounts primarily for issues involving processing speed. The full explanation of the GAI and its use can be found in Harcourt Assessment's *Technical Report #4*. That report is available at the 'GAI Source Data' link, shown below.

Worksheet:

The child's Gifted Written Report (GWR) should contain the child's Full Scale IQ (FSIQ) results along with the Index Scores and Subtest Scores. To calculate the GAI, you must have the Subtest Scores for the Verbal Comprehension Index (VCI) and the Perceptual Reasoning Index (PRI). If that information is not available in the GWR, contact the school psychologist and ask that your child's Index and Subtest Scores be sent to you. If they refuse to do so, insist that they provide you that information. If you still need help, please contact me directly.

Test: WISC-IV Date Tested:

Verbal Comprehension Index: (VCI)		Subtest Scores
Vocabulary		
Comprehension		
Similarities		
VCI Subtotal:		

Perceptual Reasoning Index: (PRI)		Subtest Scores
Block Design		
Matrix Reasoning		
Picture Concepts		
PRI Subtotal:		

Add the VCI and PRI Subtotals:

GAI Total:

GAI / FSIQ Equivalent:

FSIQ from the GWR:

Take the GAI Total and find its FSIQ Equivalent using the GAI Data Chart.

	F	a	F	a	
62	101	84	87	124	98
63	103	84	88	125	98
64	104	81	89	127	98
65	105	80	91	128	98
66	106	79	92	130	98
67	107	78	93	131	98
68	108	77	94	132	98
69	110	75	95	133	98
70	111	77	96	135	99
71	112	75	97	136	99
72	113	74	98	137	99
73	114	73	99	138	99
74	115	72	100	139	99
75	116	71	101	140	99
76	117	70	102	141	99
77	118	69	103	142	99
78	119	68	104	143	99
79	120	67	105	144	99
80	121	66	106	145	99

Full data table available at: <http://www.harcourtassessment.com/fsi/images/pdf/wisciv/WISCIVTechReport.pdf>

GAI Source Data:

<http://www.harcourtassessment.com/fsi/images/pdf/wisciv/WISCIVTechReport.pdf>

Note:

The higher of the two scores should, generally, be the one used when deciding gifted educational issues. If there is a difference between the PRI and the GAI, that should be discussed at the IEP/IEE meeting. The GAI is a publisher-recommended way to interpret the WISC-IV results. The question of how to effectively use the GAI during a meeting with the district is separate from the question of whether the GAI itself is a valid index score.

As a GWR Test and GWR Test monitor, you must understand your role as the parent. The issue with GAI is not whether the district needs to consider the GAI when it makes its recommendations. The issue is whether you, as the parent, are going to use the information the GAI provides when you decide whether to approve the district's recommendations. If the district recommends against gifted identification, but you believe the GAI score indicates that gifted identification is warranted, you need to make that case. The information on AppliedGiftedEd can help you make it.

Appendix G: School Attitude Assessment Survey – Revised (SAAS-R) questionnaire

School Attitude Assessment Survey-Revised

© D. B. McCoach, University of Connecticut, 2002

Instructions: This survey should take approximately 5 minutes to complete.

Part I: Please rate how strongly you agree or disagree with the following statements. In answering each question, use a range from (1) to (7) where (1) stands for strongly disagree and (7) stands for strongly agree. Please circle only one response choice per question.

Statement	Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree
2. I am intelligent.	1	2	3	4	5	6	7
4. I check my assignments before I turn them in.	1	2	3	4	5	6	7
6. I am glad that I go to this school.	1	2	3	4	5	6	7
7. This is a good school.	1	2	3	4	5	6	7
8. I work hard at school.	1	2	3	4	5	6	7
10. I am self-motivated to do my schoolwork.	1	2	3	4	5	6	7
11. I work hard at learning new things in school.	1	2	3	4	5	6	7
12. This school is a good match for me.	1	2	3	4	5	6	7
13. School is easy for me.	1	2	3	4	5	6	7
14. I like my teachers.	1	2	3	4	5	6	7
16. My teachers make learning interesting.	1	2	3	4	5	6	7
18. Doing well in school is important for my future career goals.	1	2	3	4	5	6	7
20. I can grasp complex concepts in school.	1	2	3	4	5	6	7
21. Doing well in school is one of my goals.	1	2	3	4	5	6	7
22. I am capable of getting straight A's.	1	2	3	4	5	6	7

Statement	Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree
25. It's important to get good grades in school.	1	2	3	4	5	6	7
26. I am organized about my schoolwork.	1	2	3	4	5	6	7
27. I use a variety of strategies to learn new material.	1	2	3	4	5	6	7
29. It is important for me to do well in school.	1	2	3	4	5	6	7
30. I spend a lot of time on my schoolwork.	1	2	3	4	5	6	7
31. Most of the teachers at this school are good teachers.	1	2	3	4	5	6	7
32. I am a responsible student.	1	2	3	4	5	6	7
33. I put a lot of effort into my schoolwork.	1	2	3	4	5	6	7
35. I concentrate on my schoolwork.	1	2	3	4	5	6	7

PART II: Please choose only one response choice per question.

1. What is your cumulative GPA? What are your average grades?

- | | |
|---|---|
| <input type="checkbox"/> 4.0 or higher (All A's) | <input type="checkbox"/> 2.5 to 2.99 (More B's than C's) |
| <input type="checkbox"/> 3.75 to 3.99 (Mostly A's) | <input type="checkbox"/> 2.0 to 2.49 (More C's than B's) |
| <input type="checkbox"/> 3.5 to 3.74 (More A's than B's) | <input type="checkbox"/> 1.5 to 1.99 (More C's than D's) |
| <input type="checkbox"/> 3.25 to 3.49 (More B's than A's) | <input type="checkbox"/> 1.0 to 1.49 (More D's than C's) |
| <input type="checkbox"/> 3.0 to 3.24 (Mostly B's, some A's and C's) | <input type="checkbox"/> less than 1.0 (Mostly D's and F's) |

2. On average, how much time per week do you spend doing homework?

- | | |
|---|--|
| <input type="checkbox"/> Less than 1 hour | <input type="checkbox"/> From 10 hours to less than 15 hours |
| <input type="checkbox"/> From 1 hour to less than 3 hours | <input type="checkbox"/> From 15 hours to less than 20 hours |
| <input type="checkbox"/> From 3 hours to less than 5 hours | <input type="checkbox"/> From 20 hours to less than 25 hours |
| <input type="checkbox"/> From 5 hours to less than 10 hours | <input type="checkbox"/> 25 hours or more |

Thank you for your time!

Appendix H: Semi-structured Interview Protocol

Opening: Hi. I'm going to record your answers so they can be transcribed so I don't misquote you. And you won't be identified in the final paper, you will be student #27 or something like that so is it ok to continue?

Describe yourself as a learner? Are you a good learner? Are you a good student?

What classes do you like/dislike?

What aspects of a class make you like/dislike it?

What activities are you interested in outside of school?

Would you describe yourself as motivated? Why/why not?

Do you feel motivated at school? Why/why not?

Do you feel motivated outside of school? Why/why not?

If not, what do you think would help you feel more motivated?

If you could create a new school what would you keep/change from this school?

What could your parents do to motivate you more?

What could your teachers do to motivate you more?

What could you do to motivate yourself more?

What do you want to do with your life?

Any final thoughts?

Appendix I – Recent D/F list in one local junior high school

Student Number	Grade	Course name	course grade	Comment 1	Comment2	Conduct grade	Effort grade	Absences
92xxx	08	Money Mgmt	D+	Utilize in class time	Missing assignments	4	4	3
	08	English	F			3	5	5
	08	Math	D+			4	4	3
	08	Science	F			3	4	4
71xxx	08	Science	D			2	3	8
70xxx	08	Science	D+			3	2	1
67xxx	09	Health		Turn in more homework		2	2	0
76xxx	09	Art	D	Major project missing		2	3	1
	09	Health	D	Talk less to classmates		2	3	1
83xxx	09	Geometry	D			2	3	4
	09	Physics	D-			2	3	5
68xxx	09	Governm ent	F	Missing assignmen ts	Pleasure to have in class	1	3	2
66xxx	09	Geometry	F			2	4	3
67xxx	09	Governm ent Honors	D	Missing assignmen ts	Pleasure to have in class	1	3	
62xxx		Physics H	F	Missing assignmen ts		3	5	2
		Governm ent H	D-			3	3	2
		Health	F			2	3	2
68xxx	09	Governm ent H	D+	Missing assignmen ts	Pleasure to have in class	1	1	3
67xxx	09	Geometry	D+			1	3	5
68xxx	09	Geometry	D			2	4	4

WPS internal report, 2013

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VITA

I have worked in gifted education for my entire professional career. I graduated with honors from the University of Florida in 1992 with a Bachelor's degree in Education, specializations in gifted education and psychology. In 1999, I completed my Master's degree at the University of Missouri-Columbia with an emphasis in gifted education. I earned National Board Certification in November 2002 and successfully renewed it in 2012. I received my Educational Specialist degree from MU in August 2008. From December 1994 through August 1999, I was the Supervisor of Gifted Education for the Missouri Department of Elementary and Secondary Education. In addition, I received the Exercise Tiger Teacher of the Year Award in 2009 and again in 2012. This will be my 14th year in my current teaching position and my 17th year (non-consecutively) in the classroom; I have taught gifted students from Kindergarten through high school.

Publications: Gifted education:

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