THE RELATIONSHIP OF HIGH SCHOOL GIFTED EDUCATION PROGRAMS ON COLLEGE AND CAREER READINESS

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THE RELATIONSHIP OF HIGH SCHOOL GIFTED EDUCATION PROGRAMS ON COLLEGE AND CAREER READINESS

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THE RELATIONSHIP OF HIGH SCHOOL GIFTED EDUCATION PROGRAMS ON COLLEGE AND CAREER READINESS

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Abstract

The concept of gifted education and college and career readiness have been around for many decades. There has been little to no research on the relationship of high school gifted programs to college and career readiness scores. The purpose of this study was to determine whether there was a relationship between high schools having a gifted program and college and career readiness scores of the district. This study examined the effects of districts with high school gifted programs on composite ACT scores, graduation rates, remedial college courses, and employment after graduation. The study was able to use statewide data reported by each district in the state of Missouri. The hope was to find a connection between districts that had a high school gifted program and college and career readiness scores of those districts.

CHAPTER ONE: INTRODUCTION

In 2007, Johnny (name changed for confidentiality) was sitting in middle school and receiving accommodations in all four core classes. His teachers listened to his needs and met Johnny where he was in his learning, and, during that year, Johnny achieved more than he had in previous years. However, Johnny's accommodations were different than 94% of his other classmates; Johnny received accommodations because he was a gifted student. Once Johnny left middle school, he was pushed into higher-level classes where teachers were not always sure how to handle his accommodation needs. They often thought that the honors courses were enough, or that rigorous just meant more work. Johnny's social, emotional, and, many times, academic needs were not being met. Johnny was able to get all A's with little effort and began to look for other ways to keep himself occupied. By the time Johnny was a senior in high school, he was a known drug dealer among the administrators and local police department and was still a straight A student. He graduated with honors, and the police were there to escort him from the premises immediately following the graduation ceremony to begin his first jail sentence. The judge hoped the shock time would be enough to scare the 18-year-old out of the world that he would be in if he continued down this destructive path. Sadly, Johnny has continued to be in and out of prison, is currently in prison, and will be in prison for the next several years. This is just Johnny's story, but there are many more stories just like his. Johnny was a gifted student and an at-risk student whose needs were not met by a gifted program in his high school. Furthermore, even with his amazing potential, he was not prepared for college or a career following graduation.

Blaas (2014) anticipated difficulties for gifted students, especially those who are gifted and at-risk. Blaas stated that gifted students need to have support with their social-emotional difficulties or the underachievement will grow and lead to dropout. Gifted students are at a higher risk to dropout because their social-emotional needs are higher than those of the average student, and their needs are addressed even less typically. This happens because of the lack of understanding of the gifted student. The researcher states," Many educators do not recognize or meet the needs of gifted students as there is a false perception that they can look after themselves" (Blaas, 2014, p. 243). Bryant (2010) writes, "A lack of understanding and training regarding gifted students and gifted programs may be predictive of low or no support for gifted students and gifted programs, thus leading to minimal gifted program implementation at the high school level" (p. 9). Based on Bryant's study and the National Association of Gifted Children (n.d.), if educators can become more educated in the needs of the gifted student, the understanding of the importance of providing extra support for the gifted student will help lead the way to foster higher learning achievements for those students. Marland (1971) reported to Congress that,

> "Gifted and talented children are in-fact deprived and can suffer psychological damage and permanent impairment of their abilities to function well, which is equal to or greater than the similar deprivation suffered by any other population with special needs served by the Office of Education" (p. 11).

He also states, "Services provided to gifted and talented children can and do produce significant and measurable outcomes" (p. 11). Marland knew these findings in 1971, yet in 1971-1972 the gifted allocations from the federal government were in decline

(Marland, 1971, p. 55). In the federal budget, gifted education was given 0.02% of the educational budget and the same was projected for 2017 U.S. Department of Education. (2017). Marland was able to show the importance of support to the gifted learner, yet four decades later the needs of the students are still not being fully met. Students like Johnny continue to be unsupported.

Problem Statement

In Marland's 1971 research, he found that gifted students are at the same disadvantage in the classroom as those students who have an intellectual disability. Marland concluded that the best case is to identify the student at an early age and continue to support them so that they do not begin to underachieve. Students need to continue to have social, emotional, and educational support in high school instead of fully changing their focus to career preparedness (Marland, 1971). The current research will focus on the schools that have a gifted education program and the college and career readiness of the schools' gifted students versus the schools who do not have a gifted program at the high school level and the schools' gifted students' college and career readiness.

Hoy and Hoy (2003), stated, "There is a growing recognition that gifted students are poorly served by most public schools" (p. 29). There is a misconception that gifted students are the best students and the highest achievers. The Missouri Advisory Council of the Gifted and Talented Children (2015) has a section dedicated to misconceptions in their annual report. A couple of examples are: (a) Gifted students do not need help; and (b) They will do fine on their own and teachers challenge all the students, so gifted kids will be fine in the regular classroom" (p. 19) The annual report also explains the truths to

these myths. Gifted students need support just like even the best athletes still need guidance. Without the teacher's help and support, the gifted student will become bored, and that is when behavior problems tend to arise. The other myth that was stated, "teachers challenge all students..." was followed by a strong statistic. "A national study conducted by the Fordham Institute found that 58% of teachers have received no professional development focused on teaching academically advanced students in the past few years and 73% of teachers agreed that 'Too often, the brightest students are bored and under challenged in school were not giving them a sufficient chance to thrive.'" (p. 17) In the annual report there are many other myths and truths that were found to continue to support the needs of the gifted students.

Schools are shifting resources away from gifted education, and in the process the struggling gifted underachiever does not reach his or her full potential. Landus and Reschly (2013) examined the literature on gifted students and found the dropout rates of gifted students are higher when affective education is not in place. However, the college and career readiness rates of these same gifted students have not been examined in detail.

Rationale for the Study

The purpose of this study was to determine whether there was a relationship between high schools having a gifted program and college and career readiness scores of the school. This study examines the school level variables of presence of a gifted program and the school's reported College and Career readiness score. A dissertation written by Brown-Anfelouss (2012) found that now more than ever high school principals have the opportunity and responsibility to increase and promote research-based gifted programs through sound instructional leadership practices and advocacy efforts. Schools

have tried to support these students academically with honors courses, AP (Advanced Placement), and IB (International Baccalaureate) courses for some time, but research like the above mentioned is beginning to suggest that the AP and IB course are not enough. Bryant (2010) discovered that administrators have the largest impact on gifted programs in schools. When administrators do not feel the need for a gifted program at the high school setting, the teachers and community tend to follow that lead. Bryant also reported that the majority of administrators that he surveyed felt that having a gifted education program helped set the bar higher for the entire school. Administrators who had some content knowledge concerning gifted students showed the highest support. Federal government, state government, businesses, colleges, and high schools all want students to be prepared. They need to ensure that students are getting what they need, and they need to make an effort to check in with students that are already working at "good enough" yet underachieving levels (Bryant, 2010).

Looking more specifically at Missouri, in 1973 the General Assembly thought the idea of educating the gifted child was important and wanted a state program for gifted students. They funded this program fully, then partially. In 2007, it was included into the foundation formula. The foundation formula, defined by DESE is,

> "created by state law, the formula is a complex mechanism based on several factors: student attendance; local property tax rates; the proportion of students in a district who are disadvantaged or need special education; if the school district provides summer school; and others. Funds received through the Foundation Formula must be used primarily to pay teachers' salaries in the school district (Missouri Department of Elementary and Secondary Education, 2018, para. 3)"

Once it was a part of the foundation formula, the earmark was taken and lumped in to pay teachers' salaries.

Districts received some funding, but it was not mandated for use in a gifted education program. Since 2012, schools have been required to report the number of gifted students being served in a gifted education program (Missouri Advisory Council, 2015). Research supports the idea that gifted education and college and career readiness are both valuable for the students, but there are no studies to determine if there is a correlation between the two.

David Welch (2015), the Department of Elementary and Secondary Education (DESE) representative for gifted education, stated in a phone interview that in the 2016 school year, schools would no longer be able to count the students who are enrolled in Advanced Placement (AP) and International Baccalaureate (IB) classes toward the total number of gifted students being served (personal communication, February 23, 2015). Gifted advocates have fought hard to make this change. They hope that this will help support the idea that just serving the academic needs of the gifted student is not enough. AP and IB courses help serve the academic needs of the gifted student, but not the students' possible other needs such as socio-emotional needs. Johnny had access to the AP courses; they were not enough to support him throughout high school. According to Bryant (2010), AP courses can be used as the gifted program successfully, but the instructors need to have a background in differentiated instruction and gifted education. When those components are added, the college and career success rate increases. College and career readiness scores are a combination of test scores, graduation rates, college retention and/or military enrollment, or successful employment.

Research Question and Hypothesis

The following questions guided the research:

1. Is there a statistically significant relationship between the existence of high school gifted programs and college and career readiness scores of high schools in Missouri?
    a. Do the demographics of the school impact the relationship between gifted programs and college and career readiness?

In order to address this research question, data from Missouri DESE were examined to explore the relationship between the existence of gifted programs and college and career readiness. The null hypothesis is there will be no positive relationship between and high school gifted programs on college and career readiness of students.

Conceptual Framework

The conceptual framework behind this study is that gifted students are students who need support, and schools need to be working toward college and career readiness in their students. Marland (1971) reports in the first *Education of the Gifted and Talented: Report to the Congress* that gifted students have the potential to be the great leaders of our world. However, research shows that many gifted students will not execute their highest potential and will continue to underachieve. Marland also states that, "Intellectual and creative talent cannot survive educational neglect and apathy" (p.7). Gifted students are not the students who do not need to be challenged; they have a skill that needs to be challenged more. Lanham (2010) conducted a study examining the retrospective perceptions of gifted adults about their high school experiences. For example, teachers at a rural Kentucky school were trying to create a place of rigorous learning. In the process

they created a great school for the average student, but for the gifted student it became an even larger frustration. One student reported:

> This created a dynamic in which the course content was not relevant to the needs of the students, leaving many feeling unprepared for the rigor of college coursework or the career paths they had chosen. One participant summed up the perceptions of all: Every time there was a certain goal established, I expected myself to be distinguished. I never saw myself as Proficient. I was frustrated that the school expectation was Proficient. Proficient was adequate and my peers and I saw ourselves as more than adequate academically. (Lanham, 2010, p. 119)

Schools need to do their research and educate their administration and teachers on gifted students and the services that those students need (Lanham, 2010). Not only do students need to have educational support, but according to Douglass (2016), the student's education needs to reach the whole person, not just academic level. Students need to know their likes and dislikes in order for them to be more successful in college or their career. The report, *A Nation Deceived,* examines the need for the country to accelerate, move up a grade, the gifted student. The gifted student is being held back and "it's a national scandal. And the price may be the slow but steady erosion of American excellence" (Colangelo, Assouline, & Gross, 2004, p. 1).

A Nation Deceived also agrees with Lanham (2010) that the educators need more information on gifted students overall. A chapter in a textbook during one course in their undergraduate work is not enough. Teachers and other school leaders have to understand their importance in the education of the gifted student. The student may learn quickly and with ease, but the guidance and relationships are still needed for the students' long-

term success. If the students are better understood, their learning will soar (Coleman, Micko, & Cross, 2015). Lane (2006) states it best, "Society, as a whole, only benefits when all students are sufficiently challenged and encouraged to perform at the height of their potential" (p. 71). In order for students to perform at their highest potential, the idea of college and career readiness was introduced. This idea was for the general school population but has the potential to impact the gifted students a great deal.

Darling-Hammond, Wilhoit, and Pittenger (2014) write about the standardized testing of this generation coming up short in truly calculating the readiness of high school students. They focus on an accountability system that would ensure that all students be more prepared for the workforce or college. The three key elements are: meaningful learning, professional accountability, and resource accountability. Resource accountability is spending the schools' resources in the area that needs the most support. Professional accountability is ensuring that the staff is qualified and is always learning. Possibly, the most significant element is meaningful learning. Meaningful learning happens with there is less focus on state testing, more projected-based learning, and higher order thinking. Assessments are also very different with this concept. The focus is not on the end, large, summative assessment, but on many, small formative assessments during the learning process. These three elements combined make for continuous improvements for each student. Each student has to continue to improve, and proficient is no longer good enough. "We believe that a new conception of accountability can help the nation meet its aspirations for preparing college- and career-ready students" (Darling-Hammond, Wilhoit, & Pittenger, 2014, p. 35). Allegheny Conference on Community Development (2016) explored the idea of colleges, businesses, and high

schools working together to find the specific skills that students need in order to be college and career ready. They found that this was imperative in the students' success (Inflection Point, 2016).

Barnes and Slate (2013) clarify that college and career readiness is not "one size fits all." Their research finds that many high school graduates do not have the skills needed to be successful. Barnes and Slate also agree that there is too much emphasis on academic readiness and that many schools have a difficult time differentiating rigor and quantity: More work does not mean more difficult (2013). The trouble with gifted education and college and career readiness is, in fact, that they are very similar. The focus on academics is essential, but it should not be the sole focus that it has been in the past. In order for the students to reach their highest potential and to have the continual improvement needed to be successful, other skills must be addressed and assessed. While gifted education and college and career readiness both have theories supporting them, a theory linking the two has not yet been studied.

Limitations/Delimitations/Assumptions

The purpose of this study was to determine whether there was a relationship between high schools having a gifted program and college and career readiness scores of the school. There are many variables that can and will come into play to assess college and career readiness, and to keep a strong focus, there will be some limitations and delimitations.

Limitations:

1. Gifted dropout rate, as those scores would not be tracked in the database under college and career ready

2. Gifted students were determined using each individual district's criteria.
3. Students who are gifted, may not have been identified by the school districts, and thus are not included in this study.
4. Does not examine any individual-level data or track individual-level college-career readiness

Delimitations:

1. The focus of this study is delimited geographically to Missouri.
2. Delimited in time to the past 3 years.

Assumptions:

1. Schools correctly identified all gifted students
2. Schools were honest and accurate in their reporting of gifted programs.

Design Controls

This quantitative study evaluated the data from the DESE database regarding high schools in the state of Missouri, the number of high schools who have gifted programs, and tracking of those schools' college and career readiness rates. This study had a large sample size looking at all high schools in the state of Missouri. The study also focused on the school years that were leading up to a change in Missouri law about gifted programs.

Definition of Key Terms

AP. Advanced Placement courses approved by the College Board's Course Audit Process. (Missouri Department of Elementary and Secondary Education, 2016)

College and Career Ready. This term means that a high school graduate has the necessary English and mathematics knowledge and skills—including, but not limited to, reading, writing, communications, teamwork, critical thinking and problem solving—

either to qualify for and succeed in entry-level, credit-bearing two- or four-year college courses without the need for remedial coursework, or in workforce training programs for his/her chosen career that offer competitive, livable salaries above the poverty line, offer opportunities for career advancement, and are in a growing or sustainable industry. (Missouri Department of Elementary and Secondary Education, 2016)

Gifted Education Program. For the duration of this study gifted education will be defined as a setting in which gifted students can go to be with other students of like intelligences, that also meets the socio/emotional needs of the gifted student. (Missouri Department of Elementary and Secondary Education, 2016)

Gifted Students. Gifted students are those children who exhibit precocious development of mental capacity and learning potential as determined by competent professional evaluation to the extent that their continued educational growth and stimulation could best be served by an academic environment beyond that offered in regular public-school programs. (Missouri Department of Elementary and Secondary Education, 2016)

IB. International Baccalaureate courses approved by International Baccalaureate Organization (Missouri Department of Elementary and Secondary Education, 2016)

Summary

Chapter One included background information concerning the importance of gifted education and the potential impact of gifted education on the college and career readiness of the school. Blaas (2014) found that educators believe gifted students can look after themselves. Blaas found, even with Marland's findings in 1971, that gifted students need support, when support is given, significant positive outcomes will be made.

Chapter One defined gifted education, college and career readiness, and other key terms to be discussed throughout the paper. This chapter also covered the theoretical framework of the relationship between gifted education and college and career readiness, based on work by Marland (1971), Douglass (2016), and Lanham (2010). These indicate that when gifted students are supported that great gains are made. The null hypothesis is there will be no positive relationship between and high school gifted programs on college and career readiness of students.

Chapter Two will provide a literature review that includes the history of gifted education, the needs of the gifted student, the need for high school gifted programs, and the college and career readiness needs of high school students. Chapter Three will describe the methodology in which the research will be conducted. In Chapter Four the researcher will present the results of the study. Through the use of tables and quantitative analysis, the researcher will discuss the findings of the research. Finally, in Chapter Five, the researcher will summarize the complete study and present conclusions that can be inferred from the research.

CHAPTER TWO: REVIEW OF LITERATURE

Introduction

Ted Kaczynski had an IQ of 167, Ted Bundy had an IQ of 136, and Jeffrey Dahmer had an IQ of 144 (Buchanon-Dunne, 2016). High IQ's are not the only thing they have in common. Only 5 percent of the world's population is gifted, yet over 20 percent of the prison population has IQs in the gifted range (Rodov & Truong, 2016). The need for gifted students to have extra support to be college and career ready has shown itself in statistics, but the world of education does not always agree.

This chapter reviews the literature on gifted education and college and career readiness. The first section is the history of gifted education and the pendulum swings that take place throughout history. There are times that the gifted student is a priority, and then there are times when the gifted student is left without support. Another section describes the needs of the gifted student: social, emotional, and academic, and what can be done to best support them. The next section addresses the importance of a high school gifted program and what significant gains can be made with those programs in place. A section focuses on the need for all students to be college and career ready. With the college and career readiness benchmarks in place, making connections to what gifted students need for college and career readiness should be obtainable. Therefore, this chapter will also view college and career readiness through the gifted lens. The final section of the chapter will present the reasons behind gifted programs being defunded from schools, particularly high schools to show the context in which college and career readiness exists.

History of Gifted Education

The history of gifted education dates to the early 1800s. Jolly (2009) writes, it was not until 1868 that a teacher in St. Louis saw it fitting for a student to work at his or her ability level academically, rather than at age level. Following this idea, gifted education had a foothold. During the 1920s and 1930s resources continued to fund and expand the gifted education concepts. Jolly and Robbins (2016), created a timeline of the history of gifted education beginning in 1931 with a section of federal legislation being focused on Exceptional Children and Youth. During this time the defining attributes of giftedness were determined. Even though this defining process had been completed, the ideas of giftedness did not become popular across the country or have a major impact on education. Families had more pressing matters to think about during the Great Depression than the importance of gifted education (Jolly, 2009).

During World War II the idea of educating the whole child through gifted education was not a priority, so funds were used for more pressing wartime matters (Jolly, 2009). On October 4, 1957, when the Soviet Union launched Sputnik, the gifted education program became imperative again. The United States felt as if it were behind and that the students of the nation needed to step up. During this time of importance, the gifted program had support on the national level including the nascence of the National Defense Education Act (NDEA), the American Association for Gifted Children (AAGC), and the National Association for Gifted Children (NAGC).

The NDEA had four major objectives. The objectives were to make sure all schools had a plan in place to challenge the gifted student in whichever talent needed to be challenged; the state, not the nation, was to take on more of the role of gifted

education; the teachers needed to be more educated in the various aspects of gifted students; and the identification of the gifted student process needed to be made more consistent (National Association for Gifted Children 1960, as cited in Jolly, 2009). The NDEA spent 1 billion dollars to make sure students who were not financially equipped to continue to college or graduate school but had the capability and desire to could do so. The NDEA also matched funds to states to improve mathematics, science, and foreign language education. In doing this, the NDEA also enabled the states to provide more challenging courses to gifted students (Jolly, 2009).

The AAGC had its own objectives for the gifted education program, though similar to NDEA objectives. According to Clark and Williamson (1951; as cited in Robins & Jolly, 2013) they were to understand the gifted student and their needs, to ensure that teachers were educated about the gifted child, to improve collaboration between the school and the parents of gifted children, to challenge the gifted child more, and to do more research about gifted children.

The NAGC went about their agenda differently. As described by Isaacs in 1968 (as cited in Robins & Jolly, 2013) their objectives were to help schools design curriculum for the gifted student, help support parents of the gifted student, show gifted students their potential and how to use it, and inform the public about what assets gifted students could be to society. Although the approaches differed, the ultimate goal was an increase in research and support for gifted education

Over the next few decades, this goal continued to be pursued with varying levels of success. During the 1950s, gifted education developed immensely. At last, there were advocates for the gifted student in the nation, school, and home. The element of

creativity was added as part of the gifted process. Creativity was seen as a link to academic and life successes. However, with the advent of the Civil Rights era of the 1960s, the gifted education program, once again, was no longer imperative to society. In 1965, the Elementary and Secondary Education Act allocated monies for the gifted students, but few states took advantage (Jolly & Robbins, 2016). The focus became providing equal education to all. By 1972 gifted education was back on track due to S. P. Marland's research and report to Congress, and culminating in 1978 with the Gifted and Talented Children's Education Act. S. P. Marland was the United States Commissioner of Education and was assigned the task, from Congress, to define gifted education (Marland, 1971b). According to the abstract of the Marland Report:

> Major findings include: a conservative estimate of the number of gifted and talented from the total elementary and secondary school population of 51.6 million is 1.5 to 2.5 million; existing services for the gifted serve only a small percentage of the total; differentiated education for the gifted and talented is perceived as low priority at Federal, State, and most local levels of government; 21 states have legislation to provide services but in many cases this merely represents intent; services for the gifted can and do produce significant outcomes.

The report showed that there were gifted students around the country that were not getting the services that they needed, and if those services would be provided, significant outcomes would occur (Marland, 1971b).

The Gifted and Talented Children's Education Act made monies available to help educate the gifted and talented students. These acts helped to fund the gifted students to enrich their curriculum.

In 1981 Elementary and Secondary Education Consolidation Act stopped the earmarked funding for gifted education. It along with the Omnibus Reconciliation Act of 1986, which cut funding in order for the Federal government to work toward a balanced budget, stopped the progression of gifted education (Jolly & Robbins, 2106).

In 1988 the Jacob K. Javits Gifted and Talented Act was put in place (Jolly, 2009). The Javits Act was able to fund four major projects: Mentoring Mathematical Minds, Project G.A.T.E. and C.L.U.E., Project REAL, and Project IMAGINE. The act also stressed the importance of gifted students who were being underserved. These projects wanted to provide strategies and activities to meet the needs of gifted students. They allowed the students to learn using project-based learning and higher order thinking. This act was defunded in 2011 because of Federal budget cuts (Winkler & Jolly, 2011), but was funded recently for the 2017-2018 school year. However, it is back on the chopping block for next school year.

The importance of gifted education has fluctuated throughout the course of history. Funding is always at risk of being cut. The history of gifted education ebbs with the flow of the needs of the nation, but not necessarily with the consistent needs of the students.

Needs of the Gifted Student

In many ways, gifted students are like the average student. They have emotional, social, and academic needs, all of which need to be addressed by educators and parents. Furthermore, each student is individual, and specific needs may vary. Nevertheless, there are some false stereotypes that are associated with the education of gifted students: Gifted

students do not need help; proficient academics are good enough for all; and gifted students do not need to study.

Some believe that gifted students do not need extra assistance to do well on standardized tests. This is a problem for gifted education because brighter students may be neglected in their educational pursuits. Susan Rakow (2012) proposes that even when students do extraordinarily well on standardized tests, they are not necessarily growing academically each year. When money is involved, high stake tests are emphasized. Teachers shift their focus from pushing all students to their potential to allowing the gifted student autonomy and thus focus more on the low achieving and average achieving students to ensure they will do their best on the high stakes test (Badley & Dee, 2010). Badley and Dee (2010) stated that a gifted student whose needs are not met will suffer just as much as a student with disabilities whose needs are not met. A gifted student needs to have a challenge academically in order to meet his/her true potential. Badley and Dee (2010) cite an unknown source from the 1800s saying that our students are a resource. They need to be educated. They need to be the leaders of our country, our world, and if they are not supported, where will that leave society?

Each student has different needs, and differentiated instruction is needed to ensure that 'good enough' is not all that happens in the classroom. Susan Rakow (2012) writes about the significance of getting elementary students on the right path of being challenged if the goal is to ensure they are challenged in high school and beyond. If students are not challenged in the classroom, other behaviors may become apparent. In a study that asked gifted adults to reflect on their educational career, one individual stated,

"I learned very early that my 'good enough' was better than most people's best and acted accordingly." (Perrone, Wright, Ksiazak, Crane, & Vannatter, 2010, p. 132).

Another issue that comes about when academic needs are not met, is the possibility of the child acting out in class or not following along with the teacher. Teachers need to be aware of the need for differentiated instruction in the classroom and make sure the student is engaged and learning (McGee & Hughes, 2011). Joyce Van Tassel-Baska (2013) calls teachers the gatekeepers of differentiated instruction, and teachers need to make sure that they are doing justice to that title. A misconception about differentiated instruction is that giving a student a new way to practice the content that has been mastered instead of challenging them on to the next level is all that it takes to strengthen the gifted student's education (Rakow, 2012). District administration needs to support teachers and ensure that they have the proper training and time to implement true differentiated instruction to all students, and that must include the gifted student (Bryant 2010).

Another imperative element in meeting a gifted student's academic needs is the involvement of the parents with the process. According to Feldhusen (1993) the parents are the most important influence in a gifted student's life. They are the ones who guide the motivation, long-term goals, and self-esteem of the gifted student. The parenting style is also an important factor. Research of Yazdani and Daryei (2016) found the two most impactful parenting styles on gifted students were authoritative and authoritarian. Authoritative is a strict parenting style mixed with emotional warmth. Authoritarian is also a strict parenting style, but it lacks emotional warmth. Authoritative style has a large positive impact on gifted students, while the authoritarian style has a large negative

impact. According to Yazdani and Daryei (2016), both styles impact the self-esteem and levels of depression, anxiety, and stress in the gifted student.

Parents also need to be aware of the possible negative impact that they can have on their gifted student. According to Garn and Jolly (2015), parents, unintentionally, place too much pressure on their gifted student. When that happens, gifted students either tend to place self-worth on academic success or they face something difficult and become avoidance-oriented (2015).

It is also important for the team of parents and teachers to work together and communicate. If one element is left out, there is a possibility that the success of the gifted student will not be as great. Lammons (2016) finds that parent involvement, whether voluntary or guided by the district, increases student success rate. Educating the parents on the needs and challenges of the gifted child only helps the student.

Many times, in the school setting the student is working with several different teachers at a time. If all the moving parts are not working together the students' needs may not be met. Joan Henley (2010) discusses the issues of the lack of communication and collaboration between the gifted teacher and the classroom teacher. She explains both perspectives. Henley explains that a classroom teacher already has a large workload and is burdened by the expectation to research new activities to support the gifted student. From the perspective of the gifted teacher, being isolated or even unwelcomed by the classroom teachers are regular problems. Neither of these teachers would say they do not want what is best for the student but finding the ideal set-up for student success and academic needs being met is a real challenge. Even so, Anna Shepperd (1956) stated it is important for the gifted student to have a greater depth of learning, even in the

mainstream classroom. Shepperd gives many examples of how to use resources that are already in the classroom or school library and take the gifted student to the next level of rigorous learning. The cooperation and collaboration of both general classroom teachers and gifted education teachers are vital to academic success.

The development of study habits is another academic need for gifted students. Many times academic success has come without challenge to the student, so the student is not sure of the best way to actually study for a quiz or prepare an assignment (Speirs Neumeister, Adams, Pierce, Cassidy, & Dixon, 2007). Once these students leave high school and enter a college classroom where they may be challenged and need to study, they may not have the skills to do so.

In a case study by Coleman (2002) the researcher focused on four students in a residential public high school for gifted students. These students were juniors and had just begun their new journey that was full of academic rigor. The researcher also interviewed many other students in the high school. Once the shock of studying wore off, many in the school found that studying brought back their love of learning. Coleman also found difference in homework and studying. Most of the students at the school said that while at their old schools, homework was finished during class time and there was no need to study. Coleman reported several concepts that helped these students keep up with their new course load. One concept was remembering that you do not have to read every word in a text. Another concept involved focusing in on what the instructor said was important during class lectures. The next concept was time blocking, which is having a routine and set times for studying, homework, eating, and even a time to socialize. The next concept was prioritizing work when things got overwhelming. The example that

was given by Coleman was that if math has 40 homework assignments in a semester and science had only 10, and if you only have time to do one homework assignment, do the science. This involves a refined level of decision making, since skipping one math assignment will not be a large issue but skipping several science assignments would be a much larger proportion of the class requirements. The last concept that students discussed was asking instructors for extensions. Some instructors might say no, some might give them with a points deduction, but asking was always an option (2002). Starting these habits in high school would prepare the gifted student for the rigor college or career demands. This preparation will help students to respond more effectively, instead of panicking once things inevitably become difficult.

The social needs of a gifted student can be quite unique. While some gifted students flourish socially, some struggle a great deal. Acceptance by teachers and peers was shown to be an issue with students who had a gift (Jolly, 2009). Tracy Cross (2002) reviewed some of the myths of social needs of gifted students. One myth was that gifted students need to be with other students who are the same age all the time; another myth was that the gifted student should be with their peers that are similar in age and academics all day long. The middle ground is where the truth lies. Gifted students do need to interact with their peers of the same age; they need to know how to get along with others who are not academically the same; they need to learn how to problem solve conflicts and how to socialize in the real world. However, they also need time to be with their intellectual peers. They need time to be with other students who think and reason in a similar manner; they need to be with other people who are going to make them stretch their thinking and ideas (Pratt, 2009). Pratt found at one school they decided to try

"looping" with their gifted education students. Looping is when the same set of students have the same teacher for more than one year. Not only did it help the student academically, social needs were met, also. Students were able to be with the same group of peers and teachers during a three-year span, and, as a result, those relationships grew. The students were surveyed after the three years, and many felt that their social skills had grown in one way or another (Pratt, 2009).

An added complication to the education of the gifted student resides with the students from lower socio-economic status (SES) families. Many times, a low socio-economic student or an underachieving student is overlooked for the gifted program (Elhoweris, 2008). Not only are some low SES students missed, those who do get included may not fit in because of the social differences that accompany diverse social classes. It is important for the lower SES gifted student to spend time with the mainstream gifted student. Each group can learn from each other and become aware of their similarities (Begoray & Slovinsky, 1997). Begoray and Slovinsky also discovered that it is important for the teachers to be the primary learning source. In the middle class or higher SES gifted students' life, a parent will often take on that role. The authors also explained that it is important for the teacher to use real-life learning examples for the low socio-economic gifted students. This helps the students see the value in their education and how they may be able to give back to their community. Lower SES students are frequently very loyal to their communities, and this provides both a touchpoint and a motivation for their studies. Kitano (2003) and Begoray and Slovinsky (1997) both agree that non-traditional assessments are needed when identifying gifted students of a low SES background. Teachers need to look for… "Independence in action, language rich in

imagery, leadership ability, and resourcefulness" (Begoray & Slovinsky, 1997, para 21). Kitano (2003) notes that along with the non-traditional assessments, gifted students from a low socio-economic background also need additional academic and emotional support. Furthermore, schools need to guide parents in participating in their students' academic careers.

Another complication for which there is not an abundance of available research, is the idea that gifted students are teacher pleasers. The research of McGee and Hughes (2011) found that gifted students are sometimes teacher pleasers; therefore, they do what is asked of them, nothing more and nothing less. The students set out to make the teacher happy, but in the process, they settle for less than they are capable of and do not challenge themselves academically. Lashaway-Bokina (2000) agrees and discusses the need for gifted students to become, or stay, intrinsically motivated. Teachers often reward the students' work with external motivation and overlook the students who are working because they want to work. Over time, as McGee and Hughes (2011) stated, those students, just might stop working. Educators want to create life-long learners. Lashaway-Bokina (2000) found that most gifted students start their educational career having intrinsic motivation. It is imperative to help the gifted students continue on that path.

Emotional needs of the gifted student are yet another need that can have wide ranges depending on the child. McGee and Hughes (2011) found that gifted students tend to become emotionally overwhelmed due to the mass amount of information they are absorbing on a day to day basis. They can become perfectionists and put too much pressure on themselves, or they may walk away from a challenging activity feeling like a

total failure. Pratt's (2009) finds were similar and added disorganization, loneliness, and self-absorption to the list of traits gifted students deal with on a regular basis. The gifted student also has to process the concept of self. They have to emotionally deal with their strengths and weaknesses and how to handle them (Rinn, Plucker, & Stocking 2010). Self-esteem is something that the gifted student needs to balance, too. It would be easy to be bullied if the student is different academically from their peers, but there is also the issue of the gifted student becoming a know-it-all. If the bullying is severe, especially in the middle school age group, there is an increased risk of suicide in the gifted student (Allen, 2017). Balancing their emotions can become difficult (Rinn, Plucker, & Stocking 2010). One suggestion from Pope (2011) to help meet the students' needs is to get the student involved in extracurricular activities. This will help boost their self-confidence, help them interact with peers, and possibly even help them academically.

The needs of a gifted student are vast and when they are met, the student can soar. This section covered the gifted students' needs of support in the classroom, differentiated instruction, collaboration of parents and teachers, collaboration of gifted education teachers and general classroom teachers, social needs, emotional needs, and the need to distinguish between homework and study habits. These elements need to be in place for the gifted student to be supported in the best way.

High School Gifted Programs

There is also little to no funding that comes with having a gifted program, so few high schools participate. When they are participating, they are working with the younger students and relying on AP and IB course to take the place of gifted education at the

secondary level (Sausner, 2005), or the districts are under the impression that gifted students will do fine on their own (Lyon, 1980).

The most effective strategy of gifted education was mentioned earlier in the review: Collaboration. A gifted student needs to have support. There are, however, many programs that are in place that effectively aid in challenging students to reach their highest potential. Some examples that will be reviewed are: Response to Intervention (RTI), Advanced Placement (AP), International Baccalaureate (IB), School-wide Enrichment Model (SEM), Javits, and Science, Technology, Engineering, and Mathematics (STEM).

Response to Intervention (RTI) was developed to help struggling students have more time to work on content (Rollins et al., 2009). Response to Intervention is beginning to change as educators are seeing a need to support all students, not just those who are struggling. Interventions of learning happen after the lesson is taught. During the lesson, the teacher is observing to determine levels of understanding. Next the teacher differentiates. Each student is presented a challenge on his or her level. For some it will be more practice; for some it will be a hands-on enrichment; others will need to be retaught. This program ensures that gifted students are working to their potential while in the regular classroom setting (Rollins et al., 2009). Hughes and Rollins (2009) discuss the issue of falling achievement levels among gifted students when they are not challenged, and how RTI needs to address the issue, fix it within their program, and not allow the student to have the "good enough" attitude.

Advanced Placement and International Baccalaureate are also programs enlisted to help challenge not only the identified gifted students but also the high achieving

students. The Advanced Placement and International Baccalaureate classes fill part of the needs that gifted students have, but they are not meeting the overall students' needs.

The School-wide Enrichment Model (SEM) is a newer concept that takes AP and IB classes to the next level. On the SEM Website Renzulli and Reis (n.d.) state, "[this model is] applying general enrichment strategies to all students and opportunities for advanced level follow-up opportunities for superior learners and highly motivated students" (Renzulli & Reis, n.d.). This model is not a stringent curriculum that every gifted student is following. It allows students the freedom to explore in their learning. This flexibility helps the gifted student achieve at greater heights. SEM allows the gifted student to work on a project in their own area of interest. The student will go much more in-depth in the topic and will find more questions that they would like answered. This type of project is much more valuable for the college and career readiness path.

The programs that have shown to be successful are those funded by the Jacob Javits Gifted and Talented Students Education Act (National Association for Gifted Childrend, (n.d.), a program that was defunded during 2011-2013. According to the Missouri Department of Education, by 2015 the funding was back in place. The official Javits Program website shares the program's purpose: "to carry out a coordinated program of evidence-based research, demonstration projects, innovative strategies, and similar activities designed to build and enhance the ability of elementary schools and secondary schools nationwide to identify gifted and talented students and meet their special educational needs" (para.1, 2017). The Javits programs are entitled Mentoring Mathematical Minds, Project G.A.T.E. and C.L.U.E., and Project Real. The Mentoring Mathematical Minds program is a pull-out program that deals with working together and

problem solving. Teachers were trained to identify and teach students who were being underserved with the Project G.A.T.E and C.L.U.E. and Project Real programs. New York City students were able to use Project IMAGINE when area schools worked with the Bronx Zoo to create an enriching environment to work and learn (Winkler & Jolly, 2011).

Science, Technology, Engineering, and Mathematics (STEM) education is the newest program to challenge gifted students, but a student does not have to be identified as gifted to participate. This program seeks to encourage students to go into those specific fields of study. When compared to other programs, the largest difference is that STEM education has other funding sources. It is not federally funded, but is funded by businesses, state governments, and grants. Federal budget cuts cannot take it away (Jolly 2009). STEM education can occur for students who have developmental disabilities or learning disabilities in the same way as it does for gifted students. STEM is an inclusive program for all students who wish to enter the selected fields of study.

Winbrenner and Brulles (2008) and Perrone, Wright, Ksiazak, Crane, and Vannatter (2010) all have similar ideas when it comes to building an advanced program. To have a successful advanced program, like the above mentioned, the elements that are needed are peer interaction, intellectual interactions (interactions with people of the same level of intellect), differentiated instruction, proper teacher training, and a well-rounded curriculum. With the proper teacher training, the true level of differentiated instruction can happen. The instruction is individualized based on level, interest, and background. Students should be able to move at their own pace and be able to gain credit for objectives that have already been mastered (Perrone et al., 2010).

Part of the school system's job is to challenge students daily, but not every program is successful. Lanham (2010) researched a program that was a four-block-a-day model. Each block was 90 minutes long with some AP course offerings. The students involved stated in surveys that this was a failed attempt at challenging students. The block schedule caused scheduling conflicts and taking several AP courses was not an option. One student stated, "I knew that good grades were very important, but I found that grades didn't prove learning and that frustrated me. I found that when I got to college, I was at a disadvantage because I had not had to work at the same levels of rigor as the students sitting next to me in my college classes. I was already behind and I shouldn't have been" (p. 136).

The school's goal was to have students working at a proficient level. However, if the school's goal is proficient, then proficient will be all that students strive for (Lanham 2010). Another student made the comparison to the new schedule and format to the old with the traditional gifted setting at the high school level by stating, "In gifted, our goal was never proficiency. Therefore, I would have never accepted anything less for myself, and neither would my gifted teachers" (p. 135). Teachers need to have the education and support to teach students to have intrinsic drive and to take ownership in their own education. A gifted student should never be willing to just be average.

College and Career Readiness

College and career readiness, as it is defined today, began when President Obama reauthorized the Elementary and Secondary Education Act (ESEA) in 2010. As printed on the ESEA website in the document, *A Blue Print for Reform* (U.S. Department of Education, 2010), President Obama wrote the following:

> Today, more than ever, a world-class education is a prerequisite for success. America was once the best educated nation in the world. A generation ago, we led all nations in college completion, but today, 10 countries have passed us. It is not that their students are smarter than ours. It is that these countries are being smarter about how to educate their students. And the countries that out-educate us today will out-compete us tomorrow. We must do better. Together, we must achieve a new goal, that by 2020, the United States will once again lead the world in college completion. We must raise the expectations for our students, for our schools, and for ourselves—this must be a national priority. We must ensure that every student graduates from high school well prepared for college and a career. (para. 1, 2010)

Unfortunately, students are not yet as prepared for college as they should be. ESEA also states that, "Four of every 10 new college students, including half of those at two-year institutions, take remedial courses, and many employers comment on the inadequate preparation of high school graduates" (U.S. Department of Education, 2010).

Conley (2012) defines college and career readiness as, "A student who is ready for college and career can qualify for and succeed in entry-level, credit bearing college courses leading to a baccalaureate or certificate, or career pathway-oriented training programs without the need for remedial or developmental coursework" (p. 1). Conley breaks down the college and career readiness into four steps: "think, key cognitive strategies; know, key content knowledge; go, key transition knowledge and skills; and act, key learning skills and techniques" (p. 2). His definition further details each of the 'keys.' Cognitive strategy is the concept that the student will know how to problem solve, research, and communicate during the learning process. Content knowledge is the

actual subject matter (i.e., math facts, vocabulary, and being able to tie learning together). In traditional education, this has been the easiest key idea to test, so it has become the focus. Conley, however, says content knowledge is only a part of the whole education needed. Learning skills and techniques is another of Conley's key concepts. This concept focuses on the students' needing to be able to own their own learning and not rely only on their parents and teachers. Students must be able to set goals, to be self-advocates, and to be persistent in their own learning. Students must also have good time management, be able to use technology, and be able to work as a team. The last key is transition knowledge. Transition knowledge is the concept that students are aware of what is expected of them outside of high school and they understand how to get there. The student has the ability to apply for college and to seek the resources needed to be successful. The student has the concept of what it is going to take to be in the workforce and is able to transition into that position after high school (Conley, 2012).

In the College and Career Readiness Quick Facts Sheet, Conley states, "Ninety-three percent of middle school students report that their goal is to attend college. However, only 44% enroll in college, and only 26% graduate with a college diploma within six years of enrolling" (Conley, 2012, p.1). The other 67% is left with some to no post-secondary schooling, yet they had that goal. The Blueprint of College and Career Readiness states, "The goal for America's educational system is clear: Every student should graduate from high school ready for college or a career. Every student should have meaningful opportunities to choose from upon graduation from high school (U.S. Department of Education, 2010, pg.1)." If that is the case, why are the 67% not being successful? Pierce (2015) states, "The key is not just in showing and telling the students

about readiness, it is in providing them with every possible opportunity to be college-ready" (p. 23). This is not limiting the college and career readiness to just academic readiness. The students, as a whole, need to be college and career ready; academic preparedness is just a part of the answer. Many states, such as Missouri, have the category of academic preparedness listed only in their definition of college and career ready. College and Career Readiness and Success Center (n.d.) lists college and career ready as,

> "College and career readiness means that a high school graduate has the necessary English and mathematics knowledge and skills—including, but not limited to, reading, writing, communications, teamwork, critical thinking and problem solving—either to qualify for and succeed in entry-level, credit-bearing two- or four-year college courses without the need for remedial coursework, or in workforce training programs for his/her chosen career that offer competitive, livable salaries above the poverty line, offer opportunities for career advancement, and are in a growing or sustainable industry" (para. 1)."

College and Career Readiness through the Lens of Gifted Education

Lane (2006) found that just because students are doing well on high school achievement tests, does not mean they are ready to be successful in college. While Missouri's definition of college and career readiness is derived from Conley's (2012) definition, it is missing parts of the whole that Conley felt were just as important. The ACT Inc. 2016 report for Missouri showed that Missouri was behind the nation in every core subject's college and career readiness benchmark. However, in 2016, 100% of Missouri high school juniors took the ACT compared to only 64% of the juniors nation-

wide (ACT, 2016). This makes comparisons difficult when students who were forced to take the test are being compared with students who had the choice to take the test. ACT has been the benchmark across the nation regarding college and career readiness. ACT created the benchmarks by working with two-year and four-year institutions across the nation analyzing first year students' course grades compared to their ACT scores (ACT Inc., 2010). They were also able to analyze scores received in 8th and 10th grades so that high schools could have an intervention for those students who were not on the track to be college and career ready (ACT Inc., 2010). ACT, too, recognizes that they have only been testing part of the whole when it comes to college and career readiness. "Simply put, the ACT alone is not enough to measure the full breadth of career readiness. A more holistic assessment model, incorporating multiple domains and specific skills associated with career clusters or occupations, will typically be most appropriate for describing and evaluating student readiness for college and career." (ACT Inc., 2016, p.6)

The needs of the gifted student and the need to be college and career ready have some similarities. In both, the focus cannot be on solely the academics of the student but should address the students' learning process as a whole. Needs for self-advocacy, self-regulation, and communication also need to be supported in both gifted education and in preparing students for life after high school. These components paired with a high level of academics will produce higher achievement levels for the gifted student, and in return, an active, productive citizen. There is research on ACT tests and college and career readiness, but there is no research done on the college and career readiness of schools tied to gifted programs. Ironically, in 1971, as Commissioner Marland was searching out the

definition of gifted, he also was focusing on students needing to be prepared for college or a vocation (Marland, 1971a).

Underfunding of Gifted Programs

There is much information available to explain why gifted programs are needed in the education field, yet, they are often the first to be cut. The most obvious reason gifted programs are cut at the high school level is funding. Ward (2005), states "federal support for the gifted has been intermittent at best, and even at its height it has offered very little incentives, financial or legal, for states to prioritize gifted education" (p. 52). According to Ward (2005), in 1931 the federal government created a program for exceptional children and youth. It was the first of its kind. As before mentioned, there is a pendulum swing of gifted education importance throughout the years. Jolly & Robins (2016) state that in 1958 the National Defense Education Act (NDEA) was passed and assigned $1 billion dollars to be spent improving the curriculum of science, math, and foreign language of a four-year period. This act that was passed, affected all students, but especially the high achieving students. It wasn't until 1974 that the Office of Gifted and Talented was established with the United States Department of Education (Lyon, 1980). The Jarvis Act in 1987 was the first real funding source for gifted education, and it has battled the pendulum swing of budget cuts throughout its history (Jolly & Robins, 2016).

The Federal Government has no laws or regulations concerning gifted education, and the only federal funding of the gifted programs comes from the Jarvis Act. In 2015 the state of Missouri allocated $24,870,104 to gifted education. That total is 0.4% of the total state education budget. The state of Missouri does not mandate local districts to identify gifted students, provide services to gifted students, allow early entrance to

kindergarten, nor require general education teachers to have training on gifted students. The state also does not report achievement growth of gifted students. The state allows local districts to decide if they wish to allow acceleration. If a district chooses to have a gifted program, the state will help guide in the identification process of gifted students (if needed), monitor the local program and, while doing that, they will ensure that the teacher has the proper certification in gifted education (NAGC, 2017). There is no accountability to have a gifted program, and the schools are only monitored if they choose to have one. There is also little to no funding that comes with having a program, so few schools participate. When they are participating, they are working with the younger students and relying on AP and IB course to take the place of gifted education at the secondary level (Sausner, 2005), or the districts are under the impression that gifted students will do fine on their own (Lyon, 1980).

In 1969, four Senators and Representatives, Ashbrook, Erlenborn, Gallagher, and Quie, gave a report to The United States Congress and House (Jolly & Robbins, 2016). In this report they stated that where there are no monies, no action would be taken. They also spoke to the idea that teaching 'mediocracy' would not be ideal for our students as a whole. They wanted the goal of education to be giving the greatest opportunity to all. "Let us raise those who have the greatest disadvantage and the greatest learning disabilities but let us also reach the greatest potential for the gifted and talented at the same time" (Jolly &Robbins, 2016, p. 135,). The same article from Jolly and Robbins, states that in 2015 federal funding gave $10 million dollars to gifted education, $11 billion to special education, and $75 billion, over the next 10 years, to early childhood education. Ninety percent of the federal education budget is geared toward students who

are in special education or of a socioeconomic disadvantage. Ward (2005) writes that the pressure from the federal government is helping the lowest performing students, while harming the gifted student.

Ward also discusses the struggle between equality and excellence. As a society, the focus has been on equality in education. IDEA ensures that students who have a disability be place in the least restrictive environment and mandates that the schools' focus is on preparing those students to the best of their ability. Ward also writes that the focus on standardized test scores are an issue as well. Teachers are teaching to the middle. The students who are high achievers are often left to the side because they already know their content, or sometimes they become tutors for the other students (Stanley & Baines, 2002). The political idea of education is stated by Ward (2005), "The fundamental goal of public education is not to guarantee equality but to ensure that all students receive threshold levels of training that will prepare them to be good and participating citizens" (Ward, 2005, p. 51). If this is the case, gifted students have achieved this level of knowledge at a very early age. However, the proponents of gifted education argue that the goal of public education should be students should receive the services to help them gain their full potential. Ward does not argue that students with disabilities not receive special accommodations; she just feels that students who are gifted should also have accommodations for their needs to be met as well.

Like Ward, Stanley and Baines (2002) discussed many of the same concepts concerning gifted education. Gifted education is limited due to budgets, high stakes testing, and the fear of non-equality education. Stanley writes, "The message is clear: if a ten-year-old can only learn what a six-year-old can, money will be spent, but if a six-

year-old can learn what a ten-year-old can, nothing is done" (Stanley & Baines, 2002, p.11). He follows up with the awareness that this isn't a fair education system. Each student should be gaining what they need from the curriculum, not encountering a curriculum that is one-size-fits-all. Students will not be prepared for college or career if their needs are not met in the high school setting.

Summary

The literature review in Chapter Two overviewed the history of gifted education, the overall needs of the gifted students, and the need for high school gifted programs. This history was shown to be on a pendulum of sorts with the support of gifted education dependent on current political and economic factors in the nation and the world. If other nations seem to be in the lead, the support of gifted education tends to be high. When the United States feels it is superior to other nations in academics, the focus is switched back to other ideas. The country's desire to enhance gifted students' education laid a foundation to support their actual needs. There is a large misconception that the only need of the gifted student is the academic acceleration or challenge. In reality, however, the needs of a gifted student are much more complex, and often their overall needs are higher than the general population. This is especially true if the gifted student is to reach his or her highest potential.

Educational needs are a small part of the whole spectrum of needs of gifted students. The next section of this chapter explained the need for high school gifted programs. Research indicated a student's need to be more than just proficient. In order for the needs that were addressed in the previous section to be met, the schools must have a program in place for the gifted students, addressing social, emotional, cooperative, and

academic needs. Another section of this review of literature focused on the need for all students to be college and career ready. With the college and career readiness benchmarks in place, making connections to what gifted students need to be successful should be obtainable. The last section of the literature review in Chapter Two presented the reasons behind gifted programs being defunded from schools. Budget cuts, standardized tests, and fear of not having educational equality are the main reasons gifted programs are not supported in public education.

Educating the gifted student in individual subjects by means of AP and IB courses are not enough for these students. They need more support to ensure that they are successful in the college and/or careers.

Chapter Three covers the methodology of the study and goes into more detail about how the study was designed and implemented. This chapter covers the process that schools use to report their data to DESE and how that database can be used. Public information was utilized to tie gifted programs to high school college and career readiness scores.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

Introduction

The purpose of this study was to determine whether there was a relationship between high schools having a gifted program and college and career readiness scores of the school. This study examined the data from the Missouri Department of Education Secondary and Elementary (DESE) concerning whether high schools have gifted programs and the same high schools' college and career readiness scores. The researcher examined if there was a statistically significant relationship between the existence of high school gifted programs and college and career readiness scores of high schools in Missouri. In order to address this research question, data from Missouri DESE were examined to explore the relationship between the existence of gifted programs and college and career readiness. The null hypothesis is there will be no positive impact of high school gifted programs on college and career readiness of students. The researcher compared college and career readiness scores for high schools with gifted education programs to the scores for high schools without gifted education programs. The study examined data from school years 2015-2017. The number of high schools who have a gifted program range from 79 to 105 during the 2015-2017 years. This study was completed to better understand the impact of the gifted programs on college and career readiness of those students.

Participants

As this study is based on school-level data, there are no individual participants. Therefore, this section will describe the high school-level data available from DESE. The

DESE database identified the 637-634, 2015-2017, high schools in the state of Missouri to determine which do and do not have gifted programs. The DESE database also has the college and career scores of each district. The high schools that had a gifted program and their college and career readiness scores were compared to the high schools who did not have a gifted program and their corresponding level of college and career readiness. All of this information came directly from the DESE database.

The schools differ greatly across the state in many different areas. All demographics were gathered from the DESE website for the 2015-2017 school years. The census bureau defines Core Based Statistical Areas (CBSAs) as consisting, "of the county or counties or equivalent entities associated with at least one core (urbanized area or urban cluster) of at least 10,000 population plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties associated with the core" (Branch, 2012). Eight percent of districts are located in large cities, less than 1% are located in large towns, 4% are located in mid-size cities, 15% are located in small towns, 18% are located in urban fringe of large cities, 3% are located in urban fringe of mid-size cities, 15% are located in rural inside CBSA, and 36% are located in rural outside CBSA. The overall district's average of free and reduced lunch during the 2015-2017 school year was 53%. Overall District ethnicity demographics were broken down as 85% white, 16% black, 5% Hispanic, 2% other, and 3% multicultural. The ability for students to be classified as multicultural accounts for the total ethnicity percentage exceeding 100%. Overall 92% of high school graduates were employed, continuing their education, or were in the military.

Procedure

In accordance with the guidelines of Southwest Baptist University regarding the protection of human participants, a request for review was submitted to the Research Review Board for approval for this study. Upon receiving IRB approval, data collection began. This study sought to identify the districts, not individuals, and utilized only public state data. There was no concern of participant confidentiality and there was no foreseen harm to the high schools. Individuals' scores, names, or any other personal information was not gathered or shared. The pieces that were examined only included the districts' overall numbers.

Selection/Sampling

Using the information from DESE to find the names of public high schools, names of individual schools that have a gifted program, and each schools' college and career readiness scores, the researcher entered those numbers into SPSS. In 2015 there were 637 schools without a gifted program, in 2016, 636, and in 2017, 634. These totals compare to 105 schools in 2015, 94 schools in 2016, and 79 schools in 2017 with a gifted program. The selection is all part of the public database found on the DESE website.

Research Setting

The purpose of this study was to determine whether there was a relationship between high schools having a gifted program and college and career readiness scores of the school. The data collected from the DESE database included names of public high schools in Missouri, the demographics of the high schools, whether the high schools had a gifted program, and the college and career readiness scores of high schools. All

information can be found on the DESE database, but each component is reported to DESE from the district on different forms.

Research Design

The information from the database at DESE created a list of high schools in the state of Missouri. From there, the researcher requested the list of schools that have had a gifted program for the three school years of 2015-2017. DESE lists school years using only the Spring year, ie 2014-2015 school year is listed as, 2015. The researcher also collected the college and career readiness scores from each district along with each schools' demographics. This information was placed into the Statistical Package for the Social Sciences (SPSS) software. Once entered into the software, the data were analyzed to determine the impact of gifted programs on schools' college and career readiness scores. The null hypothesis is there will be no positive relationship between and high school gifted programs on college and career readiness of students. The study also examined the district level demographic variables and how they may impact the relationship between having gifted programs and college and career readiness (CCR) scores.

Instrumentation

The source of data of this study had three parts, all coming from the same database. Section One defined the presence of gifted education. Gifted education is a course or resource room that is offered to students who have been identified as gifted. The presence of gifted education is reported to DESE two times a year by the guidance office. The section also differentiated gifted students who are being served and gifted students who are not being served. In the high school setting, the students can work with

a gifted resource teacher at flexible times in order for the district to qualify as a district that has a gifted program. The gifted education program's existence and the college and career readiness score are reported each year by the school guidance counselor. During the school years, 2015, 2016, and 2017, dual credit IP and AP courses were allowed to be counted for the presence of a gifted program in the high school setting. For the 2018 school year, those courses will no longer count toward serving gifted students. The new definition has not been fully developed by DESE.

Section Two of the instrument consisted of college and career readiness scores. The district scores, by school, are reported twice a year, once in October and then again in June. These scores are also reported to the state by the district's guidance office. The data that are being collected consists of ACT scores, AP/dual credit enrollment and how many students received college credit from those courses, and the number of students who are employed or are in more training at least 6 months after graduating. Another part of the college and career readiness score is determined by the college and career readiness feedback survey. DESE has determined that these data can be aggregated to form a unified score. The survey consists of average of student GPA during first year of college, the average number of students that stayed in college for 2 years, and an average number of students who need remedial courses once in college. All of this information is collected and reported to DESE in a form but is separated out once in the DESE database.

Section Three of the data source consisted of school level demographic variables that are calculated from student enrollment. The demographic variables that are collected are ethnic background percentages, free and reduce lunch rates, and regional information (urban, rural, etc.). They are reported twice a year but rarely change. The guidance office

must report this set of data as well. The only data not gathered by the researcher were the end of the year data, since the July data were not significantly different from the October data when looking at demographics. There was no need to examine each of numbers for this particular study.

Data Analysis

This quantitative study was conducted in order to determine whether there was a relationship between high schools having a gifted education program and the college and career readiness of the school. The data were analyzed using the SPSS software. The *t*-test was used to determine if there was a statistically significant difference of college and career readiness scores between schools who had a gifted program in high school and those who did not. Typical *t*-test assumptions were checked before analyses were conducted.

Correlations between demographics and college and career readiness scores were explored. It was anticipated that districts with higher free and reduced lunch rates would have lower college and career readiness scores. It was also anticipated that rural schools with less resources would also have lower college and career readiness scores. The point-biserial correlational test also allowed the researcher to see the relationship between schools that have gifted education programs and how those variables impacted the schools' college and career readiness scores. The presence of outliers and assumptions of linearity and homoscedasticity were checked before analyses were conducted.

The researcher used logistic regression to account for the variance produced by demographics, allowing a clearer picture of the relationship between presence of gifted programs and college and career readiness. Logistic regression allowed the researcher to

select a subset of demographic variables to eliminate (i.e., free and reduced lunch, ethnicity, etc.) to have the best predictive model of the relationship between gifted programs and school readiness. By running a multiple regression analysis, data was assessed to check the correlation with the college and career readiness scores of the schools and the schools having a high school gifted program. The researcher also explored covariates with college and career readiness scores.

Summary

In Chapter Three the researcher presented the methodology that was used in the study. The researcher outlined the methods and materials that were used for data collection and the process by which data were collected and analyzed. Accessing extant DESE databases was the methods of collecting the data. In Chapter Four the researcher will present the results of the study. Through the use of tables and quantitative analysis, the researcher will discuss the findings of the research. In Chapter Five the researcher will summarize the completed study, present conclusions, discuss implications of this research for the field, and make recommendations for future research.

CHAPTER FOUR: RESULTS

Introduction

In Chapter Four the researcher will present the results of the study. The researcher used tables to display the findings that resulted from the quantitative analysis. There is little research on the relationship of high school gifted programs to college and career readiness scores. The purpose of this study was to determine whether there was a relationship between high schools having a gifted program and college and career readiness scores of the district.

The researcher provided a detailed list of procedures for conducting this study in Chapter Three. All data were pulled from the Missouri Department of Elementary and Secondary Education (DESE) database and uploaded into the SPSS software program for analysis. The following research questions were addressed:

The following question guided the research:

1. Is there a relationship between the existence of high school gifted programs and college and career readiness scores of high schools in Missouri?

    a. Do the demographics of the school impact the relationship between gifted programs and college and career readiness?

In an effort to answer the previously mentioned research questions, the following null (H0) was addressed:

H_{01}: There will be no statistically significant relationships between high school gifted programs and college and career readiness of students.

The DESE database provided indication of whether a district had a high school gifted program or not. There is not a composite college and career readiness score, but it

is a combination of composite ACT scores, graduation rates, remedial college classes, and graduation follow-up surveys. Two-tailed independent samples *t*-tests were utilized to determine whether to reject or fail to reject the null hypothesis. The researcher also analyzed chi-square tests to determine free and reduced lunch percent and district locale differed whether presence of districts having a high school gifted program. Regression analyses evaluated the impact of free and reduced lunch and presence of a gifted program on composite ACT scores, graduation rates, and remedial college course enrollment.

Descriptive Statistics for Schools

The researcher began by analyzing frequency tables of relevant details concerning districts in the state of Missouri. These analyzes were conducted to give a comparison for further analyzes that will break down these scores with districts with high school programs and those without. The state's average free and reduced lunch rate ranged from 52.2%-54.7% during the 2014-2017 school years, indicating over 50% of students had poverty at home. The average composite median ACT score was a range of 19.9-20.8 during the 2014-2017 school years; this range is lower than the national average of 20.8-21, due to the fact that all Missouri juniors took the ACT in 2016 and 2017, not just the college-bound. The median composite ACT score was used because of outliers and negatively skewed data. The graduation rates were between 93.6%-94.74%, also during the 2014-2017 school years. Districts' graduation rates can be skewed because of students who have IEPs and for some students signing a homeschool form rather than a drop-out form. The median graduation rate was used because of outliers and negatively skewed data. See Tables 1 and 2 below for more details.

(Table 1). Data in Year, Mean, Standard Deviation, and Composite ACT Score

Year	*N*	Mean (*SD*)	Median Composite ACT
2014	454	20.66 (1.7)	20.8
2015	448	20.65 (1.6)	20.8
2016	435	19.20 (1.68)	19.3
2017	415	9.30 (1.6)	19.9

(Table 2). Data in Year, Mean, Standard Deviation, and Median Graduation Rate

Year	*N*	Mean (*SD*)	Median
2014	443	92.2 (8.4)	93.6
2015	443	93.04 (7.19)	94.37
2016	437	93.74 (6.58)	94.74
2017	435	93.37 (6.74)	94.74

Note. Median was used because of outliers and negatively skewed data.

Independent *t*-tests on Post-High School Education and Employment

The researcher gathered the data from the DESE database to address the first research question: Is there a statistically significant relationship between the existence of high school gifted programs and college and career readiness scores of high schools in Missouri? Several two-tailed independent sample *t*-tests were performed to assess whether college and career readiness scores were significantly different between districts having high school gifted programs or not. Assumptions for *t*-test were checked including: the independent variable has two levels, districts who have a high school gifted program, and districts who do not; and the dependent variables are continuous- districts ACT composite scores, graduation follow-ups, and percentages enrolled in college remedial courses during a four-year span.

A sample size of 82% of districts reporting (N = 400 or larger) is sufficient to meet the assumptions of normality. The independent variable is comprised of two completely independent groups – districts with gifted programs vs. districts without gifted programs. Finally, the assumption of homogeneity of variance was assessed by the Levene's F test, F with alpha = .05. When homogeneity could not be assumed, then the adjusted values for t-test and p were used. This test was used to determine whether there was a statistically significant difference in districts who have a high school gifted program and those that do not.

t-Test on ACT Composite Scores

Independent samples t-tests were conducted to compare the district ACT composite score by whether districts have a high school gifted program during the 2014-2017 school years. For all four years Levene's test showed that equal variances can be assumed. For 2014, a significant difference was found, t (451) = 4.154, p < .001 Districts with gifted programs had higher composite ACT scores than districts without gifted programs (M_{gifted} = 21.249, $M_{notgifted}$ = 20.491). For 2015, a significant difference was found, t (446) = 3.299, p < .001. Districts with gifted programs had higher composite ACT scores than districts without gifted programs (M_{gifted} = 21.099, $M_{notgifted}$ = 20.502). For 2016, a significant difference was found, t (433) = 4.220, p < .001. Districts with gifted programs had higher composite ACT scores than districts without gifted programs (M_{gifted} = 19.807, $M_{notgifted}$ = 19.013). For 2017, a significant difference was found, t (413) = 4.234, p < .001. Districts with gifted programs had higher composite ACT scores than districts without gifted programs (M_{gifted} = 19.931, $M_{notgifted}$ = 19.130). See Tables 3-6. Note that in 2016 and 2017, all juniors in the state of Missouri were required to take the

ACT. Therefore, for all four school years studies, districts who had high school gifted programs had higher composite ACT scores than districts without. The hypothesis was supported that high school gifted programs had a positive effect on composite ACT scores.

t-Test on College Attendance Rate

Next, independent samples *t*-tests were conducted to compare the district's percent of students who went to college and whether districts have a high school gifted program during the 2014-2017 school years. For all four years Levene's test showed that equal variances can be assumed. Only in 2014 was a significant difference found, t (446) = 4.154 $p < .001$. Districts with gifted programs had a higher amount of students that went to college than districts without gifted programs in 2014 ($M_{gifted} = 63.636$, $M_{notgifted} = 60.690$). In 2015-2017 no significant differences were found. See Tables 3-6. Therefore, the researcher can only support the hypothesis with 2014 data because there were no significant differences in 2015, 2016, or 2017 on graduation rates and districts that had a high school gifted program.

t-Test on Employment Rate

A third set of independent samples *t*-tests were conducted to compare the district's percent of employed students after high school and whether districts have a high school gifted program during the 2014-2017 school years. For all four years Levene's test showed that equal variances can be assumed. For 2014 a significant difference was found, t (377) = 3.301, $p < .001$. Districts with gifted programs had lower amounts of students that were employed than districts without gifted programs ($M_{gifted} = 23.361$, $M_{notgifted} = 27.231$). For 2015 a significant difference was found, t (363) = 2.118, $p <$

.035. Districts with gifted had lower amounts of students that were employed than districts without gifted programs (M_{gifted} = 25.920, $M_{notgifted}$ = 28.778). See Tables 3-6. Equivocal support is found that districts with high school gifted programs had more students employed in 2014 and 2015 and no significant difference was found in 2016 and 2017.

t-Test on Noncollege Rate

The noncollege categories are for students who went to a trade school, such as beauty school, welding school, electrician school, etc. Independent samples *t*-tests were conducted to compare the district's percent of noncollege students and whether districts have a high school gifted program during the 2014-2017 school years. For all four years Levene's test showed that equal variances cannot be assumed, therefore, adjusted *t* and *p* values are reported. For 2014 a significant difference was found, t (83.725) = 3.320, $p <$ .001. Districts with gifted programs had a lower percent of students that were noncollege than districts without gifted programs (M_{gifted} = 3.875, $M_{notgifted}$ = 7.336). For 2015 a significant difference was found, t (89.781) = 3.163, $p <$ .002. Districts with gifted programs had a lower percent of students that were noncollege than districts without gifted programs (M_{gifted} = 4.386, $M_{notgifted}$ = 8.227). For 2016 a significant difference was found, t (80.337) = 4.138, $p <$ .001. Districts with gifted programs had a lower percent of students that were noncollege than districts without gifted programs (M_{gifted} = 3.388, $M_{notgifted}$ = 8.615). For 2017 a significant difference was found, t (62.624) = 3.794, $p <$ .001. Districts with gifted programs had a lower percent of students that were noncollege than districts without gifted programs (M_{gifted} = 3.481, $M_{notgifted}$ = 9.425). See Tables 3-6.

This is contrary to the hypotheses that districts without a high school gifted program had higher rates of noncollege in all four years.

t-Test for Unknown

Finally, independent samples *t*-tests were conducted to compare the district's percent of "unknown" in the graduation follow-up and whether districts have a high school gifted program during the 2014-2017 school years. The unknown category was utilized for students that the district was unable to contact or find information on. For 2014, 2015, and 2017 Levene's test showed that equal variances cannot be assumed, therefore, adjusted *t* and *p* values are reported. In 2016, Levene's test showed that equal variances could be assumed. For 2014 a significant difference was found, t (50.450) = 3.568, $p < .001$. Districts with gifted programs had lower percent of students in the unknown category than districts without gifted programs ($M_{gifted} = 4.437$, $M_{notgifted} = 9.988$). For 2015 a significant difference was found, *t* (43.258) = 2.381, $p < .022$. Districts with gifted programs had lower percent of students in the unknown category than districts without gifted programs ($M_{gifted} = 4.850$, $M_{notgifted} = 7.963$). For 2016 a significant difference was not found. For 2017 a significant difference was found, *t* (48.322) = 2.825, $p < .007$. Districts with gifted programs had lower percent of students in the unknown category than districts without gifted programs ($M_{gifted} = 4.405$, $M_{notgifted} = 9.068$). See Tables 3-6. While it is difficult to know how unknown affects the districts with high school gifted programs, it may show that districts with a high school gifted program are more connected with the students.

Overall, districts with a high school gifted program had higher ACT composite scores and had more students attending college. The districts without a gifted program

had more students that were employed after graduation, attending a trade school and unknown.

(Table 3). District College and Career Readiness Outcomes by Presence of Gifted Programs (2014).

	Means for Gifted	Means for Not Gifted	*p*
Composite ACT	21.249	20.491	.000
Percent College	63.636	60.690	.023
Percent Employed	23.361	27.231	.001
Percent Non-College	3.875	7.336	.001
Unknown	4.437	9.988	.001

(Table 4). District College and Career Readiness Outcomes by Presence of Gifted Programs (2015).

	Means for Gifted	Means for Not Gifted	*p*
Composite ACT	21.099	20.502	.001
Percent College	62.533	60.264	ns
Percent Employed	25.920	28.778	.035
Percent Non-College	4.386	8.227	.002
Unknown	4.850	7.963	.022

(Table 5). District College and Career Readiness Outcomes by Presence of Gifted Programs (2016).

	Means for Gifted	Means for Not Gifted	*p*
Composite ACT	19.807	19.013	.013
Percent College	61.839	59.377	ns
Percent Employed	27.811	29.169	ns
Percent Non-College	3.388	8.615	.000
Unknown	5.152	10.701	ns

Note. ns = not significant data.

(Table 6). District College and Career Readiness Outcomes by Presence of Gifted Programs (2017).

	Means for Gifted	Means for Not Gifted	*p*
Composite ACT	19.931	19.130	.000
Percent College	62.313	60.285	ns
Percent Employed	26.914	29.323	ns
Percent Non-College	3.481	9.425	.000
Unknown	4.405	9.068	.007

Note. ns = not significant data.

Independent t-tests on College Remedial Courses

***t*-Test on Remedial Math**

A set of independent *t*-tests were conducted on multiple indicators of student's participation on college remedial course work. First, independent samples *t*-tests were conducted to compare the district's percent of students enrolled in remedial math and whether districts have a high school gifted program during the 2014-2017 school years. For all four years Levene's test showed that equal variances cannot be assumed, therefore, adjusted *t* and *p* values are reported. For 2014 a significant difference was found, t (243.351) = 2.479, $p < .014$. Districts with gifted programs had lower percent of students enrolled in remedial math than districts without gifted programs ($M_{gifted} = 26.50$, $M_{notgifted} = 30.16$). For 2015 a significant difference was found, t (232.47) = 2.248, $p < .025$. Districts with gifted programs had lower percent of students enrolled in remedial math than districts without gifted programs ($M_{gifted} = 24.38$, $M_{notgifted} = 27.54$). For 2016 a significant difference was found, t (191.77) = 3.316, $p < .001$. Districts with gifted programs had lower percent of students enrolled in remedial math than districts without gifted programs ($M_{gifted} = 20.03$, $M_{notgifted} = 24.90$). For 2017 a significant difference was found, t (151.866) = 2.027, $p < .044$. Districts with gifted programs had lower percent of

students enrolled in remedial math than districts without gifted programs (M_{gifted} = 18.40, $M_{notgifted}$ = 21.24). See Tables 7-10. For all four school years, districts without gifted programs had more students enrolled in remedial math courses at the college level.

t-Test of Remedial English

Independent samples *t*-tests were conducted to compare the district's percent of students enrolled in remedial English and whether districts have a high school gifted program during the 2014-2017 school years. For 2014, 2015, and 2016 Levene's test showed that equal variances cannot be assumed, therefore, adjusted *t* and *p* values are reported. In 2017, Levene's test showed that equal variances could be assumed. For 2014 a significant difference was found, t (235.374) = 3.321, $p < .001$. Districts with gifted programs had lower percent of students enrolled in remedial English than districts without gifted programs (M_{gifted} = 13.39, $M_{notgifted}$ = 17.10). For 2015 a significant difference was found, t (222.134) = 2.863, $p < .005$. Districts with gifted programs had lower percent of students enrolled in remedial English than districts without gifted programs (M_{gifted} = 12.33, $M_{notgifted}$ = 15.11). For 2016 a significant difference was found, t (192.855) = 3.602, $p < .001$ Districts with gifted programs had lower percent of students enrolled in remedial English than districts without gifted programs (M_{gifted} = 11.69, $M_{notgifted}$ = 15.81). For 2017 a significant difference was found, t (287) = 2.537, $p < .012$. Districts with gifted programs had lower percent of students enrolled in remedial English than districts without gifted programs (M_{gifted} = 11.28, $M_{notgifted}$ = 14.80). See Tables 7-10. For all four school years, districts without gifted programs had more students enrolled in remedial English courses at the college level.

t-Test of Remedial Reading

Independent samples *t*-tests were conducted to compare the district's percent of students enrolled in remedial reading and whether districts have a high school gifted program during the 2014-2017 school years. For 2014, 2015, and 2016 Levene's test showed that equal variances cannot be assumed, therefore, adjusted *t* and *p* values are reported. In 2017, Levene's test showed that equal variances could be assumed. For 2014 a significant difference was found, t (245.777) = 4.829, $p < .001$. Districts with gifted programs had lower percent of students enrolled in remedial reading than districts without gifted programs ($M_{gifted} = 8.50$, $M_{notgifted} = 12.76$). For 2015 a significant difference was found, t (205.407) = 3.542, $p < .001$. Districts with gifted programs had lower percent of students enrolled in remedial reading than districts without gifted programs ($M_{gifted} = 8.44$, $M_{notgifted} = 11.91$). For 2016 a significant difference was found, t (174.879) = 4.611, $p < .001$. Districts with gifted programs had lower percent of students enrolled in remedial reading than districts without gifted programs ($M_{gifted} = 7.57$, $M_{notgifted} = 12.28$). See Tables 7-10. For three school years, districts without gifted programs had more students enrolled in remedial reading courses at the college level except for 2017 where a significant difference was not found.

t-Test of Remedial Other

Independent samples *t*-tests were conducted to compare the district's percent of students enrolled in remedial other and whether districts have a high school gifted program during the 2014-2017 school years. For all four years Levene's test showed that equal variances cannot be assumed, therefore, adjusted *t* and *p* values are reported. For 2014 a significant difference was found, t (37.935) = 2.547, $p < .015$. Districts with gifted

programs had lower percent of students enrolled in remedial other than districts without gifted programs (M_{gifted} = 7.73, $M_{notgifted}$ = 16.37). For 2015 a significant difference was found, t (71.209) = 2.769, p < .007. Districts with gifted programs had lower percent of students enrolled in remedial other than districts without gifted programs (M_{gifted} = 5.84, $M_{notgifted}$ = 11.10). For 2016 a significant difference was found, t (52.135) = 2.891, p < .006. Districts with gifted programs had lower percent of students enrolled in remedial other than districts without gifted programs (M_{gifted} = 4.94, $M_{notgifted}$ = 12.06). For 2017 a significant difference was found, t (36.451) = 4.483, p < .001. Districts with gifted programs had lower percent of students enrolled in remedial other than districts without gifted programs (M_{gifted} = 3.21, $M_{notgifted}$ = 13.13). See Tables 7-10. For all four school years, districts without gifted programs had more students enrolled in remedial other courses at the college level.

t-Test of Remedial Any Courses

Independent samples *t*-tests were conducted to compare the district's percent of students enrolled in any remedial class and whether districts have a high school gifted program during the 2014-2017 school years. For all four years Levene's test showed that equal variances cannot be assumed, therefore, adjusted t and p values are reported. For 2014 a significant difference was found, t (238.435) = 2.26, p < .025. Districts with gifted programs had lower percent of students enrolled in any remedial class than districts without gifted programs (M_{gifted} = 30.94, $M_{notgifted}$ = 34.45). For 2015 a significant difference was found, t (254.427) = 2.5, p < .013. Districts with gifted programs had lower percent of students enrolled in any remedial class than districts without gifted programs (M_{gifted} = 28.97, $M_{notgifted}$ = 32.60). For 2016 a significant difference was found,

t (206.883) = 3.586, $p < .001$. Districts with gifted programs had lower percent of students enrolled in any remedial class than districts without gifted programs (M_{gifted} = 24.43, $M_{notgifted}$ = 30.06). See Tables 7-10. For three of the four school years, districts without gifted programs had more students enrolled in any remedial any courses at the college level, the exception of 2017 where a significant difference was not found.

Overall, the researcher found that the districts who had high school gifted programs had a smaller percent of graduates that needed remedial courses in college. This was true for Math, English, Reading, Other, and Any remedial courses.

(Table 7). Remedial Courses by Presence of Gifted Program (2014)

	Means for Gifted	Means for Not Gifted	*p*
Math	26.50	30.16	.014
English	13.39	17.10	.001
Reading	8.50	12.76	.000
Other	7.73	16.37	.015
Any	30.94	34.46	.025

(Table 8). Remedial Courses by Presence of Gifted Program (2015)

	Means for Gifted	Means for Not Gifted	*p*
Math	24.40	27.54	.025
English	12.34	15.11	.005
Reading	8.44	11.91	.000
Other	5.84	32.59	.007
Any	28.97	72.58	.013

(Table 9). Remedial Courses by Presence of Gifted Program (2016)

	Means for Gifted	Means for Not Gifted	*p*
Math	20.03	24.90	.001
English	11.69	15.81	.000
Reading	7.57	12.28	.000
Other	4.94	12.06	.006
Any	24.43	30.06	.000

(Table 10). Remedial Courses by Presence of Gifted Program (2017)

	Means for Gifted	Means for Not Gifted	*p*
Math	18.40	21.24	.044
English	11.28	14.80	.012
Reading	9.95	10.31	ns
Other	3.21	13.13	.000
Any	23.21	26.30	ns

Note. ns = not significant data.

Districts Demographics of Gifted Programs and College and Career Readiness

Chi-square test of independence, independent *t*-test and standard regression tests were run to explore the relationship between demographics, high school gifted programs and college and career readiness. This addressed the research question: Do the demographics of the district impact the relationship between gifted programs and college and career readiness? Assumptions for chi-square level of independence were checked, each district could only be in 1 cell of the table, so the assumption of independence is confirmed. While the sample size was over 400, the number of districts in large towns (1) and mid-size cities (4-6) are not large enough to examine. This violates the sample size assumption and the results should be interrupted with caution. A chi-square test of independence was performed to examine the relationship between districts with a gifted program and location of the district in the state. Out of 564 districts, 102 districts did not report data. Districts were classified as large towns, mid-size cities, large cities, rural inside Core Based Statistical Areas (CBSA), and rural outside CBSA.

The relationship between presence of a gifted high school gifted program and location in the state was significant for all four school years [2014: χ^2 (7) = 33.684, p < .001. 2015: χ^2 (7) =33.684, p < .001. 2016: χ^2 (7) = 39.747, p < .001. 2017: χ^2 (7) = 36.209, p < .001]. In all four years, the Urban Fringe region was the only region that was

50% has a gifted program and 50% does not have a gifted program. Also, for all four years the majority of schools are classified as Rural Outside Core Based Statistical Area (CBSA). In 2014 and 2015, 85.4% of those schools did not have a gifted program and 14.6% did. In 2016, 87.7% of those schools did not have a gifted program and 12.3% did. In 2017, 90% of those same schools did not have a gifted program and 10% did. Across all four years, 2/3 of mid-size towns had gifted programs, while 1/3 did not. This is the only locale that districts with gifted programs exceeded districts without. Across all locales, there has been a steady decline in districts with a high school gifted program in the last four years. See Table 11 for more details.

(Table 11). Locale by Year and Percent with gifted program and without

	2014		2015		2016		2017	
Locale	Gifted	Not Gifted	Gifted	Not Gifted	Gifted	Not Gifted	Gifted	Not Gifted
Large City	14.3	85.7	14.3	85.7	15	85	15	85
Large Town	100	0	100	0	100	0	0	100
Mid-Size City	66.7	33.3	66.7	33.3	66.7	33.3	66.7	33.3
Rural Inside CBSA	27.5	72.5	27.5	72.5	23.1	76.9	18.7	81.3
Rural Outside CBSA	14.6	85.4	14.6	85.4	12.3	87.7	10	90
Small Town	26.3	73.7	26.3	73.7	26.3	73.7	26.3	73.7
Urban Fringe of Large City	37.9	62.1	37.9	62.1	37.9	62.1	32.8	67.2
Urban Fringe of Mid-Size City	50	50	50	50	50	50	43.8	56.3

Note. Large town is represented by only 1 district

In addition to the chi-square, independent samples *t*-tests were conducted to compare the district's percent of free and reduced lunch counts and whether districts have a high school gifted program during the 2014-2017 school years. For 2014, 2015, 2016, and 2017 no significant difference was found. The percent of students in a district receiving free and reduced lunch did not differ by whether the district had a high school gifted program. This may be an indicator that districts with high school gifted programs may not be districts with more wealthy students.

In order to further address the impact of poverty on the relationship between high school gifted programs and college and career readiness, the researcher performed a standard multiple regression analysis. The multiple regression was used to assess the ability of two measures (free and reduced lunch count and Gifted Programs Y/N) to predict the levels of district ACT composite scores, after controlling for the influence of districts free and reduced lunch counts and districts having a high school gifted program or not. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The variable for gifted programs variable was dummy coded such that districts with gifted programs were given the value 1 and districts without gifted programs were given the value zero. District free and reduced lunch count and gifted programs Y/N were entered, and explained by the model as a whole was, F (2, 450) = 152.817, $p < .001$ (2014): F (2, 412) = 92.484, $p < .001$ (2015): F (2, 402) = 163.45, $p < .001$ (2016): F (2, 381) = 172.009, $p < .001$ (2017): explaining 30%-47% of the variance in the districts' ACT composite score between the years 2014-2017. In all four years, both measures were statistically significant, with the free and reduced lunch count recording a higher Beta weight ($\beta = -.608$, $p < .001$ (2014): $\beta = -.536$, $p < .001$ (2015): $\beta = -.641$, $p < .001$ (2016): $\beta = -.660$, $p < .001$ (2017)) than the gifted Y/N ($\beta = .144$, $p < .001$ (2014): $\beta = .118$, $p < .004$ (2015): $\beta = .151$, $p < .001$ (2016): $\beta = .158$, $p < .158$, $p < .001$ (2017)). The chi-square test indicated that the two variables are not dependent on one another. While the multiple regression analysis showed that they make independent contributions to the districts' composite ACT scores, the free and reduced lunch percentage made the larger contribution in predicting ACT composite scores.

Another multiple regression analysis was performed to address the relationship between high school gifted programs and graduation rates when free and reduced lunch rates are included in the model. The standard multiple regression analysis was used to assess the ability of two measures (free and reduced lunch count and Gifted Programs Y/N) to predict the levels of district graduation rate, after controlling for the influence of districts' free and reduced lunch counts. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. District free and reduced lunch count and gifted programs Y/N were entered, and explained by the model as a whole was, F (2, 438) = 27.290, $p < .001$ (2014) F (2, 405) = 33.372, $p < .001$ (2015); F (2, 404) = 33.554, $p < .001$ (2016); F (2, 399) = 31.574, $p < .001$ (2017); explaining 11-14% of the variance in the districts' graduation rates between the years 2014-2017. In all four years, both measures were statistically significant, with the free and reduced lunch count recording higher β values (β = -.248, $p < .001$ (2014); β = -.300, $p < .001$ (2015); β = -.283, $p < .001$ (2016); β = -.274, $p < .001$ (2017)) than the gifted β values (β = .204, $p < .001$ (2014); β = .208, $p < .001$ (2015); β = .229, $p < .001$ (2016); β = .229, $p < .001$ (2017)). See Tables 12-14. While the multiple regression analysis showed that they make independent contributions to the districts' graduation rates, the free and reduced lunch percentage made the larger contribution in districts' graduation rates.

The last standard multiple regression analysis was used to assess the ability of two measures (free and reduced lunch count and Gifted Programs Y/N) to predict the levels of district graduates that enrolled in Any remedial college courses. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity,

multicollinearity, and homoscedasticity. District free and reduced lunch percent and gifted programs presence were entered and explained by the model as a whole was, F (2, 283) = 23.657, $p < .001$ (2014) F (2, 354) = 24.756, $p < .001$ (2015); F (2, 363) = 13.07, $p < .001$ (2016); F (2, 325) = 17.219, $p < .001$ (2017), explaining 6-11% of the variance in the districts' ACT composite scores between the years 2014-2017. In all four years, only the free and reduced lunch percent was statistically significant, with the free and reduced lunch percent moderate β values (β = .317, $p < .001$ (2014); β = .333, $p < .001$ (2015); β = .206, $p < .001$ (2016); β = .096, $p < .001$ (2017)). See Tables 12-14. The presence or absence of a high school gifted program did not independently contribute to the explanation of remedial courses.

H_0: The null hypothesis is there will be no positive relationship between high school gifted programs on college and career readiness of students.

(Table 12). Regression of Composite ACT scores on Free and Reduced Lunch and Gifted Programs (2014-2017)

	t	*p*	β	*F*	*df*	*p*	Adj R^2
ACT 2014				152.817	2	.000	.402
Percent Free and Reduce Lunch	-16.667	.000	-.608				
Gifted Yes and NO	3.944	.000	.144				
ACT 2015				92.484	2	.000	.306
Percent Free and Reduce Lunch	-13.067	.000	-.536				
Gifted Yes and NO	2.872	.004	.118				
ACT 2016				163.450	2	.000	.446
Percent Free and Reduce Lunch	-17.266	.000	-.641				
Gifted Yes and NO	4.072	.000	.151				
ACT 2017				172.009	2	.000	.472
Percent Free and Reduce Lunch	-17.716	.000	-.660				
Gifted Yes and NO	4.231	.000	.158				

(Table 13). Regression Model of Graduation Rates on Free and Reduced Lunch and Gifted Programs (2014-2017)

	t	*p*	β	*F*	*df*	*p*	Adj R^2
Graduation Rates 2014				27.290	2	.000	.107
Percent Free and Reduce Lunch	-5.477	.000	-.248				
Gifted Yes and NO	4.510	.000	.204				
Graduation Rates 2015				33.372	2	.000	.137
Percent Free and Reduce Lunch	-6.495	.000	-.300				
Gifted Yes and NO	4.501	.000	.208				
Graduation Rates 2016				33.554	2	.000	.138
Percent Free and Reduce Lunch	-6.135	.000	-.283				
Gifted Yes and NO	4.959	.000	.229				
Graduation Rates 2017				31.574	2	.000	.137
Percent Free and Reduce Lunch	-5.884	.000	-.274				
Gifted Yes and NO	4.913	.000	.229				

(Table 14). Regression of Percent Enrolled in Any Remedial on Free and Reduced Lunch (FRL) and Gifted Programs (2014-2017)

	t	*p*	β	*F*	*df*	*p*	Adj R^2
Percent Enrolled in Any Remedial 2014				23.657	2	.000	.110
Percent FRL	6.568	.000	.317				
Gifted Yes and NO	1.518	-.073	-.073				
Percent Enrolled in Any Remedial 2015				24.756	2	.000	.118
Percent FRL	6.680	.000	.333				
Gifted Yes and NO	1.753	.081	-.087				
Percent Enrolled in Any Remedial 2016				13.070	2	.000	.062
Percent FRL	4.056	.000	.206				
Gifted Yes and NO	2.804	.005	-.143				
Percent Enrolled in Any Remedial 2017				17.219	2	.000	.090
Percent FRL	5.612	.000	.297				
Gifted Yes and NO	-1.317	.189	-.070				

The research supports the hypothesis that there is a relationship between presence of a high school gifted programs and college and career readiness for two of the three dependent variables. High school gifted programs provide an independent, statistically

significant influence on ACT composite scores and graduation rates, but not on presence of remedial college courses

Conclusion

This chapter provided a description of the study results. Missouri DESE data was utilized to analyze district level data: demographics, presence of a gifted program, and a variety of college and career readiness scores. Two-tailed independent samples *t*-tests were utilized to determine whether to reject or fail to reject the null hypothesis. The researcher also analyzed chi-square tests to determine free and reduced lunch percent and district locale differed whether presence of districts having a high school gifted program. Regression analyses evaluated the impact of free and reduced lunch and presence of a gifted program on composite ACT scores, graduation rates, and remedial college course enrollment. The presence of high school gifted programs influences on college and career readiness scores beyond the impact of locale and free and reduce lunch percent. Chapter Five will give a detailed summary of conclusions of the research study and provide recommendations for future research in the area high school gifted programs and college and career readiness.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to determine whether there was a relationship between districts which have high school gifted program and college and career readiness scores of the district. This quantitative study evaluated the data from the DESE database regarding districts in the state of Missouri, the number of districts who have high school gifted programs, and tracking of those districts' college and career readiness rates. The literature review enabled the researcher to independently analyze the two concepts and identify research questions to be addressed.

While there was no previous research connecting these two concepts, there was research that addressed them independently. Conley (2012) suggested that college and career readiness is when the student has the ability to apply for college and to seek the resources needed to be successful. The student understands the concept of what it is going to take to be in the workforce and is able to transition into that position after high school (Conley, 2012). College and career readiness, as we know it today, has existed since 2010 when President Obama reauthorized the Elementary and Secondary Education Act (ESEA). This act put a national emphasis on preparing our students to be the best in the world in the terms of academics and innovation. However, this concept of college and career readiness has not been tied to the idea of high schools and gifted education programs.

A much older educational concept, gifted education, has been in existence since the 1800s. Like many matters in education, gifted programs have been affected by the ebbs and flows of funding. Students have reported that not being a part of a high school

gifted program left them unprepared for college and the rigor those courses entail (Lanham, 2010). So, combining the elements of high school gifted programs and college and career readiness is an exciting possibility. If key components can be linked together and have a significant difference on the student's success as an adult, whether it is college or career readiness, that student will grow to be a successful, contributing member of society. This can impact more than just a district score or a student's success in a classroom.

Data were analyzed to determine whether there was a relationship between districts offering a high school gifted program and how students in that district scored on a variety of college and career readiness measures. With no previous data on this exact relationship, the literature review served only as a guide and starting point to assist the researcher in understanding the two concepts independently before analyzing them together.

Research Questions

1. Is there a statistically significant relationship between the existence of high school gifted programs and college and career readiness scores of high schools in Missouri?

    a. Do the demographics of the school impact the relationship between gifted programs and college and career readiness?

In an effort to answer the previously mentioned research questions, the following null hypothesis was addressed:

H_{01}: There will be no positive relationship between high school gifted programs on college and career readiness of students.

Summary of Methods and Design Controls

The researcher used a quantitative research approach. After approval of the Research Review Board (RRB) was received, data were pulled from the Missouri DESE database and were analyzed using the IBM Statistical Package for Social Sciences (SPSS) software. The researcher conducted independent samples *t*-tests, chi-squared tests, and standard multiple regression analyses to determine significance and whether to reject or fail to reject the null hypotheses.

Using the DESE database, the researcher located all the districts in the state of Missouri, along with their demographic information, location in the state, graduation rates, graduation follow-up reports, and whether the districts had a high school gifted program. The sample size was large, since it is required for districts to report this information to the state. The individual districts also have flexibility in the requirements set to determine if the student is eligible. Baselines are set on the state level, but individual districts may put tighter restrictions on the requirements. For example, in District A the IQ required is 120 and in District B the IQ required is 126. Some districts, especially those that do not have a gifted program, are not quick to test students for giftedness. Therefore, the district numbers of gifted students reported are not as consistent. Studies have also found that students of different ethnic backgrounds are also underrepresented in counts of gifted students (Elhoweris, 2008).

During the school years this research spanned, the definition of gifted programs at the high school level was a term with loose interpretations. The study focused on the school years 2014-2017, leading up to a change in Missouri law for gifted programs. Some districts had Advanced Placement or International Baccalaureate courses, which

were considered gifted programing because, under the previous Missouri law in place during the time of this study, the districts were able to count these course offerings as gifted programs. Others had a gifted class specifically for gifted students or a gifted resource teacher available to them. These inconsistencies could weaken the effect of gifted programs on college and career readiness data.

Summary of Findings

The research was conducted to determine whether there was a relationship between districts with a high school gifted program and college and career readiness scores of the district. The conceptual framework behind this study is that gifted students are students who need support, and schools need to be working toward college and career readiness in their students. For the purpose of this study, college and career readiness was defined as

> a high school graduate with the necessary English and mathematics knowledge and skills—including, but not limited to, reading, writing, communications, teamwork, critical thinking and problem solving—either to qualify for and succeed in entry-level, credit-bearing two- or four-year college courses without the need for remedial coursework, or in workforce training programs for his/her chosen career that offer competitive, livable salaries above the poverty line, offer opportunities for career advancement, and are in a growing or sustainable industry (Missouri Department of Elementary and Secondary Education, 2016, p. 3).

A gifted education program was defined as a setting in which gifted students can be with other students of like intelligences and that also meets the socio/emotional needs of the gifted student (Missouri Department of Elementary and Secondary Education, 2016). Not

only do students need to have educational support, but according to Douglass (2016), the student's education needs to reach the whole person, not just academic level. Students need to know their likes and dislikes in order for them to be more successful in college or their career. The report, *A Nation Deceived,* examines the need for the country to accelerate, move up a grade, the gifted student. The gifted student is being held back and "it's a national scandal. And the price may be the slow but steady erosion of American excellence" (Colangelo, Assouline, & Gross, 2004, p. 1). According to the first set of *t*-tests a high school gifted program will help with both college and career readiness. However, the research conducted with the standard multiple regression alludes to the idea that the gifted program readies the student for college, but not necessarily career.

Upon examination of the final survey results, the researcher rejected the null hypotheses. There were significant differences between districts with and without a high school gifted program and those districts' college and career readiness scores.

Conclusions

Using the DESE database, the researcher identified all the districts in the state of Missouri, along with their demographic information, location in the state, graduation rates, graduation follow-up reports, and districts that also had a high school gifted program during the 2014-2017 school years. The sample size was large since districts are required to report this information to the state. There were some missing data, but the return rate was high (90%). All information was utilized to determine conclusions about the research questions.

Research Question 1 Conclusions

The first research question was: Is there a statistically significant relationship between the existence of high school gifted programs and college and career readiness scores of high schools in Missouri? In the state of Missouri, college and career readiness scores are not just a single score. These scores are comprised of composite ACT scores, graduation rates, and post-graduation follow-up surveys. Multiple independent samples *t*-tests were conducted to determine whether a statistically significant relationship could be identified. First, to address career readiness, *t*-tests were conducted on high school graduation rates and no significant differences were found for 2014-2017. The unknown category of graduation follow-up did have a significant difference, indicating that districts without a high school gifted program did not stay as connected with their students. More positively, the test performed on the number of students who were non-college (trade programs) showed that districts without gifted programs had more students in training for the trades. The *t*-test conducted for students employed indicated a significant difference was found for 2014 and 2015 but no significant differences were found for 2016 and 2017. It appears that districts without a high school gifted program may do as well as, or better, districts with gifted programs on career readiness.

Next, the relationship of high school gifted programs and college readiness was addressed. The first *t*-test analysis confirmed there was a statistical difference in composite ACT scores and districts that have a high school gifted program and those that do not in all four school years. Districts with high school gifted programs had higher composite ACT scores than districts without high school gifted programs. The state of Missouri required all juniors to take the ACT, even if they were not college bound during

the 2016 and 2017 school years. This may have influenced the data during those years. Another *t*-test was performed on districts' number of students that attended college after graduation and found a significant difference for 2014 but not for 2015-2017. Thus, only in 2014 did districts with high school gifted programs have higher college attendance rates. The second equivocal report supplies mixed support for the hypothesis that gifted programs impact college and career readiness scores.

Finally, a *t*-test was conducted to analyze the number of students that had to enroll in remedial courses once in college. In all four years, in the subjects of Math, English, Reading, and Any remedial courses, there were significant differences found between districts with and without high school gifted programs. The exception of 2017 was that in 2017, Reading and Any remedial courses, were not significant. Districts with gifted programs had lower numbers of students taking remedial courses in most analyses. The *t*-tests show there was significant data that high school gifted programs have an impact on college and career readiness scores of the district. Districts with high school gifted programs did appear to have a positive impact on college readiness scores, in the area of ACT scores and lower levels of remedial courses, but not college attendance.

Exploring the Impact of District Demographics

A chi-square test was conducted to address the question: Do the demographics of the school impact the relationship between high school gifted programs and college and career readiness? The relationship between presence of a high school gifted program and location in the state was significant in all four years. It was shown that the locale of the district in the state did have an impact on districts with gifted programs. While 67% of mid-size cities and 50% of urban fringe of mid-size size city had high school gifted

program, only 14%-15% of large size cities had a gifted program. Access to gifted programs and the impact that it may have had, differs from locale in the state. There does not seem to be a clear picture of wealthier districts having a high school gifted program when compared to other districts. The data also showed a steady decline in the number of districts with a high school gifted program over the four years studied.

In order to determine if a significant difference existed in a district, a *t*-test was conducted on a high school gifted program and the district's percentage of free and reduced lunch count. In all four years, there was not a significant difference found between gifted and non-gifted programs. Across the state the average is 50% free and reduced lunch rate and that did not impact the schools gifted programs.

To further address the potential independent impacts of free and reduced lunch percentage and high schools having a gifted program, a standard multiple regression analysis was conducted. This analysis was able to determine whether there was an independent influence of these variables on the college and career readiness variables ACT, graduation rate, and presence of Any remedial courses. On the first test, 30%-47% of the variance of the districts' composite ACT scores were due to free and reduced lunch percentage and having a high school gifted program. The free and reduced lunch percent carried a higher Beta weight, but high school gifted programs still independently influenced ACT scores in all four years.

A similar standard regression analysis was conducted for graduation rates. This data showed that 11%-14% variance was due to free and reduced lunch percentage and high school gifted programs. Again, both variables were significant contributors to graduation rates in all four years, with free and reduced lunch percent having the larger

Beta weight. The last regression analysis conducted was for any remedial college courses taken. Free and reduced lunch percentage and high school gifted programs accounted for 6%-11% of the variance. In all four years, the free and reduced lunch percentage was a significant predictor of Any remedial college courses taken, but gifted programs were not a significant predictor of Any remedial college courses taken. The researcher rejected the null hypothesis. High school gifted programs do show to be independently, statistically different in ACT composite scores and graduation rates, except in the area of Any remedial college courses. Note that in *t*-tests math, English, and reading remedial courses all had differences between districts with and without gifted programs.

Because the state of Missouri does not have one composite college and career readiness score, but multiple factors, it is difficult to reject or fail to reject the hypothesis as a whole. Support is indicated for districts with gifted programs having stronger college preparedness as indicated by ACT scores and lower levels of remedial college courses. Districts without gifted programs may have better preparedness for career as indicated by non-college attendance, but trade training. When district level demographics of locale and free and reduced lunch percent are taken into consideration, the picture becomes more complex. Whether a district even had high school gifted program varied widely by the school locale. Therefore, opportunities for gifted education were uneven. Free and reduced lunch percent independently had a large impact on college and career readiness scores. However, high school gifted programs cannot be discounted, because they had a small but consistent independent impact on ACT scores, graduation rates, and remedial college courses.

Alternative Explanations

There are clearly other components that impact college and career readiness scores other than districts having a gifted program. The current study addressed two important variables, free and reduced lunch and locale. However, other variables that may impact college and career readiness may be addressed in future research.

The current study cannot fully answer the question of whether gifted programs increased ACT scores and lowered remedial college course specifically for the gifted students or whether there were higher expectations in the district that accounts for the differences. Other factors that may affect college and career readiness that this study did not examine was family support or monies spent per student in each district. Family support such as, parental involvement, parental education, and family finical resources could all directly impact students' college and career readiness. This would have to be addressed in a qualitative study on an individual student level. Monies spent per student could impact college and career readiness in more resources being available to the students whether it be for college readiness or career readiness. This would be an excellent variable to investigate in further research on gifted programs and college and career readiness. Even without the examination of parental support and monies per student, the free and reduced lunch percent and locale are an indicator of those variables. Stereo-typically, the urban fringe, suburban areas have the more money available and more involved parents. In environments such as these, the students would have more fertile soil to flourish in and therefore maybe better prepared for life after high school. The impact of socioeconomic status and family support cannot be diminished. More

research should be conducted in order for the evidence of the independent impact of high school gifted education to be more clear and precise.

The new Missouri law, Senate Bill 638, should create an easier atmosphere for conducting the research. The law better defines a gifted program as a program only for students identified as gifted, not just the academically high achievers. A clear and consistent definition of gifted programs will allow future researchers to have a better picture of the relationship between districts having gifted programs and college and career readiness. Qualitative research in these areas would also benefit our understanding of how these variables are related. Gifted programs and college and career readiness are about the whole student, not just academic scores. Qualitative research on family support, self-advocacy, self-regulation, and communication would be a start to understand whether college and career readiness had been achieved.

The awareness of college and career readiness and gifted education are not new. Marland first stated the need for both since his 1971 report to congress. It is simply the idea that the presence of high school gifted programs can and will help college and career readiness scores for the whole district. While this is the first research that has combined these variables at the district level, there is enough evidence to indicate an independent impact of high school gifted programs on college and career readiness scores. There is also a clear indication that further research is warranted.

Professional Implications

This study adds to the body of research because it combines the factors of a high school gifted program and college and career readiness scores. This is a commencement in understanding the impact gifted education may have on a district as a whole. Marland

(1971b) reported to Congress that there were gifted students around the country who were not receiving the services they needed, and if those services were provided, significant positive outcomes would occur. President Obama created a goal in 2010 for the United States concerning college and career readiness, to "ensure that every student graduate from high school well prepared for college and a career." (U.S. Department of Education, para. 1, 2010) With all that is known about the importance of gifted education, it still suffers from budget cuts and people considering proficiency as a "good enough" outcome. If evidence can indicate high school gifted education programs impact college and career readiness, maybe gifted programs will withstand more of the budget issues that threaten its demise.

Assisting a student to become a well-rounded individual will assist in ensuring that the student may become a successful adult. This holistic approach is also essential in the student's college and career readiness (Pope, 2011). Lane (2006) stated it best, "Society, as a whole, only benefits when all students are sufficiently challenged and encouraged to perform at the height of their potential" (p. 71). In order to achieve this, the teachers and administrators need better education on the importance of gifted education. Differentiated instruction must be utilized in its true definition, and every student must work on their own level of understanding. Tassle-Baska (2013), Rakow (2012), and Bryant (2010) all had similar thoughts on how best to serve the gifted student in the educational world and this study supports their findings as well. Gifted students prepared in gifted programs may be better prepared for their next steps in college and career. The expert of college and career readiness, Conley (2010), might be excited to find there are components such as ACT scores, readily addressed at the district level by

gifted programs, potentially creating positive differences in students' abilities to be college and career ready. Further research could pin-point exact ways in which gifted programs produce gains in college and career readiness.

If districts take these findings and address issues which can be controlled, such as creating spaces for differentiated learning of gifted and non-gifted students, the district and individual scores on college and career readiness may improve. It would also potentially assist students in becoming successful in more than just the academic side of education and life, as gifted programs address the need of the whole student.

Recommendations for Further Research

Gifted education is much more than just test scores and numbers on a piece of paper. Using only quantitative research limited what could be analyzed. There remain many avenues of research that could be conducted. Below are areas of exploration that follow the current research.

1. Replication of the current study under the new Missouri law dealing with high school gifted education programs
2. Qualitative research with recent high school graduates to help address perceptions of college and career readiness, including both college and career bond individuals
3. Qualitative research on educating the whole student, not just academically, in preparation for life after high school
4. Qualitative research on the effects of parental support and gifted education on college and career readiness
5. Research completed on the school, rather than the district level

6. Research on the student level to compare if there was more impact only on the gifted students in the program, or if the impact carried out to the whole student body
7. Research on differences between districts that have a K-12 gifted program, K-6 gifted program, and only high school gifted programs

Summary

Previously there was nothing in the literature on the relationship between high schools having a gifted program and college and career readiness. There was much research on the importance of gifted programs and the history of the gifted programs coming and going with budget fluctuations in the country (Jolly, 2009; Jolly & Robbins, 2016; Marland, 1971b; Badley & Dee, 2010; Perrone, Wright, Ksiazak, Crane, & Vannatter, 2010). College and career readiness had a considerable body of research and a new political motivation with the country seeming to be slipping in the international rankings. This study was able to begin the process of bringing these two concepts together. The most important findings of this study were that the presence of high school gifted programs in school districts in Missouri had an independent impact on college readiness scores in those same districts beyond the impact of socio-economic status. Combining high school gifted programs and college and career readiness could have an important impact on the future of our students.

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