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Gifted and Talented Student Performance on State Achievement Tests

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GIFTED AND TALENTED STUDENT PERFORMANCE ON STATE ACHIEVEMENT TESTS

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ABSTRACT

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Dondre Lamar Harris

The exploration of dissecting gifted and talented programs combined with student advancement and academic success is one daunting but doable. The purpose of this study was to investigate the equity of the gifted and talented program while analyzing the achievement scores of these students compared to their peers. This quantitative study includes an evaluation of third through fifth grade students in a central Arkansas school district while merging the relationships of the general education population versus the academically gifted and talented population. Both groups were examined through the independent variables classified as ethnicity, gender, and socioeconomic status. A descriptive data analysis was conducted to assess the academic performance of students enrolled in the gifted and talented program, paralleled with their counterparts in the general education setting. The findings of this study reveal valuable insights into the equity of gifted and talented programs and the impact of such programs on the academic success of their participants. A Chi-Square test was conducted to determine if there was an association between the number of students admitted to the gifted and talented program and those not admitted based on ethnicity, gender, and socioeconomic status. The data indicated that students were selected disproportionately for gifted and talented programs based on ethnicity and socioeconomic status. This research contributes to the ongoing dialogue surrounding educational equity and provides recommendations for policymakers and educators to create more inclusive and equitable educational environments.

Keywords: Gifted, Giftedness, Talent, Socioeconomic Status, NWEA, Race, Gender, Identification, Gifted and Talented Education

DEDICATION

The strength, guidance, and direction bestowed upon me by the grace of God is evident with the completion of this work. This study is dedicated to my family. Thank you for your continued grace and support. To my wife Tori, thank you for covering me in love, pushing me to new heights and believing in me when I didn't believe in myself. To my son Deuce, you are my driving force and biggest cheerleader. To my parents, thank you for showing me what hard work looks like. To my grandfather who embodies hard work and to my gone but not forgotten grandmother, who always told me that "If they can teach it, you can learn it".

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CHAPTER I

INTRODUCTION

Introduction

Identifying the so-called elite thinkers of the times is nothing new to the civilizations that occupied the world. Individuals that possess a particular set of skills are separated and cultivated. Some cultures have been paying special attention to children who reveal special talents. The early Greeks, Romans, Chinese, and Japanese all attempted to nurture outstanding talents for the good of the state (Gallagher, 1994). For example, Plato wished to place his ideal state's leadership in the hands of philosopher-kings who would qualify for their high status by possessing the greatest measure of rational intelligence (Tannenbaum, 1983). The greatest thinkers, philosophers, and inventors of our time have significantly impacted the development of our way of life.

In 1972 Sidney P. Marland, the United States Commissioner of Education, presented the Marland Report containing the federal government's formal definition of giftedness. It outlined the unique learning needs of gifted students and the challenges they face in U.S. Schools (Jolly & Robins, 2016). Since the release of the Marland Report, Americans have witnessed additional reports and subsequent legislation, including A Nation at Risk: The Imperative for Educational Reform in 1983, National Excellence: A Case for Developing America's Talent in 1993, and Jacob K. Javits Gifted and Talented Education Act of 1988 (Jolly & Robins, 2016). The federal and state government's involvement in developing gifted and talented programs is evident in allocating funding and resources.

Arkansas mandates all public schools to have a program for gifted and talented students. Selection criteria and services are district-dependent with guidance from the state (Tran, B., Wai, J., & McKenzie, S. C. 2021). Gifted and talented children are defined as those of high potential or ability whose learning characteristics and educational needs require qualitatively differentiated educational experiences or services. Possession of these talents and gifts, or the potential for their development, will be evidenced through an interaction of above-average intellectual ability, task commitment or motivation, and creative ability (Division of Elementary and Secondary Education, 2009). The Arkansas Division of Elementary and Secondary Education guides the school districts for the overall program implementation and evaluation, but they do not set clear guidelines on the identification process. School districts are free to do as they please, which does not diminish conscious and unconscious biases. This bias may lead to unequal representation in the categories of race, gender, and socioeconomic status.

The identification process within the targeted Central Arkansas school district begins with one of three pathways: teacher/staff referral, parent referral, personal (student) referral. At the conclusion of the referral process, a committee is formed between the district gifted and talented coordinator and district gifted and talented teachers. They review the information gathered from the referral, state assessments, and creative assessments to determine the placement of the students.

Historically, the most prominent approaches for identifying gifted students have led to the underrepresentation of disadvantaged populations, specifically students of color and students from low-income backgrounds (Cohen, 2022). As of 2012, sixteen states had no standardized decision-making policy for gifted identification, and of those who

did, the majority mandated that schools use intelligence tests (16 states), achievement tests (17 states), or teacher and parent nominations (13 states) to identify gifted students (McClain & Pfeiffer, 2012). Through a multilevel path analysis of gifted identification patterns, McBee (2010) found that Black and Hispanic students and students who qualified for free or reduced lunch were less likely to be identified. The underrepresentation of African American and Hispanic students in gifted programs has been an issue for decades (Ford, 2012). Although gifted education programs increased their overall student population, the underrepresentation of culturally diverse students in these programs remained a growing concern (Lovett, 2011). In addition, low-income and minority students are substantially underrepresented in the United States gifted and talented education programs (Ford, 1998).

Statement of Problem

The problem addressed in this study is whether the identification criteria for inclusion in the school's gifted and talented program results in equal representation of the student body by gender, ethnicity, and socioeconomic status. Additionally, the study determined whether students identified as gifted and talented perform better on the state's achievement tests. In the U.S., few school districts have provided universal gifted screenings to an entire grade of students because of a lack of financial resources in state departments of education (Plucker et al., 2018). Usually, classroom teachers have recommended that students be gifted tested when they observe the student's behaviors and test scores to be above the norm (Wright & Ford, 2017).

Historically, gifted and talented programs have been characterized as lacking racial equity. This lack could be directly related to a variety of factors. For example,

children from culturally diverse backgrounds have experienced various explanations regarding the lack of inclusion in programs for gifted students (Baldwin, 2005). It is ideal for the proportionality of students in the gifted and talented program to reflect the entire student population. The identification system contains systematic flaws that impact all school district stakeholders, including parents, teachers, and students. Pendarvis and Wood (2009) stated that the underrepresentation of minorities in gifted programs has been consistent in the United States for decades and has caused concern within the field of education. Due to this systematic exclusion of minority students, gifted programs may exacerbate the racial achievement gap by further boosting outcomes for more privileged students. In contrast, their minority peers lag behind (Cohen, 2022).

Purpose of Study

This quantitative study aims to investigate the selection equity of the gifted and talented program in a central Arkansas school district considering gender, ethnicity, and socioeconomic status and to determine how GT students performed on state achievement tests compared to their peers. The researcher used independent t-tests and chi-square statistical procedures to examine approximately 2400 students enrolled in grades third through fifth within the school district. An emphasis was be placed on the referral process, assessments, race, socioeconomic status, and academic growth. Student identification for participation in gifted and talented education programs is among the most contentious issues facing teachers and administrators today (Borland & Wright, 1994). Indeed, many identification processes seem to be a process of dividing "winners" from "losers," the sheep from the goats (Callahan, 1982). There is little consistency in gifted education policy at the federal, state, and local school district levels (Tran, B., Wai,

J., & McKenzie, S. C. 2020). This research aims to determine 1) if proportionality in the gifted and talented identification criteria process exists, 2) if students identified as gifted perform differently on the NWEA exams than those not identified, and 3) if there are differences considering the factors of race, gender, and socioeconomic status. This study describes the gifted and talented identification process in a suburban school district in Central Arkansas. With differences across district lines, defining how a student is identified as gifted and talented is imperative. The study includes discussions of the following: the referral process, utilization of assessments, race of students and teachers as factors, and socioeconomic status as factors in the identification process. The study begins with a literature review of appropriate publications aligned with the research topics. The study concludes with findings, limitations, and future research.

Theoretical Framework

Grant and Osanloo (2014) believe the theoretical framework is the "blueprint" for the entire dissertation inquiry. It is essential to the foundation of a research study and is closely tied to the personal beliefs and perceptions of the researcher (Grant & Osanloo, 2014). The guiding theoretical framework for this study is Howard Gardner's theory of multiple intelligences. Howard Gardner first proposed the Theory of Multiple Intelligences in his 1983 book "Frames of Mind," broadening the definition of intelligence and outlining several distinct types of intellectual competencies (Marenus, 2023). Howard Gardner's theory of multiple intelligences has proven to be an integral theory that sheds light on how students learn and the need to deliver instruction according to their needs (Morgan, 2021).

Research Methodology and Design Overview

The researcher, for the purpose of this study, focused on third through fifth-grade students enrolled in a central Arkansas school district. Students were evaluated in 2 categories, gifted and talented and not gifted and talented. They were also be examined based on their gender, ethnicity, and socioeconomic status. An analysis of student demographic data and student standardized testing achievement data was conducted using Statistical Package for the Social Sciences® (SPSS). This quantitative statistical study used an independent t-test to examine the relationship between third through fifth-grade students identified as gifted and talented and those in the same grade band not identified as gifted and talented. The researcher will also use chi-square statistical test to determine if there is a significant association between two categorical variables (Knapp, 2018). T-test is one of the most common and versatile statistical tests in experimental research and survey methodology (Knapp, 2018). Knapp (2018) also states the t-test is used when there are two groups, wherein each group renders a continuous variable for the outcome.

Research Questions

1. Are students selected disproportionately for GT programs by gender, ethnicity, or socioeconomic status?
2. Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented?
3. Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender?

4. Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity?

Significance of Study

The significance of this study is that it provides an in-depth look into gifted and talented education identification practices and the academic progress of those students. The research determined if there was a disproportionate number of students identified as gifted and talented based on race, gender, and socioeconomic status. The results of this study could potentially alter the practices of the gifted and talented program within the targeted school district. For example, it could directly impact the policies and procedures of school districts implementing programs directly related to classifying gifted and talented students.

Delimitations

This study contained noted delimitations. The researcher focused only on geographical area in the state of Arkansas. There were factors unaccounted for by the researcher. A few of the factors may influence the standardized testing data that was used during this study. All students enrolled in third, fourth, and fifth grades, who met the criteria were included in the study. Students identified as English Language Learners and those receiving special education services were not excluded. Another delimitation would be that the standardized testing data was retrieved from the winter NWEA Map Test. Tracking the students over a longer time period using a longitudinal study would possible prove to be more accurate.

Limitations

There were several limitations associated with this study. The scope of this study is narrow and came from only one school district. The results may not apply to other geographical locations that differ in demographic makeup. For example, results may be specific to this region due to differences in demographics and experiences. Although the results may not completely align with other areas, the process and investigative direction are transferable.

Definition of Terms

For this study, terms are defined as follows:

- Gifted - Clark (2002) defined "gifted" as a label for the biological concepts of superior development of various brain functions.
- Giftedness - The National Association for Gifted Children (2019) explained, "Students with gifts and talents perform—or have the capability to perform—at higher levels compared to others of the same age, experience, and environment in one or more domains."
- Gifted and Talented Education - GT education differs from district to district in Arkansas. DESE (2009) describes Gifted and Talented as "Gifted and talented children and youth are those of high potential or ability whose learning characteristics and educational needs require qualitatively differentiated educational experiences and/or services. Possession of these talents and gifts, or the potential for their development, will be evidenced through an interaction of above average

intellectual ability, task commitment and /or motivation, and creative ability".

- Identification - comprehensive identification procedures are to find and serve as many students as possible who need special programs to develop their exceptional abilities.
- Naglieri Nonverbal Ability Test (NNAT) - Naglieri Nonverbal Ability Test "provides a nonverbal, culturally neutral assessment of general ability ideal for diverse student populations" (Pearson Education, 2019.
- Race - Grouping of humans based on their physical attributes
- Socioeconomic Status (SES) - The term “socioeconomic status” can be defined broadly as one’s access to financial, social, cultural, and human capital resources (NCES, 2012)
- Talent - the superior mastery of systematically developed abilities or skills and knowledge in at least one field of human activity to the degree that places the child in the top 15% of individuals (Gagné, 1991).
- Twice-Exceptional - At-risk students who are gifted or talented and have one or more disabilities (Barnard-Brak, Johnsen, Hanning, & Wei, 2015).
- Two-Faced Label - Robinson (1989) aptly "describes this form of labeling as a social process that can have both positive and negative effects on the labeled student."

Organization of Study

The study is organized into five chapters, references, and appendices in the following manner. Chapter One lays the foundation leading into the detailed research. It

reports delimitations, and limitations of the researched study. Chapter Two encompasses the theoretical framework and the literature review pertaining to the study. The literature review presents information from various sources related to understanding the researched themes. Chapter Three contains the research methodology, data collection, and data analysis. Chapter Four consist of the findings directly related to the study. Finally, chapter 5 contains information regarding implications, practice recommendations, and recommendations for future research.

Summary

Chapter one is the introduction and contains the problem statement, the purpose of the study, theoretical framework, research methodology, research questions, the significance of the study, delimitations, limitations, definition of terms, and organization of the study. The next chapter features a collection of reviewed literature on related studies. This review provides insight into the issues addressed throughout the study.

CHAPTER II

LITERATURE REVIEW

Introduction

During the review of literature, topics illuminated are associated with giftedness, identification, how students are selected, and who is/isn't selected. The goal of this review is to feature pertinent literature and research that is directly related to the themed subjects. Beginning with background and a brief history of gifted and talented programs, the transition is made to the arena of identification, giftedness. The next progression investigates the variety of data collection methods, ranging from assessments to student work samples and teacher input. This is followed by how students are selected to participate in the GT programs, why and why not. The next section describes the student population, their race, gender, and socioeconomic status.

History of Gifted and Talented Programs

Gifted and talented education programs vary widely from state to state, district to district, and in some cases, school to school. Although Federal law acknowledges that children with gifts and talents have unique needs that are not traditionally offered in regular school settings, it offers no specific provisions, mandates, or requirements for serving these children (NAGC, n.d). Currently, gifted education is a purely local responsibility and is dependent on local leadership; leaving gifted education up to chance increases variability in the quality of services and creates inequities in access for students in poverty, from racial and ethnic minority groups, English learners, and those with disabilities (NAGC, n.d.).

In 1972 Sidney P. Marland, the United States Commissioner of Education,

presented the Marland Report containing the federal government's formal definition of giftedness and outlined the unique learning needs of gifted students and the challenges faced by these students in U.S. Schools (Jolly & Robins, 2016). Since the release of the Marland Report, Americans have witnessed additional reports and subsequent legislation, including A Nation at Risk: The Imperative for Educational Reform in 1983, National Excellence: A Case for Developing America's Talent in 1993 and Jacob K. Javits Gifted and Talented Education Act of 1988 (Jolly & Robins, 2016). The federal and state government's involvement in the development of gifted and talented programs is evident in the areas of allocating funding and resources. In 2015, the federal government reauthorized and re-funded the Talent Act through the Every Student Succeeds Act (ESSA), with additional funding provided for gifted education programs (NAGC, 2020b; Parenting for High Potential, 2019). At the federal level, the Title I funds from ESSA provide low socioeconomic schools/districts financial support to identify and serve low socioeconomic student groups, including gifted students, and require districts to desegregate data for all students' levels and subgroups (NAGC, 2020a). Title II funding is provided for the professional development of teachers serving low-socioeconomic students, with an additional focus on underrepresented, low-socioeconomic, high-achieving students (NAGC, 2020a). Through the TALENT Act, the focus is to aid gifted and high-ability learners by empowering the nation's teachers to serve them (NAGC, 2020b). The four areas of focus, as reported through the NAGC (2020b), are:

1. Confront and address the national "excellence gap”
    - Title I plans must address how schools identify and serve gifted students.

- Districts use excellence gap analysis for instructional improvements.

2. Support educator development to ensure academic growth for high-ability students.
    - How they will use professional development to grow teachers' abilities to identify and foster high-ability students.
3. Provide public transparency of student achievement data.
    - Ensure that state assessments measure above-grade-level performance.
    - Data is shared with the public and broken out by subgroups so the public can hold schools accountable for achievement gaps.
4. Continue research and dissemination of best practices in gifted education.
    - Continue exploring how to identify and serve gifted students through grants.
    - Directs the Secretary of Education to report how states and districts are analyzing excellence gaps and taking steps to close them (NAGC, 2020b).

While the national policies for gifted programs appear to focus on teacher professional development, policies at the state level are more closely tied to defining what characterizes a gifted student.

Giftedness

"The term' gifted and talented,' when used with respect to students, children or youth, means students, children or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in

specific academic fields, and who need services or activities not ordinarily provided by the school in order to fully develop those capabilities." (Marland, 1971).

The key to understanding the labeling of students with the tag of gifted, one must know what it means to be gifted. "Giftedness is the possession and use of untrained and spontaneously natural abilities in at least one ability domain. The question of how to define giftedness has been debated for decades, and a single, unified definition does not and should not exist" (Renzulli & Reis, 1997). "Conceptions of giftedness mirror theoretical progress with related constructs such as intelligence and creativity" (Plucker & Callahan, 2014). Currently, the label "gifted" is used to indicate high intellectual or academic ability, and "gifted education" is recognized as the educational field devoted to the study of this student population (Manning, 2006). Giftedness has evaded the chains and shackles of one true definition. The argument of defining gifted has spanned over the course of decades. Aligning a definition with the word gifted is a difficult task. Without a consensus on what is determined as gifted, states and educational organizations seem to generate their own unique way of explaining giftedness. Although many of the educational entities have commonalities when it comes to defining giftedness, a true alignment is non-existent. Pfeiffer (2012) states, "The lack of a standard, agreed-upon definition has led to the idea that giftedness may not actually be specifically definable, that it may, in fact, be a socially constructed phenomenon." Based on the case in point, validity is given to the argument that placing a definitive definition is unattainable and hollow. Even the act of defining gifted students as a single population neglects the vast diversity among student populations (Siegle, et. al. 2016). If giftedness is simply a social construct, then it could be expected that many of the biases that are present within society

would impact how it is defined. Society's notions around race, gender, and class can inequitably impact who is identified as gifted (Parekh, et. al., 2018). NAGC's definition of gifted represents a more liberal view because it includes the idea of multiple intelligences. The definition is as follows:

> Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports). (NAGC, 2010c)

Gifted students are defined as individuals who demonstrate extraordinary intellectual ability and key behavioral traits like creativity, curiosity, and emotional intensity (McClain & Pfeiffer, 2012)

Identification

The idea of identifying people as gifted is not a topic in its infancy, it has been around for a while. Many ancient thinkers and societies paid significant attention to nourishing people with special abilities, especially in academics and physical aspects, which needed to be identified for special attention in the first place (Tran, B., Wai, J., & McKenzie, S. C. 2020). To identify gifted individuals, Plato in *The Republic* suggests an ability-tracking system to bring peace, harmony, and prosperity to his city; ancient China sought to identify the ablest candidates through civil service examinations (Kracke, 1947).

Identifying children as gifted has always been difficult (VanTassel-Baska, 2006), complicated by factors such as the sheer variety of gifts, several degrees of giftedness, and low socioeconomic and minority cultural backgrounds (Wellish & Brown, 2012). The underrepresentation of groups of color and students of lower socioeconomic status in gifted and talented programs could point towards a flaw in methods of identification (McBee, 2010). “Identification procedures for gifted programs reinforce social inequalities while missing some of our most promising students” (McKenzie, 2004, p. 131). Identification practices are being reassessed to provide opportunities for all high-ability students (Brown et al., 2005; Michael- Chadwell, 2010). A new standard for identification practices can provide opportunities for all high-ability students to be recognized (Brown et al., 2005; Michael-Chadwell, 2010). “A new paradigm for identifying and selecting students will help low-socioeconomic status and minority students become more represented in gifted programs” (VanTassel-Baska, Feng, & Evans, 2007). VanTassel-Baska et al. (2007) noted a need for the following:

> New paradigm of identification would recognize the different ways in which students display giftedness and would call for more varied and authentic assessments. Instead of relying on intelligence and achievement test scores solely for identification, multiple criteria would be used.

Identification of these students will need to emphasize aptitude rather than relying only on demonstrated achievement. (Siegle & McCoach, 2010). Sturnberg and Subotnik (2000) identified five decision-making models that organizations use in determining students' giftedness. Most organizations' practices align with one of these five models: 1) single cutoff – the school district uses a single assessment score from a specific

assessment, such as an IQ score, to determine whether a student qualifies for gifted services; 2) single cutoff: flexible criterion – school districts use a single score, but the score can be from one of several assessments as determined by the district; 3) multiple cutoffs – students are required to score above a predetermined score on multiple assessments; 4) averaging – scores from multiple assessments are averaged in order to determine qualification; 5) dynamic – a student's giftedness is measured by comparing their score on an initial assessment with their score on the same assessment after a period of time. When it comes to gifted identification, the "selection of suitable tests, checklists and tools for each student is important (Hodges, 2013).

The identification process and criteria vary from district to district. As of 2012, sixteen states had no standardized decision-making policy for gifted identification and of those who did, the majority mandated that schools use intelligence tests (16 states), achievement tests (17 states), and/or teacher and parent nominations (13 states) to identify gifted students (McClain & Pfeiffer 2012). Gifted programs typically consist of two fundamental components: (1) continued exposure to higher-achieving peers and (2) a more advanced curriculum that allows for deeper exploration of academic content (Bui, Craig, and Imberman, 2014). The majority of school districts rely heavily, if not solely, on traditional cognitive ability assessments to determine eligibility for gifted programming (Brown, et. al., 2005). While this type of testing may identify some students with exceptional abilities, many current authorities believe that relying only on IQ testing for identifying gifted students is too simplistic and clings to the false pretense that giftedness is an inherent and fixed trait (Pfeiffer, 2012).

The Arkansas Division of Elementary and Secondary Education provides guidance to districts in the areas of student identification and program evaluation. Each district evaluates the effectiveness of the educational opportunities provided for gifted and talented students (Division of Elementary and Secondary Education, n.d.). Multiple forms of data and measures are used to determine the students from all cultural and economic backgrounds who need gifted and talented services to develop their exceptional skills (Division of Elementary and Secondary Education, n.d.).

Educators must accurately identify students who need differentiated services to meet their academic needs and make sure an equitable identification process is set in place providing appropriate learning opportunities to GT students (Hodges et al., 2018). Worrell et al., 2018) found several alternatives have been proposed to address the underrepresentation in GT education. These alternatives include universal screening, reducing the dependence on teacher referrals, using customized local identification procedures, nonverbal ability testing, and performance-based tasks.

The first step in gifted identification is the referral. The Arkansas Department of Education (2009) list these steps:

1. Nominations are sought from a wide variety of sources to ensure that all potentially gifted and talented students have an opportunity to be considered.
2. Data are collected (on the nominated students) to aid in making decisions for the selection of students who are in need of special education services.
3. Placement of students is made in an appropriate program option.

Gifted and Talented Representation

There is currently a large body of literature on underrepresentation in gifted programs for Black and Latinx students and the mechanisms by which academic tracking and potentially biased processes for gifted identification negatively affect students of color and low-income students (McBee 2010). The under identification of minority students in GT programs in the U.S. is a continual symbol of how good talent is wasted within this country (Johnson & Kritsonis, 2006) Dual pressures exist for gifted education programs to serve more students, especially those from traditionally underserved populations, yet also to serve all enrolled students effectively (Schroth & Helfer, 2008). The underrepresentation of students who belong to racial minority groups, particularly Black and Hispanic, can serve as evidence of inequity in gifted programming (Ford, 2012). The underrepresentation of historically marginalized students in gifted education has been well documented (Peters & Engerrand, 2016). These disproportionalities have sparked concern among researchers and the media not only because they represent potentially unfair or inequitable treatment of minority students (Ford, 1998) but because studies have linked participation in gifted programs to positive future outcomes, including increased academic performance (Rogers, 2007) and improvements in such domains as motivation, self-efficacy, engagement with learning, nonacademic self-concept, and overall stress (Rogers, 2007). Furthermore, disparities in gifted identification may contribute to within-school segregation of students on the basis of race and ethnicity, with consequences for both non-White and White students (Darity & Jolla, 2009).

Black and Hispanic students account for 26% of the students enrolled in gifted and talented (GT) programs yet they are 40% of the population in schools offering GT programs (USED Office for Civil Rights [OCR], 2014). Black males are the largest underrepresented group of students in GT programs, which makes advocating for equitable representation a top priority (Henderson, 2013). Nationwide, gifted education disproportionately represents minority students, and they are less likely to be identified as gifted even when they meet the criteria (Grissom & Redding, 2016). Loveless (2020) explained that all students have gifts, but not all students are gifted; furthermore, all gifted and advanced learners have the right to experience a challenging academic environment.

The Office of Civil Rights (2019) reports the total number of students enrolled in public education for the 2017-2018 school year was 50,922,024. Of the total enrollment, the number of African American students enrolled was 7,696,501, Hispanic students enrolled was 13,862,334, and White students enrolled was 24,096,313 (OCR, 2019). As seen in Table 1, the number of African American students represented 15.1% of the entire student population, Hispanic students represented 27.2% of the entire student population, and White students represented 47.3% of the entire student population (OCR, 2019).

Table 1

Office of Civil Rights 2017-2018

Demographic Type	National Enrollment %	National Enrollment #	National GT Enrollment #	National GT Enrollment #
Gender - Total	100	50,922,024	100	3,255,040
Male	51.4	26,171,327	49.5	1,609,683
Female	48.6	24,750,697	50.5	1,645,357
Race				
White	47.32	24,096,313	58.77	1,913,101
Black	15.11	7,696,501	8.50	276,838
Hispanic/Latino	27.22	13,862,334	18.09	588,900

Most of the research on underrepresentation focuses on raw disparities in disproportionality (Peters et al., 2019). Many observers of gifted identification interpret this raw disproportionality as evidence of bias in the gifted identification process (Ford, 2010). However, the cause of such disproportionality is unclear: raw disproportionality might not be evidence of bias in the identification process but could instead result from student differences that exist at the beginning of the identification process (Plucker & Peters, 2016). The academic research on gifted identification often posits three possible sources of differences in identification rates: (a) bias in the identification processes, (b) disparities due to early achievement differences, or (c) systemic racism or classism in the definitions of talent and opportunities to learn (Naglieri & Ford, 2003).

There has been extensive research into bias in the gifted identification process, the structure of the identification process and/or the instruments used in the identification process could introduce bias into the identification process (Naglieri & Ford, 2003). Second, differences in early academic achievement may also influence the outcomes of

the identification process (Plucker & Peters, 2016). A third potential source of inequality could be systemic racism and/or systemic classism in the identification process or in the gifted program itself.

One key component in systematically excluding marginalized students from gifted and talented programs can be placed on the student's teacher. Teachers, like everyone else, make mistakes and many times unrealistic expectations are bestowed upon them. Teacher's cry, laugh, have bad days, after all they are human. All humans are products of their own environment and have implicit biases. Nicholson-Crotty et al. (2016) state:

> "We find that African American students are under-represented in gifted programs, and we find that having a black teacher dramatically increases the likelihood that a black student will be placed in a gifted program, relative to having a white teacher."

Teacher upbringing, training and professional development are vital factors in the success and identification of all students. Recommendations, nominations, or ratings by the teacher to determine G/T educational opportunities for students has been a controversial topic for more than 200 years (Hunsaker, 2012). In most cases, teacher nominations act in a "gatekeeper" fashion, as the first step on G/T educational programs (McBee, 2006). However, teachers' beliefs, biases, attitudes, and expectations can determine whether students are in or out of G/T programs (Siegle, et. al. 2016). A study by Geake & Gross (2008) explored teacher beliefs, found that educators tend to have negative beliefs towards G/T students and students who are from different racial/ethnic backgrounds. Teachers are often unaware of their bias and how it influences their

decision on nomination and placement; this phenomenon is called implicit bias (Staats, 2016). A study by Kumar et al., (2015) found that teachers preferred White students over Black students for gifted referral and placement in G/T.

Untrained teachers use personal and professional experiences to justify student eligibility for referral to gifted programs (Siegle et al., 2016). In addition, teachers used culture, ethnic background, environment, and SES to influence which student closely identified as a model student to be recommended to gifted education programs (Szymanski & Shaff, 2013). Professional development and training in any job position builds confidence in job performance and creates a better understanding of job expectations. Hall and Hord (2011) stated that "professional development reveals parallel findings, both of which identify the imperative of learning in order to use improved programs, processes, and practices" (pp. 7-8). Professional development and teacher training had been most effective in promoting continuous lifelong learning (Đurić & Radojević, 2012). Furthermore, according to Đurić and Radojević (2012), increasing personal and professional growth, professional development and teacher training provided new and innovative ways of teaching and implementing activities and had been considered "an integral part of international and national qualification frames and the framework of the whole idea of teachers' lifelong education" (p. 174). Professional development could provide general education classroom teachers with strategies for implementing differentiated instruction and higher level and critical-thinking lessons skills for gifted students (Doren, Flannery, Lombardi, & McGrath Kato, 2013). Additionally, adequate and effective professional development and teacher training in gifted education could impact the gifted and talented classroom by providing gifted

students the academic enrichment needed to meet their educational needs (Geake & Gross, 2008). Teacher referral and recommendation for these students to gifted programs could be impacted by professional development and teacher training in gifted education and cultural diversity (Banks & Banks, 2010).

Johnsen (2012) stated that professionals in the area of gifted education identified the following teacher preparation standards for all educators:

> 1. Understanding the issues in definitions, theories, and identification of gifted and talented students, including those from diverse backgrounds.
>
> 2. Recognize the learning differences, differences, developmental milestones, and cognitive/affective characteristics of gifted and talented students, including those from diverse backgrounds, and identify their related academic and social emotional needs; and
>
> 3. Understand, plan, and implement a range of evidence-based strategies to assess gifted and talented students; to differentiate instruction, content, and assignments for them (include the use of higher order critical and creative-thinking skills); and to nominate them for advanced programs or accelerate as needed. (p. 51)

The underrepresentation of African American and Hispanic students in gifted programs could be attributed to the lack of professional development and teacher training in gifted education (McBee, 2006). Teacher participation in professional development and teacher training in gifted education was essential (Speirs Neumeister, 2007) to help increase the proportion and representation for African American and Hispanic students in gifted education programs. Allen (2017) stated that, "teachers need professional development

to raise awareness about the issue of underrepresentation of culturally and linguistically diverse students in gifted programming".

The majority commentaries described a form of systemic racism that have led to inequalities due to conscious or unconscious opportunity hoarding where one group created gifted identification structures or definitions of talent that benefited their group over others. This opportunity hoarding could also have been due to class bias in definitions of talent (Bernstein, 2007) or an active creation of elite tracks that benefited the higher-income or wealthier groups (Lucas, 2001).

Cultural Implications and Legislation

In 1954, the U.S. Supreme Court case Brown v. the Board of Education of Topeka, Kansas declared that the nation's separate educational facilities were inherently unequal. Upon the passage of the Civil Rights Act of 1964, with support from the U.S. Justice Department, the extreme implementation of school desegregation was underway. According to Rothstein (2014), the Brown ruling was one of the country's most pivotal civil rights milestones, but segregation continues to be prevalent in America's schools. Access to an equal high-quality education is a necessity for students to reach their full academic potential. The path to this high level of equality in education faces obscurities based on ethnicity, gender, and socioeconomic status. The idea of school is viewed differently by a variety of cultures. Negative interactions with school, starting in elementary, points toward a series of socioemotional and academic problems and a disconnection from school (Bazron et al., 2005). Despite the historical Brown ruling, all children have yet to receive access to an equitable and adequate education. Callahan (2005) asserted that underrepresented of minority students in gifted programs will

continue unless a strategic change takes place among educators and other stakeholders that can help make sufficient changes in the education system. Staiger (2004) explains that a hidden segregation agenda exists in U.S. public schools because of the underrepresentation of minority students in gifted and their over placement in educational services for students with learning challenges. In the unprecedented case of McFadden v. Board of Education for Illinois School District U-46, settled in 2013, the court affirmed that in creating a separate gifted education program for Hispanic student only, this school district violated the United States and Illinois constitutions' equal protection clauses (Ford & King, 2014).

Resolving detailed discussion that investigates the under-representation of students who do not identify as white and are categorized as having a low socioeconomic status, attention can be directed to The Jacob K. Javits Gifted and Talented Students Education Program (Javits, 1988). The major emphasis of Javits is on serving traditionally under-represented in gifted and talented programs, particularly economically disadvantaged, limited English proficient, and disabled students, to help reduce the achievement gap among such groups of students at the highest levels of achievement (Ford & King, 2014). Javits (1988) supports two priorities: (a) initiatives to develop and scale up models serving students who are underrepresented in gifted and talented programs, and (b) state and local efforts to improve services for gifted and talented students. Programs and projects must carry out one or more of the following:

- Conducting scientifically based research on methods and techniques for identifying and teaching gifted and talented students—and for using these

programs and methods to serve all students; and conducting program evaluations, surveys, and other analyses needed to accomplish the purpose of this program;

• Carrying out professional development for personnel involved in the education of gifted and talented students.

• Establishing and operating model projects and exemplary programs for serving gifted and talented students, including innovative methods of serving students whose needs may not be met by more traditional gifted and talented programs (including summer programs, mentoring, service learning, and programs involving business, industry, and education);

• Implementing innovative strategies, such as cooperative learning, peer tutoring, and service learning.

• Providing technical assistance and information on how to serve gifted and talented students and, where appropriate, how to adapt these programs to serve all students.

• Making materials and services available through state regional education service centers, or

• Providing challenging, high-level course work, disseminated through technologies (including distance learning), for students in schools or LEAs that would not otherwise have the resources for such course work (Javits, 1988).

The purpose of the Javits Act is to orchestrate a coordinated program of scientifically based research, demonstration projects, innovative strategies, and similar activities that build and enhance the ability of elementary and secondary schools to meet the special educational needs of gifted and talented students (NAGC, n.d.).

Theory of Multiple Intelligences

The Theory of Multiple Intelligences was first proposed by Howard Gardner in his 1983 book "Frames of Mind," where he broadens the definition of intelligence and outlines several distinct types of intellectual competencies (Marenus, 2023). Gardner's Theory of Multiple Intelligences developed a series of eight inclusion criteria while evaluating each "candidate" intelligence that was based on a variety of scientific disciplines (Marenus, 2023). He writes that we may all have these intelligences, but our profile of this intelligence may differ individually based on genetics or experience (Marenus, 2023). Gardner's theory initially listed seven intelligences that work together: linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal, and intrapersonal; he later added an eighth, naturalist intelligence, and says there may be a few more (Straus, 2013).

Spatial-Visual Intelligence

According to Howard Gardner (2011), humans with spatial-visual intelligence are thought to have a heightened awareness of individual physical space or environment. They are able to envision and comprehend large-scale spatial arrays and mapmaking. People with spatial-visual intelligence learn best through verbal imagery, charts, graphs, photographs, drawings and paintings, and video. Some occupations of humans with spatial-intelligence can include architects, artists, photographers, cartographers, sailors, chess players, and video-game designers (Gardner, 2011).

Bodily-Kinesthetic Intelligence

As indicated by Howard Gardner (2011), humans with bodily-kinesthetic intelligence possess a high sense of bodily awareness. They work well with their hands

and are usually highly athletic. Humans with bodily-kinesthetic intelligence benefit the most from learning when they are able to construct or create something, rather than hearing about a subject. Some professions can include professional athletes, surgeons, dancers, builders, or soldiers (Gardner, 2011).

Musical Intelligence

Based on research done by Howard Gardner (2011), humans who have musical intelligence are sensitive to rhythm, pitch, meter, and timbre. Because they have a strong auditory component, humans who have musical intelligence learn best in a lecture setting. Creating song, rhyme, or lyrics can help them learn new information. It is thought that this specific intelligence is fundamentally connected to linguistic intelligence (Gardner, 2011).

Linguistic Intelligence

As specified by Howard Gardner (2011), humans who possess linguistic intelligence show outstanding skill in reading, writing, and learning languages. They are highly responsive to the meaning of words and the order of words. Humans with linguistic intelligence learn best by listening to lectures and through discussion and debate. Some occupations can include authors, journalists, poets, teachers, politicians, and public speakers (Gardner, 2011).

Logical-Mathematical Intelligence

In the light of Howard Gardner's studies (2011), humans who have logical-mathematical intelligence show high levels of skill regarding reasoning, numbers, logic, and investigate questions scientifically. They do exceptionally well on traditional IQ tests

and show rational reasoning. Some professions can include engineers, mathematicians, scientists, doctors, and economists (Gardner, 2011).

Interpersonal Intelligence

Based on studies done by Howard Gardner (2011), humans who have interpersonal intelligence, also known as social intelligence, are highly sensitive to the temperaments, moods, motivations, and feelings of other humans. They also can effortlessly empathize with other people. Humans with interpersonal intelligence learn best through interaction, group activities, and through open discussion and debate. Some careers can include psychologists, sales, politicians, educators, and religious leaders (Gardner, 2011).

Intrapersonal Intelligence

In accordance with research done by Gardner (2011), humans with intrapersonal intelligence, also known as self-intelligence, are highly self-aware and are sensitive to their own feelings, goals, and anxieties. They have an incisive sense of intuition, wisdom, and understanding of their emotions. Humans with intrapersonal intelligence usually learn the best through independent study. Gardner (2011) believes that there is no particular career specific to people with intrapersonal intelligence, but rather this way of thinking should be a goal for every human in a complex modern society.

Naturalistic Intelligence

Consistent with studies done by Gardner (2011), humans with naturalistic intelligence are able to make considerable distinction regarding nature. These humans hold great respect for nature and the outdoors. Humans with naturalistic intelligence learn best when the material relates to ecological situations or real life. Some occupations

include naturalists, ecologists, biologists, farmers, hunters, and forest rangers (Gardner, 2011).

His theory on multiple intelligences was derived from examination of evolutionary biology, neuroscience, anthropology, psychometrics, and psychological studies of philosophers (Davis et al., 2011). Howard Gardner depicts his own unique criteria for identification of an intelligence:

Criteria for Identification of an Intelligence (Kornhaber, Fierros, & Veneema, 2004)

- It should be seen in relative isolation in prodigies, autistic savants, stroke victims or other exceptional populations. In other words, certain individuals should demonstrate particularly high or low levels of a particular capacity in contrast to other capacities.
- It should have a distinct neural representation; that is, its neural structure and functioning should be distinguishable from that of other major human faculties.
- It should have a distinct developmental trajectory; that is, different intelligences should develop at different rates and along paths which are distinctive.
- It should have some basis in evolutionary biology. In other words, an intelligence ought to have a previous instantiation in primate or other species and putative survival value.
- It should be susceptible to capture in symbol systems of the sort used in formal or informal education.
- It should be supported by evidence from psychometric tests of intelligence.
- It should be distinguishable from other intelligences through experimental psychological tasks.

- It should demonstrate a core, information-processing system. That is, there should be identifiable mental processes that handle information related to each intelligence.

Prior to the Theory of Multiple Intelligences, the belief was that one's intelligence was predetermined, fixed, and could not be changed. People accepted intelligence as unvarying – if a person possessed only a small amount of intelligence, there was not much they could do to change this (Kurt, 2021). Researchers used short-answer tests to assess one's intelligence, and it was unheard of to assume that one's cognitive capacity could grow (Kurt, 2021). Gardner's Theory of Multiple Intelligences states that everyone has all eight intelligences at varying degrees of proficiency, and an individual's learning style is unrelated to the areas in which they are the most intelligent (Marenus, 2023).

The most important educational implications of the theory of multiple intelligences can be summed up through individuation and pluralization (Marenus, 2023). Zhang (2020) states "that since human beings have their own unique configuration of intelligences, we should take that into account when teaching, mentoring, or nurturing. And pluralization, which is a call for teaching consequential materials in several ways. While it is not possible to address all learning styles at once, utilizing a variety of project and lesson formats will help reach many more students (Kurt, 2021). Multiple Intelligences theory has been used in recent years to facilitate the identification and instruction of gifted and talented children (Fasko, 2001). Understanding that truly personalized learning reflects the fact that students may change direction as they develop their projects, multiple intelligence theory provides a conceptual map that can help both

teachers and students understand which intelligences are being activated and how they can be further extended into the learning process.

Giftedness and Achievement

High intelligence helps individuals to adapt, reduces psychological stress, and improves solve-problems ability (Chan, 2005). As VanTassel-Baska (2006) indicated "teachers are considered the key elements in the success of the teaching and learning processes in gifted programs. They can create an environment that encourages the development of thinking skills and creativity by listening to their students, encouraging them to compete and express their opinions, giving them sufficient time to think, and providing feedback that aids in implementing methods and strategies to enhance the cognitive abilities of gifted and talented students." Gifted children will only achieve true success if they enjoy the area of their natural talent, choose to pursue their talent, develop the skills necessary to maximize their gifts, and make every effort to fully realize their abilities (Taylor, 2009).

The National Association for Gifted Children (NAGC, n.d.) have identified 11 myths about gifted students and the truths associated with each myth:

1. Gifted Students Don't Need Help; They'll Do Fine on Their Own.

   Truth: Would you send a star athlete to train for the Olympics without a coach? Gifted students need guidance from well-trained teachers who challenge and support them in order to fully develop their abilities. Many gifted students may be so far ahead of their same-age peers that they know more than half of the grade-level curriculum before the school year begins. Their resulting boredom and frustration can lead to low achievement,

despondency, or unhealthy work habits. The role of the teacher is crucial for spotting and nurturing talents in school.

2. Teachers Challenge All Students, So Gifted Kids Will Be Fine in the Regular Classroom.

   Truth: Although teachers try to challenge all students, they are frequently unfamiliar with the needs of gifted children and do not know how to best serve them in the classroom. A national study conducted by the Fordham Institute found that 58% of teachers have received no professional development focused on teaching academically advanced students and 73% of teachers agreed that "Too often, the brightest students are bored and under-challenged in school–we're not giving them a sufficient chance to thrive." This report confirms what many families have known: not all teachers are able to recognize and support gifted learners.[1]

3. Gifted Students Make Everyone Else in the Class Smarter by Providing a Role Model or a Challenge.

   Truth: Average or below-average students do not look to the gifted students in the class as role models. Watching or relying on someone who is expected to succeed does little to increase a struggling student's sense of self-confidence.[2] Similarly, gifted students benefit from classroom interactions with peers at similar performance levels and become bored, frustrated, and unmotivated when placed in classrooms with low or average-ability students.

4. All Children are Gifted.

   Truth: All children have strengths and positive attributes, but not all children are gifted in the educational sense of the word. The "gifted" label in a school setting means that when compared to others in their age or grade, a child has an advanced capacity to learn and apply what is learned in one or more subject areas, or in the performing or fine arts. This advanced capacity requires modifications to the regular curriculum to ensure these children are challenged and learn new material. Gifted does not connote good or better; it is a term that allows students to be identified for services that meet their unique learning needs.

5. Acceleration Placement Options are Socially Harmful for Gifted Students.

   Truth: Academically gifted students often feel bored or out of place with their age peers and naturally gravitate toward older students who are more similar as "intellectual peers." Studies have shown that many students are happier with older students who share their interest than they are with children the same age.[3] Therefore, acceleration placement options such as early entrance to kindergarten, grade skipping, or early exit should be considered for these students.

6. Gifted Education Programs are Elitist.

   Truth: Gifted education programs are meant to help all high-ability students. Gifted learners are found in all cultures, ethnic backgrounds, and socioeconomic groups. However, many of these students are denied the opportunity to maximize their potential because of the way in which

programs and services are funded, and/or flawed identification practices. For example, reliance on a single test score for gifted education services may exclude students with different cultural experiences and opportunities. Additionally, with no federal money, and few states providing an adequate funding stream, most gifted education programs and services are dependent solely on local funds and parent demand. This means that, in spite of the need, often only higher-income school districts are able to provide services, giving the appearance of elitism.

7. That Student Can't be Gifted; They are Receiving Poor Grades.

   Truth: Underachievement describes a discrepancy between a student's performance and their actual ability. The roots of this problem differ, based on each child's experiences. Gifted students may become bored or frustrated in an unchallenging classroom situation causing them to lose interest, learn bad study habits, or distrust the school environment. Other students may mask their abilities to try to fit in socially with their same-age peers, and still others may have a learning disability that masks their giftedness. No matter the cause, it's imperative that caring and perceptive adults help gifted learners break the cycle of underachievement in order to achieve their full potential.

8. Gifted Students are Happy, Popular, and Well Adjusted in School

   Truth: Many gifted students flourish in their community and school environment. However, some gifted children differ in terms of their emotional and moral intensity, sensitivity to expectations and feelings,

perfectionism, and deep concerns about societal problems. Others do not share interests with their classmates, resulting in isolation or being labeled unfavorably as a "nerd." Because of these difficulties, the school experience is one to be endured rather than celebrated.

9. This Child Can't Be Gifted, He Has a Disability.

   Truth: Some gifted students also have learning or other disabilities. These "twice-exceptional" students often go undetected in regular classrooms because their disability and gifts mask each other, making them appear "average." Other twice-exceptional students are identified as having a learning disability and, as a result, are not considered for gifted services. In both cases, it is important to focus on the students' strengths and allow them to have challenging curricula in addition to receiving help for their learning disability.

10. Our District Has a Gifted and Talented Program: We Have AP Courses.

    Truth: While AP classes offer rigorous, advanced coursework, they are not a gifted education program. The AP program is designed as college-level classes taught by high school teachers for students willing to work hard. The program is limited in its service to gifted and talented students in two major areas: First, AP is limited by the subjects offered, which in most districts is only a small handful. Second, it is limited in that, typically, it is offered only in high school and is generally available only for 11th and 12th grade students. The College Board acknowledges that

AP courses are for any student who is academically prepared and motivated to take a college-level course.

11. Gifted Education Requires an Abundance of Resources.

Truth: Offering gifted education services does not need to break the bank. A fully developed gifted education program can look overwhelming in its scope and complexity. However, beginning a program requires little more than an acknowledgement by district and community personnel that gifted students need something different, a commitment to provide appropriate curriculum and instruction, and teacher training in identification and gifted education strategies.

Since the 19th century, attention has been paid to cognitive talent in the scientific literature (Gagne, 1985). With the rise of research on giftedness, the problem of underperforming gifted students in education was also raised (Dowdall and Colangelo, 1982). Lack of motivation is seen as a possible explanation for underachievement among cognitively gifted students (White et al., 2018). Siegle and McCoach (2005) developed the Achievement Orientation Model (AOM), that is grounded in previous research on motivation and intellectual giftedness and shows the different factors that determine whether cognitively gifted students (under)achieve. The AOM identifies at several factors connected to motivation, task engagement and achievement, namely self-efficacy, goal valuation, environmental perceptions, and self-regulation. It is clear from previous research that the underachievement of cognitively gifted students is closely related to motivational deficits (Barbier et al., 2019). Barbier (et al., 2019) states: “If we aim to shed further light on the role of inhibiting or facilitating factors that influence the

motivational development of intellectually gifted students, the Achievement Orientation Model (AOM) provides a useful theoretical lens." Previous research on motivation and (under)performing cognitively gifted individuals formed the basis for the AOM (Siegle and McCoach, 2005). Self-efficacy theory (Bandura, 1986), expectancy-value theory (Eccles and Wigfield, 1995) and person environment fit theory (Lewin, 1963) are underlying theories incorporated into the AOM.

Cavilla (2023) states: "Some gifted youngsters even shun their exceptional ability to try and "fit in" with their same-age peers socially and culturally, depending on the setting. To avert this, gifted students require teachers and parents to help them embrace and accept their ability and see it in a positive light." "To be gifted is to be vulnerable. To have the mental maturity of a fourteen-year-old and the physical maturity of an eight year old poses a unique set of challenges analogous to those that face the fourteen year old body, and the eight year old mind" (Silverman, 1997, p. 37) Silverman's (1997) construct painted a picture of the challenge that many GT students and their families face. Ideally, gifted students require three components to maximize their potential: a safe and flexible learning environment, proper academic rigor, and dual focus on social-emotional learning (Cavilla, 2023).

NWEA Map Test

Northwest Evaluation Association (NWEA) is a not-for-profit educational services organization that supports students and educators worldwide by providing assessment solutions, insightful reports, professional learning offerings, and research services (NWEA, 2018). The MAP test provides educators with a tool for assessing students' academic progress and growth over time. It aims to measure individual student

performance in various subjects, including math, reading, and language usage. NWEA assessments are called Measures of Academic Progress (MAP). MAP assessments are computerized adaptive assessments (NWEA, 2018). The difficulty of each question is based on how well the student answers the previous question (NWEA, 2018). MAP tests are scored in real time and help predict proficiency and group students for differentiated instruction. During assessments, questioning is adapted to the student's ability level. Correct answers will generate more difficult questions, while incorrect answers will generate less difficult questions. After every MAP assessment, a student receives a score that is indicative of what the student is ready to learn: "MAP assessments use the RIT scale to create a grade independent RIT score, which indicates the level of question difficulty a given student is capable of answering correctly about 50% of the time" (NWEA, 2015b). NWEA uses a specific RIT model conceived by Danish mathematician Georg Rasch (1901-1980) (NWEA, 2015a). NWEA's RIT scale stands for Rasch Unit scale. RIT is a stable measurement that covers all grades and is an essential data point in the student reports and learning plans (NWEA, 2020). In addition, MAP growth norms compare a student's growth to that of his/her academic peers (NWEA, 2015b). The MAP test is conducted 3 times a year, in the fall, winter and spring in the targeted school district.

Research Questions

1. Are students selected disproportionately for GT programs by gender, ethnicity, or socioeconomic status?
2. Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented?

3. Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender?
4. Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity?

Conclusion/Summary

There has been a longstanding concern about the underrepresentation of certain racial and ethnic groups in gifted and talented education programs. Research indicates that students from marginalized communities, particularly Black and Hispanic students, may face barriers in accessing and participating in these programs.

Factors contributing to this disparity include cultural biases in assessment tools, socioeconomic disparities, and limited opportunities for enrichment in underfunded schools. There's ongoing dialogue and efforts within education systems to address these issues, promote equity, and implement more inclusive identification processes.

Educational institutions are working towards adopting fair and unbiased assessment methods, considering diverse talents and potential, and providing additional resources to schools serving disadvantaged communities. The aim is to ensure that gifted and talented programs are accessible to students of all backgrounds, fostering a more equitable education system.

The magnitude of brain capacity is not determined by an individual's physical features. The ability to compute mathematical equations, compose classical literature, or navigate the inner workings of musical instruments is not directly related to skin color,

gender orientation, or socioeconomic status. The pathway to the upper echelon of gifted and talented education is one that contains controversies. These controversies can be pursued through a variety of portals. With each district containing its own individual standards for acceptance into their respective gifted and talented programs, it is the equivalent of Heimdall controlling access to Asgard in the Marvel films Thor. According to the National Association for Gifted Children (NAGC, 2018):

> Although the percentage of students served in gifted and talented education programs does not currently reflect the general student population, gifted and talented youth exist in all cultural and economic groups. One contributor to this underrepresentation has been an assumption that there are few students to identify in these groups. Fewer than 10 states specifically highlight the importance of identifying culturally and linguistically diverse students or low SES students in their state definitions. Moreover, few teachers have any coursework in gifted education or training to increase their cultural competency in recognizing advanced potential in students. Teacher preparation programs typically have either no courses or only one course related to diversity or at-risk students. Consequently, many school systems use identification methods that contribute to disproportionality when procedures, such as universal screening, have been found to increase the number of low-income and minority students identified as gifted by 180%. When appropriate identification protocols are employed along with programming models that cultivate potential, more students from historically underrepresented groups can be identified, resulting in a more equitable process and gifted enrollments more reflective of the national student population.

This theory has implications for gifted and talented education, as it suggests that students may have varying strengths and talents that extend beyond the traditional measures of intelligence. In the context of gifted and talented education, recognizing and nurturing multiple intelligences is important for providing a more comprehensive and individualized approach to identifying and serving gifted students.

Diversity has and always will need a seat at the table. This seat is not one that usually comes readymade, it generally needs to be strategically crafted. The crafting of this strategy isn't always welcomed or portrayed in the representation the field of education. Parents and conservative activists in many areas of the U.S. are protesting the inclusion of issues related to race, gender, diversity, and equity in the school curriculum (Clark & Kite, 2022). In contrast to the view that addressing topics such as privilege and systemic inequity is harmful, research shows that experience with these issues leads to positive changes in students' attitudes and values (Gurin et al., 2002). An inclusive classroom also provides global academic benefits, such as improved critical thinking (Bowman, 2010) and higher overall achievement levels for both majority and minority group members (Elicker et al., 2009). In addition, when students have positive diversity experiences, their interest in improving the lives of people in their communities increases (Bowman, 2011). A vital goal in diversifying education is providing a space to aide students and teachers in recognizing their biases. Clark and Kite (2022) state "Whether they are implicit or explicit, biases stem from reliance on common cognitive heuristics that help people navigate their complex social world ". Students with increased recognition of racial/ethnic identity are more likely to increase academic performance and self-efficacy (Butler-Barnes et al., 2013). Despite experiencing discrimination,

stereotypes, and racial biases, racial centrality served as a driving force of academic success (Shin, 2011).

The purpose of this study was to investigate the equity of the gifted and talented program while analyzing the achievement scores of these students compared to their peers. This study strived to answer some of the questions surrounding these controversies.

CHAPTER III

RESEARCH METHOD

Introduction

Research by Renzulli and Reis (1997) reiterated that "the question of how to define giftedness has been debated for decades, and a single, unified definition does not and should not exist." Every school district in Arkansas has the autonomy to direct its unique criteria for gifted and talented participants. Pierce (2022) states, "The selection process for gifted and talented programs varies by district." This study aims to investigate the equity of the gifted and talented program while analyzing the success rate of these students compared to their peers.

This chapter presents the methodology that was used in this study. Descriptive and inferential statistics were used to conduct this quantitative study to investigate the equity of the GT program and the progress analysis of the students' NWEA scores. Finally, the process used to analyze and measure student achievement data was discussed.

Research Questions and Hypotheses

The research questions and hypotheses for this study are:

- RQ1: Are students selected disproportionately for GT programs by gender, ethnicity, or socioeconomic status?
    - $H_0 1$: Students are not chosen disproportionately for GT programs.
    - $H_1 1$: Students are chosen disproportionately for GT programs.
- RQ2: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented?

    - $H_0$2: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented.
    - $H_1$2: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented.
- RQ3: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender?
    - $H_0$3: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender.
    - $H_1$3: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender.
- RQ4: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity?
    - $H_0$4: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity.

- H_I4: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity.

Population and Sample

The population for this study consists of third through fifth grade students enrolled in the Central Arkansas School. The student sample size was approximately 2228 for the determined year. The district administration provided written permission for data collection for this study. Gifted and talented students are identified based on the criteria set forth by the school district. Table 2 contains

Students in grades third through fifth must receive 150 minutes a week of instruction provided by a certified gifted and talented teacher. Students in grades sixth through 10th are required to be enrolled in at least one advanced course.

Table 2

Central Arkansas School District Demographics 2018-2022 Grades 3-5

Demographic Type	Central Arkansas School District Overall	Gifted & Talented
Gender		
Male	51.32%	51.9%
Female	48.68%	48.1%
Race		
White	56.10%	70.70%
Black	20.90%	12.30%
Hispanic/Latino	17.80%	11.00%
Asian	1.70%	2.50%
Hawaii/Pacific Islander	0.07%	0.30%
Native American	0.19%	0.20%
Two or more races	3.30%	3.00%
Free and Reduced Lunch	48.10%	27.2%

Data Collection

The two prime data sources used in this study were the NWEA Map Test results and Central Arkansas School District student demographic information. The researcher obtained archived fall, winter, and spring NWEA Map test results along with the student's gender, race, and socioeconomic status for all students enrolled in grades third through tenth for the period covered in the study. The NWEA data scores measure mathematics and literacy achievements. The district assistant superintendent and school counselor provided the test results and demographic information, but students' personal identifying information, including their names and identification numbers, were omitted. Demographic data categorize students by gifted and talented, race, gender, and socioeconomic status. This study included all participants that met the selection criteria, making this a census study (Horne, 2018).

Data Analysis

Table 3 outlines the variables and planned statistical analysis for each hypothesis in this study.

Table 3

Statistical Analysis Methods

Research Question	Hypothesis	Variables	Statistical Test
Are students selected disproportionately for GT programs by gender, ethnicity, or socioeconomic status?	Students are disproportionately selected for GT programs by gender, ethnicity, or socioeconomic status.	V1= District GT identified students' demographics. V2= 3rd - 5th grade students demographics	T-test and Chi Square
Is there a significant difference in NWEA Map Test scores between students identified as GT and those not?	There is no significant difference in NWEA Map Test scores between students identified as GT and those not identified as GT.	IV1=District GT identified students' demographics. IV2=3rd-5th grade students' demographics DV=NWEA MAP Scores.	T-test
Is there a significant difference in NWEA Map Test scores between students identified as GT and those not identified as GT, considering the factor of gender?	There is no significant difference in NWEA Map Test scores between students identified as GT and those not identified as GT, considering the factor of gender.	IV1=District GT identified students' demographics. IV2=3rd-5th grade students' demographics DV=NWEA MAP Scores.	T-test
Is there a significant difference in NWEA Map Test scores between students identified as GT and those not identified as GT, considering the factor of ethnicity?	There is no significant difference in NWEA Map Test scores between students identified as GT and those not identified as GT, considering the factor of ethnicity.	IV1=District GT identified students' demographics. IV2=3rd-5th grade students' demographics DV=NWEA MAP Scores.	T-test

Assumptions

One assumption was that every student selected for gifted and talented education programs is a high academic achiever on formative and summative assessments. Another

assumption was that there wasn't any bias in the selection process of gifted and talented students

Internal and External Validity

Validity has been defined as the degree to which an instrument measures what it purports to measure (McMillan, 2012.) However, no internal or external validity check is necessary since the research uses archived data and does not utilize an instrument.

Ethical Assurances

The risk associated with this study was considered minimal due to the nature of the study (Gliner, Morgan, & Leech, 2017). Additionally, due to the research design, no identifiable information was associated with the data used in this study.

Summary

Chapter 3 presents the methods to be used in completing this study. The research used archived NWEA scores and student demographic data. Descriptive statistics, chi-square, and independent samples t-test were used to answer the questions. The independent variables in this study consisted of the students ethnicity, gender, and socioeconomic status. The dependent variables was if the students were identified as receiving gifted and talented services or if the students were not receiving gifted and talented services. The purpose of this study was to investigate the equity of the gifted and talented program while analyzing the achievement scores of these students compared to their peers.

CHAPTER IV

RESULTS

This quantitative study aimed to investigate the selection equity of the gifted and talented program in a central Arkansas school district considering gender, ethnicity, and socioeconomic status and to determine how GT students performed on state achievement tests compared to their peers. This chapter presents the descriptive statistics of the study variables and the findings from the statistical analysis of each research question. The research questions and hypotheses for this study are:

- RQ1: Are students selected disproportionately for GT programs by gender, ethnicity, or socioeconomic status?
    - $H_0 1$: Students are not chosen disproportionately for GT programs.
    - $H_1 1$: Students are chosen disproportionately for GT programs.
- RQ2: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented?
    - $H_0 2$: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented.
    - $H_1 2$: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented.

- RQ3: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender?
    - $H_0$3: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender.
    - $H_1$3: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender.
- RQ4: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity?
    - $H_0$4: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity.
    - $H_1$4: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity.

Descriptive Statistics

There were 2228 students enrolled in grades third, fourth, and fifth at Central Arkansas School District. Table 4 presents the enrollment numbers of third through fifth grade students enrolled in the school and the number selected for the GT program by ethnicity. Of the three predominant groups, Hispanic, Black, and White, Hispanic and

Black students were selected for the GT program at a smaller percentage compared to their percentage of the student population. White students were selected for the GT program at a higher percentage than their percentage of the student body.

Table 4

Third-Fifth Grade Total and GT Enrollment by Ethnicity

Ethnicity	Enrolled		Percentage	
	School	GT	School	GT
American Indian or Alaska Native	3	1	0.1%	0.4%
Native Hawaiian or Other Pacific Islander	3	2	0.1%	0.8%
Asian	40	7	1.8%	2.7%
Two or More Races	95	10	4.3%	3.8%
Hispanic or Latino	417	36	18.7%	13.6%
Black or African American	425	26	19.1%	9.8%
White	1245	182	55.9%	68.9%
TOTAL	2228	264	100%	100%

Of the 2228 students, nearly 53% were males, and 47% were females. Table 5 presents the enrollment numbers of third- through fifth-grade students enrolled in the school and the number selected for the GT program by gender. The percentage of students selected for GT based on gender was relatively proportionate to the gender percentages of students in the school.

Table 5

Third-Fifth Grade Total and GT Enrollment by Gender

	Enrolled		Percentage	
	School	GT	School	GT
Male	1178	146	52.9%	55.3%
Female	1050	118	47.1%	44.7%
TOTAL	2228	264	100%	100%

Of the 2228 students, nearly 49% of the students were eligible for free or reduced-price meals. However, only 26% were selected for the GT program. Table 6 presents the

enrollment numbers of third- through fifth-grade students enrolled in the school and the number selected for the GT program by socio-economic status.

Table 6

Third-Fifth Grade Total and GT Enrollment by Socioeconomic Status

Ethnicity	Enrolled		Percentage	
	School	GT	School	GT
Free Reduced	1084	69	48.7%	26.1%
Paid	1144	195	51.3%	73.9%
TOTAL	2228	264	100%	100%

There were 771 students enrolled in third grade at Central Arkansas School District. Table 7 presents the enrollment numbers of third grade students enrolled in the school and the number selected for the GT program by ethnicity. Of the three predominant groups, Hispanic, Black, and White, Hispanic and Black students were selected for the GT program at a smaller percentage compared to their percentage of the student population. White students were selected for the GT program at a higher percentage than their percentage of the student body.

Table 7

3rd Grade Enrollments and GT Enrollment by Ethnicity

Ethnicity	Enrolled		Percentage	
	School	GT	School	GT
American Indian or Alaska Native	1	0	0.1%	0.0%
Native Hawaiian or Other Pacific Islander	0	0	0.0%	0.0%
Asian	17	2	2.2%	2.6%
Two or More Races	39	2	5.1%	2.6%
Hispanic or Latino	141	8	18.3%	10.3%
Black or African American	147	6	19.1%	7.7%
White	426	60	55.3%	76.9%
TOTAL	771	78	100%	100%

There were 727 students enrolled in fourth grade at Central Arkansas School District. Table 7 presents the enrollment numbers of fourth grade students enrolled in the school and the number selected for the GT program by ethnicity. Of the three predominant groups, Hispanic, Black, and White, Hispanic and Black students were selected for the GT program at a smaller percentage compared to their percentage of the student population. White students were selected for the GT program at a higher percentage than their percentage of the student body.

Table 8

4th Grade Enrollments and GT Enrollment by Ethnicity

Ethnicity	Enrolled		Percentage	
	School	GT	School	GT
American Indian or Alaska Native	0	0	0.0%	0.0%
Native Hawaiian or Other Pacific Islander	2	1	0.3%	1.2%
Asian	11	1	1.5%	1.2%
Two or More Races	34	4	4.7%	4.8%
Hispanic or Latino	133	11	18.3%	13.1%
Black or African American	134	11	18.4%	13.1%
White	413	56	56.8%	66.7%
TOTAL	727	84	100%	100%

Table 9

5th Grade Enrollments and GT Enrollment by Ethnicity

Ethnicity	Enrolled		Percentage	
	School	GT	School	GT
American Indian or Alaska Native	2	1	0.3%	1.0%
Native Hawaiian or Other Pacific Islander	1	1	0.1%	1.0%
Asian	12	4	1.6%	3.9%
Two or More Races	23	4	3.2%	3.9%
Hispanic or Latino	143	17	19.6%	16.7%
Black or African American	143	9	19.6%	8.8%
White	406	66	55.6%	64.7%
TOTAL	730	102	100%	100%

Of the 771 students enrolled in third grade, nearly 51% were males, and 49% were females. Table 10 presents the enrollment numbers of third grade students enrolled in the school and the number selected for the GT program by gender. The percentage of students selected for GT based on gender was relatively disproportionate to the gender percentages of students in the school with males near the 63% mark and females at 37%.

Table 10

Third Grade Total and GT Enrollment by Gender

	Enrolled		Percentage	
	School	GT	School	GT
Male	392	49	50.8%	62.8%
Female	379	29	49.2%	37.2%
TOTAL	771	78	100%	100%

Of the 727 students enrolled in fourth grade, nearly 55% were males, and 45% were females. Table 11 presents the enrollment numbers of fourth grade students enrolled in the school and the number selected for the GT program by gender. The percentage of students selected for GT based on gender was relatively proportionate to the gender percentages of students in the school with 51% of males and nearly 49% of the females.

Table 11

Fourth Grade Total and GT Enrollment by Gender

	Enrolled		Percentage	
	School	GT	School	GT
Male	402	43	55.3%	51.2%
Female	325	41	44.7%	48.8%
TOTAL	727	84	100%	100%

Of the 730 students enrolled in fifth grade, nearly 53% were males, and 47% were females. Table 12 presents the enrollment numbers of fifth grade students enrolled in the school and the number selected for the GT program by gender. The percentage of

students selected for GT based on gender was relatively proportionate to the gender percentages of students in the school with 53% of males and nearly 47% of the females.

Table 12

Fifth Grade Total and GT Enrollment by Gender

	Enrolled		Percentage	
	School	GT	School	GT
Male	384	54	52.6%	52.9%
Female	346	48	47.4%	47.1%
TOTAL	730	102	100%	100%

There were 771 students enrolled in the third grade. Nearly 49% of the students were eligible for free or reduced-price meals. However, only 21% were selected for the GT program. Table 13 presents the enrollment numbers of third grade students enrolled in the school and the number selected for the GT program by socio-economic status.

Table 13

Third Grade Total and GT Enrollment by Socioeconomic Status

	Enrolled		Percentage	
	School	GT	School	GT
Free Reduced	375	16	48.6%	20.5%
Paid	396	62	51.4%	79.5%
TOTAL	771	78	100%	100%

There were 727 students enrolled in the fourth grade. Nearly 46% of the students were eligible for free or reduced-price meals. However, only 29% were selected for the GT program. Table 14 presents the enrollment numbers of fourth grade students enrolled in the school and the number selected for the GT program by socio-economic status.

Table 14

Fourth Grade Total and GT Enrollment by Socioeconomic Status

	Enrolled		Percentage	
	School	GT	School	GT
Free Reduced	375	24	46.2%	28.6%
Paid	391	60	53.8%	71.4%
TOTAL	727	84	100%	100%

There were 730 students enrolled in the fourth grade. Nearly 51% of the students were eligible for free or reduced-price meals. However, only 28% were selected for the GT program. Table 15 presents the enrollment numbers of fifth grade students enrolled in the school and the number selected for the GT program by socio-economic status.

Table 15

Fifth Grade Total and GT Enrollment by Socioeconomic Status

	Enrolled		Percentage	
	School	GT	School	GT
Free Reduced	373	29	51.1%	28.4%
Paid	357	73	48.9%	71.6%
TOTAL	730	102	100%	100%

Research Question 1

Are students selected disproportionately for GT programs by gender, ethnicity, or socioeconomic status? To answer this question, a Chi-Square test was conducted to determine if there was an association between the number of students admitted to the GT program and those not admitted based on gender. Students were not selected disproportionately for GT programs based on gender, χ^2 (1, N = 2228) = .71, p = .399. Of the 264 students admitted to the GT program in grades 3-5, 55% were males, and 45% were females. This compares with the total student population of 53% males and 47% females.

A Chi-Square test was conducted to determine if there was an association between the number of students admitted to the GT program and those not admitted based on ethnicity. Students were selected disproportionately for GT programs based on ethnicity, χ^2 (6, N = 2228) = 37.91, p < .001.

Even though Hispanic/Latino students make up 18.7% of the student population, they only make up 13.6% of the GT program. Likewise, even though Black/African American students make up 19.0% of the student population, they only make up 9.8% of the GT program. On the other hand, white students make up 55.9% of the student population, but they make up 68.9% of the GT program. The other four groups are fairly represented in the GT program.

A Chi-Square test was conducted to determine if there was an association between the number of students admitted to the GT program and those not admitted based on socioeconomic status. Students were selected disproportionately for GT programs based on socioeconomic status, χ^2 (1, N = 2228) = 60.78, p < .001.

Of the 264 students admitted to the GT program in grades 3-5, 26.1% of the students qualify for free and/or reduced lunch, and 73.9% didn't qualify for free and/or reduced lunch. This compares with the total student population of 48.7% qualify for free and/or reduced lunch and 51.3% do not qualify for free and/or reduced lunch.

Research Question 2

Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented? To answer this question, a comparison of the means of the two groups was computed using an independent samples t-test to determine if there was a significant difference between the

two groups. The test variables are the math and reading scores from the NWEA MAP test administered in winter 2023. The grouping variable was the student population categorized by those identified as gifted and talented and those not identified as gifted and talented. Students identified as gifted and talented had a higher mean than those not identified as gifted and talented.

The mean RIT score for math was significantly higher for students selected for the GT program than for those not selected, $t(2226) = 20.35$, $p < .001$. Table 16 presents the results of the 2228 students enrolled, 246 were identified as gifted and talented and 1,964 were not identified as gifted and talented, with the mean and standard deviation associated with their math RIT scores.

Table 16

Mean Percentage - Gifted and Not-Gifted (Math)

	N	Mean	SD	SD Error Mean
Gifted	264	220.26	10.290	.633
Not Gifted	1964	201.54	14.469	.326

The mean RIT score for reading was also significantly higher, $t(2226) = 19.03$, $p < .001$. Table 17 presents the results of the 2228 students enrolled, 246 were identified as gifted and talented and 1,964 were not identified as gifted and talented, with the mean and standard deviation associated with their Reading RIT scores.

Table 17

Mean Percentage - Gifted and Not-Gifted (Reading)

	N	Mean	SD	SD Error Mean
Gifted	264	220.15	10.320	.635
Not Gifted	1964	198.73	17.892	.404

Research Question 3

Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender? To answer this question, a comparison of the means of the two groups was computed using an independent to determine if there was a significant difference between the two groups. The test variables are the math and reading scores from the NWEA MAP test administered in the winter of 2023, and the grouping variable was the student population categorized by those identified as gifted and talented and those not identified as gifted and talented, with gender being the factor. Results of the math analysis are shown in Table 19. The independent T-test revealed that there was a statistically significant difference in math scores between male students identified as gifted and talented and those not identified as gifted and talented, $t(1176) = 14.43$, $p < .001$, and between female students identified as gifted and talented and those not identified as gifted and talented, $t(1048) = 14.37$, $p < .001$.

Table 18

Mean Math Scores of Students Identified as Gifted and Not-Gifted by Gender

	Gifted/Not Gifted	N	Mean	SD
Male	Gifted	146	220.98	10.46
	Not Gifted	1032	202.30	15.13
	Total	1178	212.64	12.80
Female	Gifted	118	219.36	10.04
	Not Gifted	932	200.69	13.65
	Total	1050	210.03	11.85

Results of the reading analysis are shown in Table 20. The independent T-test revealed that reading scores were significantly higher for male students identified as gifted and talented compared with those not identified as gifted and talented, $t(1176) =$

13.43, $p < .001$. Likewise, reading scores were significantly higher for female students identified as gifted and talented compared with those not identified as gifted and talented, $t(1048) = 13.64$, $p < .001$.

Table 19

Mean Reading Scores of Students Identified as Gifted and Not Gifted by Gender

		N	Mean	SD
Male	Gifted	146	218.85	10.52
	Not Gifted	1032	197.87	18.44
	Total	1178	208.36	14.48
Female	Gifted	118	221.75	9.87
	Not Gifted	932	199.68	17.22
	Total	1050	210.72	13.55

Research Question 4

Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity? To answer this question, a comparison of the means of the two groups was computed using an independent T-test to determine if there was a significant difference between the two groups. The test variables are the math and reading scores from the NWEA MAP test administered in the winter of 2023 and the grouping variable was the student population categorized by those identified as gifted and talented and those not identified as gifted and talented with ethnicity being the factor. Math results are shown in Table 21. Due to only six (6) students being classified as American Indian, Alaska Native, Native Hawaiian, or Other Pacific Islander, no statistical analysis was performed for those ethnicities. The independent T-test revealed significantly higher math scores for students identified as gifted and talented compared with those not identified as gifted and talented for all ethnicities. Asian students identified as GT scored

significantly higher in math than the Asian students who were not identified as GT, $t(38) = 4.38$, $p < .001$. Students of two or more races identified as GT scored significantly higher in math, $t(94) = 4.10$, $p <. 001$. Hispanic students identified as GT also scored significantly higher in math, $t(415) = 8.37$, $p < .001$, as did Black students identified as GT, $t(422) = 7.11$, $p < .001$. White students identified as GT scored significantly higher in math, $t(1243) = 15.21$, $p <.001$.

Table 20

Mean Math Scores of Students Identified as Gifted and Not Gifted by Ethnicity

Identification	Ethnicity	N	Mean	SD
Gifted	Asian	7	226.00	9.31
	Two or More Races	10	220.50	6.21
	Hispanic or Latino	36	219.25	9.28
	Black or African American	26	218.73	11.82
	White	182	220.30	10.46
	TOTAL	264	220.26	10.29
Not Gifted	Asian	33	204.97	11.90
	Two or More Races	86	199.35	16.13
	Hispanic or Latino	381	197.27	15.46
	Black or African American	398	198.95	13.86
	White	1063	204.14	13.67
	TOTAL	1964	201.54	14.47
Total	American Indian or Alaska Native	3	204.67	31.26
	Native Hawaiian or Other Pacific Islander	3	214.33	16.74
	Asian	40	208.65	13.96
	Two or More Races	96	201.55	16.69
	Hispanic or Latino	417	199.17	16.27
	Black or African American	424	200.17	14.53
	White	1245	206.50	14.43
	TOTAL	2228	203.75	15.29

Reading results are shown in Table 22. Due to only six (6) students being classified as American Indian, Alaska Native, Native Hawaiian, or Other Pacific Islander, no statistical analysis was performed for those ethnicities. The independent T-test revealed significantly higher reading scores for students identified as gifted and talented

compared with those not identified as gifted and talented for all ethnicities. Asian students identified as GT scored significantly higher in reading than the Asian students who were not identified as GT, $t(38) = 3.38$, $p = .002$. Students of two or more races identified as GT scored significantly higher in reading, $t(94) = 3.81$, $p <. 001$. Hispanic students identified as GT also scored significantly higher in reading, $t(415) = 7.39$, $p < .001$, as did Black students identified as GT, $t(422) = 6.54$, $p < .001$. White students identified as GT scored significantly higher in reading, $t(1243) = 14.97$, $p <.001$.

Table 21

Mean Reading Scores of Students Identified as Gifted and Not Gifted by Ethnicity

Gifted/Not Gifted	Ethnicity	N	Mean	SD
Gifted	Asian	7	222.14	3.63
	Two or More Races	10	220.00	8.49
	Hispanic or Latino	36	216.83	11.24
	Black or African American	26	219.58	11.06
	White	182	220.68	10.25
	TOTAL	264	220.15	10.32
Not Gifted	Asian	33	204.18	13.83
	Two or More Races	86	197.62	18.29
	Hispanic or Latino	381	191.31	20.42
	Black or African American	398	197.82	16.72
	White	1063	201.67	16.59
	TOTAL	1964	198.73	17.89
	Asian	40	207.33	14.39
	Two or More Races	96	199.95	18.80
	Hispanic or Latino	417	193.51	21.05
	Black or African American	424	199.15	17.22
	White	1245	204.45	17.19
	TOTAL	2228	201.27	18.51

Chapter Summary

This chapter described the findings of the quantitative study in detail. The researcher was responsible for reviewing the research questions and communicating the

information gathered from the outcome of the data analysis. The study results were gained by the application of 2 statistical analyses, Chi-Square and Independent T-Test

The initial descriptive statis showed a significant difference disproportionately for students identified as gifted and talented in the areas of ethnicity and socioeconomic status. The results did not prove a significant difference in the area of gender.

The independent T-test was used to test the hypothesis in the remaining research questions. The focus would be to determine if there was a significant difference in NWEA Map reading and math scores between students identified as gifted and talented and those not identified as gifted and talented considering the factors of ethnicity, gender, and socioeconomic status.

CHAPTER V

CONCLUSION

Introduction

The problem addressed in this study is whether the identification criteria for inclusion in the school's gifted and talented program results in equal representation of the student body by gender, ethnicity, and socioeconomic status. The purpose of this study was to investigate the equity of the gifted and talented program while analyzing the achievement scores of these students compared to their peers.

The research questions and hypotheses for this study are:

- RQ1: Are students selected disproportionately for GT programs by gender, ethnicity, or socioeconomic status?
    - $H_0$1: Students are not chosen disproportionately for GT programs.
    - $H_1$1: Students are chosen disproportionately for GT programs.
- RQ2: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented?
    - $H_0$2: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented.
    - $H_1$2: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented.

- RQ3: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender?
    - $H_0$3: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender.
    - $H_1$3: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender.
- RQ4: Is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity?
    - $H_0$4: There is no significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity.
    - $H_1$4: There is a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity.

Summary of Results

The results of this study indicate students are identified disproportionately as GT by ethnicity and socioeconomic status. A Chi-Square test was conducted to determine if there was an association between the number of students admitted to the GT program and those not admitted based on socioeconomic status. Students were selected

disproportionately for GT programs based on socioeconomic status, x^2 (1, N = 2228) = 60.78, p < .001. A Chi-Square test was also conducted to determine if there was an association between the number of students admitted to the GT program and those not admitted based on ethnicity. Students were selected disproportionately for GT programs based on ethnicity, x^2 (6, N = 2228) = 37.91, p < .001.

Interpretations/Suggestions for Future Research

Research question 1 asks if students are selected disproportionately for GT programs by gender, ethnicity, or socioeconomic status. The findings determined that students were not selected disproportionately for GT programs based on gender. The findings also revealed that students were selected disproportionately for GT programs based on ethnicity and socioeconomic status. The research around this question received and extensive amount of research throughout the study. This topic has garnered a great deal of attention and has been surrounded by controversy for many years. The contributing factors to these findings are massive and can gain enough traction to be studied independently. A deeper dive into the individuals who refer students for gifted and talented programs would prove to be very intriguing. It raises the questions of what the referral process would consist of based on the perspectives of those controlling the referring. Also analyzing the training of those referring. The referral process is only the beginning. Completing this stage on a minimal level could ultimately cause the student not to be admitted. Not only would there need to be training on identifying gifted and talented students, but guidance on how in-dept to proceed when completing the application process.

Research question 2 asks, is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented? The administered test analyzed was the reading and math portions of the NWEA Map Test. The findings conclude that students identified as gifted and talented score higher than those not identified as gifted and talented. The results of this area of the study were not surprising, but what was discovered was that not every student identified as gifted and talented scored in the top of their respective grade levels. There were cases in which non gifted and talented students outscored their peers who were identified as gifted and talented. This study encompassed students from ever subpopulation, it was completely inclusive. After the completion of this study, it was determined that the population of students not identified as gifted and talented contained students who receive special education services. The removal of this subpopulation could extremely alter the results. An assumption would be that students categorized as receiving special education services or having an Individualized Education Plan (IEP) score lower than students not receiving special education services. It would be very beneficial to narrow scope of the study based on certain subpopulations.

Research question 3 asks, is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of gender? The administered test analyzed were the reading and math portions of the NWEA Map Test. The findings conclude that students identified as gifted and talented score higher than those not identified as gifted and talented, considering the factor of gender. Both males and females identified as gifted and talented produced higher scores than those not identified as gifted and talented. The

research surrounding this question can be enhanced by comparing all males to females, gifted and talented males verses gifted and talented females, non GT males verses non GT females. Another direction that could be considered would an examination of genders within the categories of GT and not GT.

Research question 4 asks, is there a significant difference in NWEA Map Test scores between students identified as gifted and talented and those not identified as gifted and talented, considering the factor of ethnicity? The administered test analyzed were the reading and math portions of the NWEA Map Test. The results revealed significantly higher reading scores and math scores for students identified as gifted and talented compared with those not identified as gifted and talented for all ethnicities. The findings allude to other questions that could be added to this portion of the study. The glaring area would be a inspection of the results with the exclusion of students who receive services for special education. This could be taken a step further and determining the services a student receives based on subject area. For example, extracting students who only receive special education services in math from the math results and the same for reading.

The expansion of this study focus area is open to multiple avenues. This quantitative study provided a detailed interpretation into one district's practices around their gifted and talented education program. Recommendations for possible future research include:

1. Combining a quantitative study that interviews and/or surveys the knowledge of the referral process of students, parents, teachers, administrators, and the selection committee would provide clarity on exactly what individuals view as being gifted

and talented. Comparing the results of all stakeholders can lead to unifying the education practices on identifying students for this program.

2. This study was conducted in a predominately white school district and the results revealed disproportionalities based on ethnicity. It would be interesting to see the results from another district with the same demographic makeup and one from a completely different demographic makeup.
3. Gifted and talented programs in the state of Arkansas can be viewed as the lottery system, it all depends on one's address or where they decide to attend school. With the autonomy of each district determining their own gifted and talented program criteria, skews the data on a state and national scale. An investigation into all the districts referral and selection process would be very interesting, then comparing practices along with student achievement data could produce astronomical results.
4. Most students within the targeted school district are referred at the conclusion of 2nd grade and are placed once they enter 3rd grade. Tracking these students progress through their high school career through graduation and beyond would provide valued insight into the benefits or necessity of gifted and talented programs in our educational system.

Contributions to Educational Practice

The results of this study unveil the disproportions of the gifted and talented program based on ethnicity and socioeconomic status. The perception is that rich, white students are identified as gifted and talented at a higher rate than students from lower income backgrounds and minorities. There are many factors that contribute to these

results, some are completely out of the control of the school. But there are a few well within the grasp of many districts.

The researcher believes that districts must first identify why they have a gifted and talented program and what are the benefits. The next step is the education process of building a better knowledge base regarding understanding what a member of the gifted and talented program encompasses amongst all stakeholders. Once the education phase is complete, details of how to refer need to be communicated beyond the surface level. Most of the referrals come from classroom teachers, they will need professional development on key noticeable characteristics. This will make the selection process easier on the selection committee because it ensures all that are referred are accompanied with the needed information and documentation. It will also minimize the misidentifying and non-identifying of students who may be deserving of this status. Once the foundational process is solidified with the correct placement of students, then the direction of the curriculum can be determined for the maximum benefit of the students.

Discussion

Systemic and cultural implicit biases within educational systems appear to play a significant role in perpetuating the underrepresentation of minorities in gifted and talented programs (Furfaro, 2020). Biases may arise from the lack of diversity in the composition of selection committees or the limited perspectives and cultural awareness of those involved in the identification process (Gopal et al., 2021) In the researched district, the pathway to the gifted and talented promise land is one that begins with the referral process. Students are referred for the gifted evaluation by teachers, parents, peers and themselves. Once referred, parents are sent a permission form for the final authorization

of referral and to receive permission to evaluate. This is a step that can be detrimental to the placement of students from low socioeconomic backgrounds. In my experience, students of poverty have a more difficulty in receiving parental involvement and returning forms back to the school. The next step in the selection process is a selection committee comprised the district GT coordinator, GT teachers, and a school administrator, make a presumed impartial decision on the placement of the student. The gender and makeup of this committee would not be categorized as diverse, with it being 100% women, and 12 of the 13 members being white women. The minority populations that are underrepresented in the GT population is also underrepresented in the teaching population within the district. Table 1 reveals there is a majority white teacher population, that refers a disproportionate number of white students to a majority white committee, the outcome is not surprisingly reveal an underrepresentation of Black and Hispanic students. Addressing these biases requires a deliberate commitment to diversity, equity, and inclusion at all levels of decision-making.

The relationship between the identification of students identified as gifted and talented and those who receive free and/or reduced lunch has been a topic of discussion for a while. Reffel and Reffel (2004) found significant negative relationships between the percentage of youth in the gifted and talented programs and the percentage of youth receiving free or reduced lunch. Disproportionality rates in gifted education have been evident for a considerable amount of time (Callahan, 2005). Students identified as gifted and talented are perceived as being smarter than their peers in most faucets of the educational system, but that perception is wrong. Often times the gifted and talented students have received a broader glimpse of the world in terms of their exposure. The

socioeconomic divide is where the true search for equity begins. The focus of students being identified as gifted and talented or not needs to shift to maximizing student capacity for learning and growing all students from where they are.

Conclusion

The landscape of knowledge and discover is forever evolving. To pursue future research in advancing the understanding of the selection of students identified as gifted and talented while assessing their achievement results plays a pivotal role in the educational system. In the realm of education, the examination of gifted and talented programs represents a critical frontier in fostering academic excellence and unleashing untapped potential. As we reflect on the current landscape of this program, it becomes apparent that there exists both a wealth of knowledge and areas yet to be explored. This study lays the groundwork for proposing thoughtful and pertinent suggestions for future research on gifted and talented programs. By delving into uncharted territories, addressing equity concerns, and embracing evolving pedagogical strategies, we aspire to contribute to a more comprehensive understanding of how to nurture and support the diverse talents of all students.

Identification methods used in the selection process of gifted and talented students is an area of concern when researching the disproportionalities of race and socioeconomic status. Traditional methods of gifted identification, such as teacher and parent referrals and IQ tests, have been under scrutiny for years for contributing to gifted program disproportionality and underrepresentation (Callahan & Hertberg-Davis, 2012). Grissom and Redding's (2015) results showed that identification for gifted programs has little to do with a student's intellectual ability and indicated that the classroom teacher's

alignment or misalignment of race played a key role in student identification when the teacher referral method was used. Based on the teacher nomination method of identifying potentially gifted students, Black and Hispanic students are less likely to be nominated (McBee, 2006).

The lower percentage of Black and Hispanic students in GT programs is due to multiple causes, including failure to be nominated, the grade in which students first are nominated, the qualities that constitute the GT program, information considered during the screening process, and the use of national norms (Oakland & Rossen, 2005).

The spectrum of studies that involve gifted and talented education is one that is infinite in possibilities. The duplication of this study could be exercised in other districts, but a more in-dept look at the selection process and the determination of the students that are selected to be in this particular group. It would be interesting to see how the data of the subpopulations varies across a variety of districts. Selection processes are unique to every district in the state of Arkansas and they are not reciprocated across district lines. It would be assumed that the districts with the most rigorous academic requirements would have the highest scores on standardized achievement exams, but until the study is performed, it will remain a mystery.

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