HIDDEN GIFTEDNESS, RACIAL INEQUITY, AND UNDERIDENTIFICATION
IN GIFTED PROGRAMMING ACROSS A LARGE,
NORTHEASTERN METROPOLITAN AREA

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ABSTRACT

This study examined the existence of implicit racial bias among public school teachers within the gifted referral process. Public school teachers from urban, suburban, and rural school districts surrounding a large northeastern city were be provided vignettes of gifted students demonstrating "typical" and "hidden" giftedness. The names and races of students within the vignettes were randomized to represent either a White male student or a Black male student. Univariate and multivariate analyses were utilized to determine the existence of significant differences in perceptions of giftedness and need for referral among teachers. In contrast to the hypotheses of the study, vignettes describing Black "typically" gifted students were rated as significantly higher than White "typically" gifted students. Black students also did not experience a significant decrease in ratings of giftedness and need for referral when described as "hidden" gifted. Lastly, results demonstrated a significant interaction where White students experienced a significant increase in both ratings of giftedness and need for referral when described as showing signs of "hidden" giftedness compared to their White "typically" gifted counterparts. Further discussion of these results along with imitations and considerations, most importantly the presence of social desirability bias, can be found at the end of this work.

This work is dedicated to all of those who helped me get to where I am today.

Mom, you installed the importance of education within me at a young age. This is as much your accomplishment as it is mine. I know it was not always easy, but now we can finally say – we did it!

Pop, my greatest role model, your commitment and dedication towards our family allowed me this opportunity. You always told me to strive towards something other than working with my hands. Unfortunately, you still need them to type.

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CHAPTER 1

INTRODUCTION

Gifted student identification, like other forms of identification in special education, demonstrates disproportionality in regard to Black students (Allen, 2017; McBee, 2006; Siegle et al., 2016). This disproportionality undermines the purpose of gifted education – to provide all gifted students with specialized instruction that meets the needs of their precocious development. Gifted students demonstrate the same deviance from the norm, both developmentally and statistically, as students that experience intellectual difficulties. Therefore, the identification of gifted students is equally as important as the identification of students in need of remediation in regard to their need for specialized instruction (Robinson et al., 2000). While the overidentification of Black students in special education has been examined thoroughly in education research, the underidentification of these students in gifted education has not experienced the same popularity (Elhoweris et al., 2005). Throughout this study, the term "Black" will be used by the author to describe students of color; however, the term "African-American" may be used in some cases when discussing previous research that uses this term.

Teacher referral acts as one of the most common routes for gifted identification; however, teachers' training, perceptions of giftedness, and perceptions of individual students may affect the accuracy of teachers' referrals (Acar et al., 2016; McBee, 2006; Theodoridou & Davazoglou, 2006). Given the potential for extraneous variables to affect teacher referrals and the underrepresentation of Black students in gifted programming, an examination of factors related to teacher referrals that may perpetuate this underrepresentation is warranted.

The Current State of Underrepresentation in Gifted Education

Underrepresentation of Black students in gifted programming has not received the same attention as their overrepresentation in special education. Of the more than 4,000 studies in gifted literature from 1924 to 2005, only 2% were related to students of racial, ethnic, or linguistic minority (Elhoweris et al., 2005). Despite the lacking literature, researchers and educational organizations have attempted to quantify this level of underrepresentation. As is the case in most over- and underrepresentation studies, this quantification typically involves a comparison between overall population percentages and within-program percentages. The Civil Rights Data Collection Data Snapshot on College and Career Readiness, collected by the U.S. Department of Education during the 2011–2012 school year showed that only 4% of the total Black student population in the U.S. was enrolled in gifted programming, compared to 8% of the total population of White students. Some have pointed towards identification practices to provide reasoning for this underrepresentation, stating that intelligence and achievement tests alone are not sufficient in their ability to identify African American gifted students (Ford & Whiting, 2011). Other explanations examine social pressures and cultural identities experienced by Black students that do not align themselves with gifted education, leading Black students to mask their giftedness in favor of peer acceptance (Ford et al., 2011; Ford & Whiting, 2011).

The Role of Teachers in Gifted Referral

The responsibility for identifying and referring students in need of specialized instruction, including those who are gifted, typically falls upon regular-education classroom teachers. Aside from automatic referrals resulting from standardized testing,

teachers represent the most common source of referral for evaluations to determine eligibility for gifted services (Callahan et al., 2017; McBee, 2006). As is the case in all decision-making, teacher referral of potentially gifted students may be affected by various extraneous variables including but not limited to teachers' training and biases, as well as student-level variables such as race, gender, and SES (Baudson & Preckel, 2016; García-Cepero & McCoach, 2009; McBee, 2006; Şahin & Çetinkaya, 2015; Siegle et al., 2010, 2016). Despite their crucial role in the gifted referral process, teachers often report a lack of pedagogical knowledge related to the identification, education, and socioemotional needs of the gifted (Berman et al., 2012; Heyder et al., 2018; Siegle et al., 2016; Siegle & Powell, 2004). Alongside a lack of training teachers tend to report stereotypical perceptions of giftedness similar to those found in popular media, focusing most on academic success and ability (Heyder et al., 2018; Kroesbergen et al., 2016; Oliphant, 1985; Rizza & Morrison, 2003). As expected, teachers with little or no training, or those who hold more negative or stereotypical views towards gifted education, are less accurate in their ability to identify gifted students (Heyder et al., 2018; Şahin & Çetinkaya, 2015).

Hidden Giftedness and Gagne's Differentiated Model of Giftedness and Talent (DMGT)

Despite stereotypical perceptions of giftedness among educational professionals, gifted individuals are a uniquely heterogenous group that demonstrate a vast array of attitudes, behaviors, and abilities. Giftedness is often associated with positive attributes such as maturity, leadership, creativity, positive social-emotional adjustment and behavior regulation (Berman et al., 2012; Carman, 2011). However, when not properly

identified, giftedness may also present as impulsivity, boredom, anxiety, social exclusion, and ultimately, underachievement (Acar et al., 2016; Majid & Alias, 2010; J. S. Peterson, 2015; Riley & White, 2016; Shaywitz et al., 2001; Whitmore, 1982). Francoys Gagne's Differentiated Model of Giftedness and Talent offers an explanation for this phenomenon, as he proposes a separation between "gifts" and "talents", such that gifts are in-born abilities and traits that provide the potential for developing talents, viewed as outward displays of those abilities in a manner that deviates from age-appropriate expectations. For gifts to be developed into talents, internal and external "catalysts" must integrate to form an environment the nurtures student growth (Gagne, 1995, 2000, 2013). For students demonstrating the negative aspects of hidden giftedness, this integration may be less likely to occur due to the influences of such behavior on the identification and referral process.

Implicit Bias in Teacher Decision-Making

Implicit bias involves the effects of past experience on present attitudes, behaviors, and attributions in a manner that is not reportable through introspection or self-report (Greenwald & Banaji, 1995). Research has demonstrated the presence of implicit bias in many decision-making situations (Bertrand et al., 2005; Bertrand & Mullainathan, 2004; Greenwald et al., 1998). Unfortunately, teachers have been found to be similarly susceptible to the effects of implicit bias on decision-making (Elhoweris et al., 2005; Gilliam et al., 2016; Hanna & Linden, 2009; Okonofua & Eberhardt, 2015; E. R. Peterson et al., 2016). Implicit bias may lead teachers to make decisions that improperly address students' academic needs (Peterson et al., 2016, Rubie-Davies, 2015). Additionally, implicit bias may also engender negative effects on student-teacher

relationships associated with further decreases in academic performance and student self-perception, leading to confirmation bias within teachers who hold negative implicit biases towards their students and students who are unaware of their academic potential (Brophy & Good, 1970; Rubie-Davies, 2006). For Black gifted students, the presence of implicit bias within teachers may be associated with a decreased likelihood of identification (Elhoweris, 2005).

Justifying this Investigation

There is an inadequate base of published research studies investigating the experience of Black students in the gifted identification process (Ford et al., 2001; Plucker & Callahan, 2014; Worrell, 2014). Most previous studies have investigated the underrepresentation of Black students in gifted education solely from the perspective of comparing African American population percentages to gifted student representation. Few studies have attempted to examine and explain the underlying constructs associated with the growing underrepresentation of Black students in gifted programming. This study seeks to examine the role of implicit bias in teacher referral as a potential contributor to underrepresentation. One of the only other studies that has done so was explicit in their description of student's race and achieved results only generalizable to midwestern U.S. public school elementary teachers (Elhoweris et al., 2005). This study sought to partially replicate those results across urban, suburban, and rural school districts surrounding a large northeastern city. Additionally, this study also considered the concept of hidden giftedness, wherein environmental factors and lack of identification influence aspects of student behavior and further decrease the likelihood of proper service delivery.

CHAPTER 2

LITERATURE REVIEW

Giftedness: Characteristics and Definitions

The Evolving Definition of Giftedness

Since Galton's *Hereditary Genius* (1869) nearly two centuries ago, the scientific study of giftedness has continued to evolve. Many early theories of giftedness focused solely on psychometric performance, using IQ scores as the primary criteria for determining its presence (Plucker & Callahan, 2014). As theories of intelligence became more multifaceted, so too did theories of giftedness, culminating with the inclusion of concepts such as creativity, talent, and leadership ability in the first federal definition of giftedness (Marland, 1971). With the publishing of this definition came even more multifaceted views of giftedness, which led to the view that while they are relevant, intelligence scores alone are not sufficient to identify giftedness (Plucker & Callahan, 2014).

Past Definitions

In the early days of gifted research, the characteristics associated with giftedness in education largely coincided with what many laypeople may consider to be indicative of giftedness today. A large focus was placed on intelligence and achievement; students who demonstrated greater reading abilities, stronger memory, and greater overall academic achievement were thought to be gifted (Durr, 1960). Aside from intelligence and achievement, giftedness was also thought to be synonymous with socially desirable behavior. Gifted students were thought to be socially well-adjusted, demonstrating a

favorable attitude towards school and teachers, and possessing generally more desirable personality traits than children with lesser intelligence (Durr, 1960).

Current Conceptions

Modern definitions of giftedness have recognized that like other exceptionalities, giftedness encompasses differential presentations across individuals. Like any other condition, disability, or diagnosis, giftedness and its characteristics are affected by societal, cultural, and individual-level variables (Honeck, 2012; Theodoridou & Davazoglou, 2006). Conventional definitions of giftedness agree with the importance of intelligence as a predictive factor but recognize that intelligence alone is not sufficient to identify its presence. Alongside intelligence, researchers have begun to consider socio-emotional and personality characteristics such as strengths in perseverance, self-confidence, and goal-orientation. While the inclusion of these traits promotes a more multi-dimensional view of giftedness, it is necessary to recognize that giftedness is a cultural reflection of students' ability to achieve within their environment (Tzuriel et al., 2011).

While current conceptions have strayed away from stereotypical displays of giftedness, researchers continue to recognize a variety of traits that may be displayed by gifted individuals. Cognitive traits such as high levels of cognitive modifiability, concentration, problem solving ability, processing speed, and memory are considered potential traits exhibited by those who are gifted (Gur, 2011; Tzuriel et al., 2011). Gifted research has also identified early language development, such as early ability to use creative language and complex sentence structures, understand figurative meanings, and demonstrate extensive vocabularies as possible indications of giftedness (Gur, 2011).

While cognitive and linguistic development and characteristics have long been considered in gifted research, recent work has examined numerous socioemotional and personality traits commonly demonstrated by gifted individuals. Those who are gifted may demonstrate greater emotional intelligence, possessing an increased ability to recognize the emotions of others and demonstrate sensitivity towards such emotions, which allows them to form deep social connections (Tzuriel et al., 2011). Alongside emotional intelligence, giftedness has also been associated with strong goal orientation, high expectations of one's self and others, idealism, perfectionism, awareness of societal and global issues, and a strong sense of moral judgment (Gur, 2011; Honeck, 2012).

Hidden Giftedness

Despite the evolving definition of giftedness, many maintain the belief seen in Durr (1960) that giftedness is synonymous with socially desirable behaviors. Despite their high ability levels, gifted individuals are still susceptible to challenging behaviors and negative socioemotional outcomes. While often viewed as an advantage by others, giftedness may be perceived as a burden by those who are gifted. In some cases, the high expectations of gifted students placed upon them by themselves and adults in their environment may result in high levels of stress (J. S. Peterson, 2015). Additionally, due to their precocious cognitive development, gifted students may develop interests that surpass their age-appropriate expectations. These advanced interests present difficulties in social interactions, as gifted individuals are unable to discuss their interests with same-age peers and may be viewed as "different", leading to social anxiety, exclusion, and bullying (Majid & Alias, 2010; J. S. Peterson, 2015; Riley & White, 2016). Unfortunately, these negative internalized outcomes may not receive the attention

necessary to remedy their effects. Adults in these students' environments may view their high levels of achievement as evidence of positive socioemotional functioning, leaving such individuals with a sense of socioemotional isolation (Peterson, 2015). Research has also shown that gifted students, particularly males, may be prone to characteristics like those seen in students with specific learning disabilities. Such characteristics include impulsivity, negative affect, and challenging behavior. Interestingly, IQ has shown positive correlations with these characteristics, such that the higher a male students' IQ, the more often he is perceived to be demonstrating these characteristics (Shaywitz et al., 2001).

Gifted students may also be expected by teachers to be socially and emotionally mature. These expectations have been found to guide teacher's decision making related to gifted referrals such that displays of anxiety, impulsivity, and challenging behavior may prevent gifted students from identification, and therefore from the services necessary to address their needs (Acar et al., 2016; Whitmore, 1982). Unidentified gifted students may resign to passivity, completing only the necessary amount of work to "get by". Other unidentified students may experience a sense of isolation, a failure to be understood, and a sense that social and academic success is unobtainable. These students may demonstrate an increase in their displays of challenging behaviors, becoming further impulsive, aggressive, disruptive, withdrawn, anxious, and impatient towards others (Majid & Alias, 2010; Whitmore, 1982). In displaying these behaviors, such students continue to lack conformity to teacher's expectations and further decrease their likelihood of being referred for gifted services.

Theoretical Models of Intelligence and Giftedness

Gardner's Multiple Intelligences

In his book, *Frames of Mind: The Theory of Multiple Intelligences* (1983), Howard Gardner challenged the traditional concept of intelligence as a single construct, as seen in Spearman's *g*. Gardner initially asserted the existence of seven separate intelligences: linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal. Linguistic intelligence was related to the ability to process and create spoken and written language, as well as the ability to learn new languages. Logical-mathematical intelligence consisted of problem-solving abilities, logical and analytic reasoning, and the ability to conduct scientific investigations, thought to be high among mathematicians and scientists. Spatial intelligence was comprised of the ability to recognize visual patterns, often found in artists and architects but also in pilots, surgeons, and chess players. Musical intelligence was concerned with the "performance, composition, and appreciation of musical patterns", as well as discrimination of tone and other qualities of sound (Visser et al., 2006a, p. 491). Bodily-kinesthetic intelligence was associated with the ability to use one's whole body or parts of their body to create products; while easily associated with athletes and dancers, Gardner also claimed this intelligence to be high in surgeons, mechanics, and manual laborers. Intrapersonal intelligence was comprised of the ability to cooperatively interact with others by determining their needs, motivations, and intentions, which Gardner associated to teachers, clinicians, salespeople, and politicians. Lastly, intrapersonal intelligence revolved around one's capacity for self-awareness, to understand one's

strengths, areas of needs, and desires, and to use this understanding to achieve goals (Gardner, 1999; Visser et al., 2006).

According to Gardner, everyone possesses some form of each type of intelligence and most individuals develop their abilities within each intelligence to a functional level of proficiency (Leshkovska & Spaseva, 2016). Gardner claimed his theory was grounded in research among a variety of fields, including cognitive, developmental, social, and neurological psychology, as well as biology and sociology. Regarding neurological psychology and biology, he hypothesized that each intelligence was represented by a separate system within the brain, with each system specialized to process certain forms of information (i.e., language, music, emotions, etc.). To reinforce this claim, Gardner relied on case studies of individuals who had experienced brain damage, claiming that while one or more of their intelligences had been affected, others were relatively unharmed (Clinchy, 1984).

In 1999, Gardner revised his theory to combine intra- and interpersonal intelligence into a single construct and added a new form of intelligence – naturalistic intelligence – which he claimed was related to "an empathy for and categorization of natural things" (Waterhouse, 2006a, p. 207). Gardner claimed high naturalistic intelligence could be found among farmers, gardeners, and hunters (Visser et al., 2006a, p. 491). At the same time, Gardner also proposed the potential existence of an existential intelligence, which he claimed was related to the ability to view oneself "with respect to the further reaches of the cosmos" (Gardner, 1999; Waterhouse, 2006a, p. 207-208). Upon revising his theory again in 2004, Gardner proposed two more forms of intelligence: mental searchlight intelligence and laser intelligence. He associated mental

searchlight intelligence with the ability to scan large spaces visually and mentally, similar to the concept of perceptual scanning. Laser intelligence was hypothesized to relate to the capacity for innovation (Gardner, 2004; Waterhouse, 2006a).

While often cited in gifted research, Gardner's theory of Multiple Intelligences (MI) has been met by a large stream of criticism from the scientific community. Although initially praised for its inclusion of inter- and intrapersonal intelligence, as many intelligence theories had previously left out socioemotional traits, the assertion that MI constitutes a valid depiction of intelligence has been widely disputed. First, MI lends itself to educational programming focused around "learning styles", which have largely been disproven (Gardner, 1995; Visser et al., 2006a, 2006b; Waterhouse, 2006a, 2006b). Additionally, Waterhouse (2006b) claimed that despite Gardner's claims that his theory of MI is founded upon research from multiple disciplines, its lack of specificity renders it unfalsifiable. For example, Waterhouse points out that while Gardner claims each form of intelligence is relegated to a specific neural pathway, he does not claim which pathways are responsible for which forms of intelligence. Moreover, Waterhouse (2006b) pointed to the lack of evidence confirming MI as a source of concern regarding its implementation in educational practice. Over the course of 23 years following its initial conception only one study had attempted to empirically validate MI, whose results favored the disproval of Gardner's theory as opposed to its validation (Visser et al., 2006a). This study examined relationships between a series of measures meant to assess each of Gardner's multiple intelligences independently, as well as a measure of overall cognitive ability. According to Gardner's theory, these measures should not correlate with one another or with an overall measure of g; however, findings demonstrated

statistically significant relationships between multiple measures both among the measures themselves and in relation to overall cognitive ability (Visser et al., 2006a). Gardner responded to this critique by claiming that Visser et al. (2006a) had misrepresented the multiple intelligences in their choice of measures. He went on to state that g is likely a combination of linguistic and logical-mathematical intelligences, but may also be interpreted as indicative of one's conformity to the Western academic environment (Gardner, 2006). In their closing response, Visser et al. (2006b) demonstrated that unlike MI, g has proven specific biological correlates such as glucose metabolic rate, brain volume, and reaction time. Also, g has been found to predict major life factors including vocational performance, SES, and incarceration rates. While Gardner's theory of MI mirrors that of modern hierarchical theories of intelligence with regard to the existence of multiple interrelated constructs, its lack of specificity, falsifiability, and evidence provides little to the study of intelligence that is not already known (Visser et al., 2006a, 2006b; Waterhouse, 2006a, 2006b).

Sternberg's Triarchic Theory of Intelligence

In 1985, Robert Sternberg presented his Triarchic Theory of Intelligence, compartmentalizing intelligence into three broad concepts: analytical intelligence, creative intelligence, and practical intelligence. Analytical intelligence contained problem solving, reasoning, critical thinking, and decision making. Sternberg referred to these aspects of intelligence as the "componential" form of intelligence, as he hypothesized each ability within analytical intelligence to represent a component of the full spectrum of analytical intelligence. Creative intelligence consisted of idea-generation and reactions to novel experiences, known as an "experiential" form of intelligence by Sternberg due to

its relation to the way one experiences their day-to-day environments. Lastly, practical intelligence related to utilizing problem-solving abilities within a real-world context and applying one's intelligence to real-world problems. Sternberg viewed practical intelligence as the "contextual" form of intelligence, focusing on its ties to the contexts in which one must apply their intelligence regularly. He argued that practical intelligence, while containing similar components to analytical intelligence, was a separate concept and more crucial with respect to daily functioning due to its inclusion of aligning abilities to one's context. Like Gardner, Sternberg also argued against the use of g, claiming that its use is only appropriate as a label for the concept of intelligence rather than as a causal factor of performance (Sternberg, 2003).

While Sternberg's theory offers a more succinct explanation of intelligence compared to Gardner's Multiple Intelligences, it is not without criticism. Sternberg's separation of analytical and practical intelligence has been found to be unsupported, as assessments of analytical intelligence strongly correlate to those of practical intelligence (Gottfredson, 2003a). In short, researchers hypothesize that practical intelligence is merely a label for displays of analytical intelligence in real-world environments, as opposed to novel cognitive tasks. Those with low practical intelligence will likely demonstrate low analytical intelligence and vice versa. Given this relationship, there is no scientific reason for the existence of practical intelligence within Sternberg's theory (Gottfredson, 2003a). In response to these claims, Sternberg acquiesced from his original claim of analytical and practical intelligence as separate concepts and instead reframed his theory within a feedback loop, where analytical and creative intelligences guide practical abilities (Sternberg, 2003). Sternberg also argued that the overwhelming

evidence for the existence of analytical intelligence in comparison to practical

intelligence was due to confounding measurement of both intelligences simultaneously

within a single task. Sternberg noted the concept of g as a surrogate of analytical

intelligence, stating that any task meant to measure analytical or practical intelligence

will correlate with g if it involves analytical or abstract thinking. To Sternberg, this

correlation does not denote lacking evidence for the existence of practical intelligence.

He also claimed that analytical intelligence was simply easier to measure than practical

intelligence, making practice intelligence more difficult to validate. In response to these

claims, Gottfredson (2003b) stated that the vast research supporting the existence,

stability, and heritability of g in comparison to the lack of evidence supporting practical

intelligence was enough to invalidate Sternberg's claims.

In sum, Sternberg's theory offered a more concise and defensible explanation of

intelligence compared to Gardner's MI, but fell short in its ability to validate all three of

its intelligences. Additionally, hostile views towards the use and existence of g found in

both Sternberg and Gardner's theories discredit their scientific validity, as both authors

fail to adequately explain relationships between their intelligences and a proven cognitive

construct. Lastly, Sternberg's theory lacks inclusion of environmental factors that may

affect one's display of intelligences, claiming only that intelligence will be displayed

differently across contexts, but not considering how contexts impact one's level of

performance.

Renzulli's Three-Rings

In 1978, Joseph Renzulli published his Three-Ring Conception of Giftedness,

stating that giftedness presents itself via an interaction between three constructs: above

average ability, task commitment, and creativity. Renzulli developed this theory in response to what he viewed as an overemphasis on cognitive abilities in gifted identification. He claimed that gifted referral practices at the time of his theory's publishing favored students with strong knowledge acquisition and test-taking abilities, but neglected students with high levels of creativity and those who demonstrate consistent effort (Renzulli, 1978). Essentially, students who were able to quickly learn and apply their knowledge were easily deemed gifted, while those who worked hard or found innovative ways to achieve success were not identified as such.

Renzulli conceptualized his three "rings" of giftedness in the form of a Venn diagram, such that those students who demonstrated strong levels of each trait would find themselves in the center of the rings where giftedness laid:

> Gifted/talented children are those who possess or are capable of developing the three sets of traits and applying them to any potentially valuable area of human performance. Children who manifest or are capable of developing an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs. (Renzulli, 1978, p. 261)

To Renzulli, above average abilities did not need to be at a superior level, but merely greater than what was found in the norm. Renzulli claimed that these abilities could pertain to cognitive capacities, such as abstract thinking, verbal and fluid reasoning, memory, or rapid information processing, but could also pertain to specific areas such as the arts or leadership. Task commitment involved involvement in problem solving, demonstrations of perseverance, determination to achieve goals, and setting high standards for oneself. Lastly, creativity required a flexibility and originality in one's

thoughts and ideas, a curiosity towards novel experience, sensitivity to detail, and an openness towards differences among environments and individuals (Renzulli, 1990).

In 1988, Renzulli called for other researchers to evaluate his model of giftedness to generate a widely accepted and validated definition of giftedness. Ironically in contrast to the original purpose of his model, most studies to date that are related to Renzulli's Three Rings focus on above average ability. The lacking proper scientific measurement for creativity and task commitment has made it difficult to validate Renzulli's model as a whole (Ziegler & Raul, 2000). Despite demonstrating a profound openness to exploration and criticism of his theory, very little criticism of Renzulli's conception is found in gifted education literature (Gubbins, 2010).

Gagne's Differentiated Model of Giftedness and Talent (DMGT)

From the late 1980's to the mid 1990's, Françoys Gagné laid the foundation for a model of giftedness that recognizes the importance of not only individual-level characteristics, but also that of the environmental ability to nurture growth as a result of those characteristics. Gagné proposed a differentiation between the terms "gifted" and "talented", which prior to his model were largely seen as synonymous in both literature and practice. Gagné's "giftedness" referred to natural abilities within the individual, such as high cognitive capacity and problem-solving skills. To contend with other models of giftedness at the time, Gagné also included creativity and socioemotional skills among his concept of natural abilities. Alongside giftedness, Gagné conceptualized "talent" as the systematically developed result of gifts. According to Gagné, an individual may possess "gifts" that are undetected without the eventual development of "talent". He argued that for a student to be considered "talented" they must be placed within an

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environment where their natural abilities are nurtured, challenged, and developed. Gagné claimed that within each gifted individual's environment, interpersonal catalysts such as motivation, temperament, personality, and environmental catalysts such as daily surroundings, other persons, access to activities and programs, and other events, worked together in both positive and negative capacities to develop the individual's gift into talent (Gagné, 1995).

To denote the potential areas of giftedness and talent found in school-age youth, Gagné developed a system of acronyms. Intellectually gifted (IG), socially gifted (SG), creatively gifted (CG), affectively gifted (AG), and physically gifted (PG) comprised the areas of giftedness. Meanwhile, acronyms for talent were less obvious due to the breadth of fields where an individual may demonstrate talent. One common abbreviation was that of academically talented (AT), which may also be confused with artistically talented. Gagné claimed that modern-day gifted programming typically sought out intellectually gifted, academically talented individuals (IGAT). However, he noted the potential for such programming to fail in the identification of intellectually gifted individuals whose talents had not yet been developed. Gagné pointed to the focus on IGAT as a source of underidentification of gifted youth, stating that while the common two standard deviation rule for IQ in gifted identification at the time of his publication pointed to a gifted population of roughly 2-3% of the general population, his estimate of the true population of gifted individuals was likely closer to 10% of the general population (Gagné, 1995).

In 2000, Gagné updated his differentiated model to more formally address the interpersonal and environmental catalysts of talent development. Within interpersonal catalysts, Gagné denoted five categories: physical (disabilities, health, etc.), motivation

(needs, interests, values, etc.), volition (will-power, effort, persistence, etc.), self-management (concentration, work habits, initiative, executive functioning, etc.), and personality (temperament, well-being, self-awareness, self-esteem, adaptability). Environmental catalysts were likewise broken down into four categories: milieu (culture, society, family, etc.), persons (parents, teachers, mentors, peers, etc.), provisions (programs, activities, services, etc.), and events (encounters, awards, accidents, etc.). Gagné's concept of milieu recognized the importance of macrosystems in talent development, such that geographic, demographic, and sociological characteristics of the environment may play a role in the likelihood that a gifted individual will develop talent (Gagné, 2000). Furthermore, Gagné introduced a new factor within his model: chance. Examples of Gagné's concept of chance were largely related to the chance that a child would be affected by positive environmental catalysts, such as the chance that a child's parents provided a nurturing environment early in development, the chance that a child would be identified, as well as the chance that their school implemented best practices in gifted education. Gagné's concept of chance was noted as a likely correlate of the environmental catalysts already found in his model, such that the chance of interacting with positive environmental catalysts was more likely in the environments of some students than others. This recognition demonstrates Gagné's continued recognition of the importance of sociocultural environmental factors (Gagné, 2000).

In 2009, Gagné published further revisions of his model, which he then referred to as the DMGT 2.0. These revisions expanded upon his already strong focus on environmental factors in gifted development, adding a new concept of developmental processes to his model. Developmental processes in the DMGT 2.0 consisted of three

aspects of the environment and resources surrounding gifted students that potentiate the

development of gifts into talents: activities, progress, and investment. Activities referred

to the level of access a child has to activities that facilitate talent development, the

content of those activities, and the format in which they are delivered. Progress consisted

of the pace of the child's talent development and whether or not specific events increased

or decreased the child's developmental progression. Lastly, investment was comprised of

the level of resources (i.e., time, money, and energy) afforded to the child by others to

facilitate their talent development (Gagné, 2013). With this update, Gagné further

cemented the importance of environmental factors, such as access to gifted programming,

time to provide enrichment activities, and socioeconomic status have on the develop of

students' gifts into talent.

Giftedness as a Cultural Construct

Differences in Perceptions of Giftedness between Cultures

Research regarding differences in the perception of giftedness amongst multiple

cultures is both sparse in regard to its frequency and mixed in regard to its findings. Some

studies have claimed that differences exist in regard to the characteristics examined when

considering if a child may or may not be gifted, while others claim similar expectations

among multiple cultures (Kaufman & Sternberg, 2007; J.S. Peterson, 1999; Scott et al.,

1992). Regardless of the existence of differences, the fact that majority culture guides the

assimilation and/or alienation of minority culture members remains undisputed. The

values of a culture directly impact the characteristics deemed to be critical for functioning

within the culture, and one's access to opportunities to display such characteristics and

their proficiency in doing so may determine whether others within their culture view

them to be gifted (Csikszentmihalyi, 1988; Freeman, 2003; Ishak et al., 2014; J. S. Peterson, 1999).

White Perceptions of Giftedness

Historically, perceptions of giftedness within White culture are often related to mental capacity and academic ability, dating back to the original conception of giftedness by Galton in 1869. This association has its most profound effects when considering the immense focus on IQ, especially in regard to verbal ability, throughout gifted identification, as any student whose IQ does not conform to the majority culture expectations will likely be denied consideration for giftedness (Kaufman & Sternberg, 2007; J.S. Peterson, 1999). Alongside this implication is the fact that White teachers represent the majority and therefore likely judge students' potential giftedness based on White cultural perceptions (Bonner, 2000; Yoon & Gentry, 2009). White conceptions of giftedness have also been found to be highly individualistic, focusing on work-ethic, task-commitment, leadership ability, and creative talent. Members of minority cultures that demonstrate collectivist ideals may be less likely to be considered as potentially gifted (J.S. Peterson, 1999). White perceptions of giftedness may also play a role in their disproportionate identification outcomes compared to Black students, as White parents have shown a statistically greater rate of parent referral for gifted evaluations relative to African American parents (Scott et al., 1992). In sum, the occasioning of a referral for gifted students may largely depend on one's ability to assimilate to White culture.

Minority Perceptions of Giftedness

Researchers have claimed the existence of differential perceptions of giftedness, which is often guided by the values deemed essential to functioning within those cultures

(Freeman, 2003; Kaufman & Sternberg, 2007; J. S. Peterson, 1999). Among many minority cultures, aspects aside from cognitive ability are considered to be related to giftedness, including social skills, community relations, responsibility, and procedural knowledge (J.S. Peterson, 1999). In Latin American and Taiwanese cultures, giftedness may be associated with one's ability to interact with others and general displays of socioemotional intelligence. In African countries such as Kenya, Zambia, Zimbabwe, and Côte D'Ivoire, those who demonstrate responsibility towards their community, cooperativeness, obedience, and respect may be considered gifted. Lastly, in Alaskan Native culture, gifted children are those who demonstrate proficiency in hunting, fishing, and herbal remedies (Kaufman & Sternberg, 2007).

Black Perceptions of Giftedness

Like other findings regarding cultural perceptions of giftedness, studies on giftedness in African American culture are of low frequency with varied results. Some research has expressed a focus on collectivist and socioemotional values among African American culture. These studies contend that African American perceptions of giftedness may favor those who demonstrate selflessness, contributions to one's community, manual dexterity, handiwork, and responsibility towards family. These values strongly correlate to those found in low-SES White culture, but may be distinctly different from those seen in middle- and upper-class White culture (J.S. Peterson, 1999). Meanwhile, other research has claimed that conceptions of giftedness among White, African American, and Hispanic mothers do not demonstrate any significant difference (Scott et al., 1992).

The Gifted Identification Process

Federal History

The Marland Report (1971)

In 1971, U.S. Commissioner of Education Sidney Marland Jr. delivered a status report on the education of gifted and talented children in America. From this report, the first federal definition of giftedness was delineated. The definition stated that giftedness may manifest in six areas: general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, visual/performing arts, and psychomotor ability (Marland, 1971). Alongside this definition, Marland noted that existing gifted programming was lacking on a nationwide basis and was perceived to be a "low priority at federal, state, and most local levels of government and education administration" (Marland, 1971, p. 5). In response to these findings, Marland stressed the need for systemic change to gifted education in the U.S., stating, "There is an enormous individual and social cost when talent among the Nation's children and youth goes undiscovered and undeveloped. These students cannot ordinarily excel without assistance" (Marland, 1971, p. 10).

Jacob K. Javits Gifted and Talented Children and Youth Education Act of 1988

In 1988, the Elementary and Secondary Education Act (ESEA) was amended to include provisions related to gifted education, which became known as the Jacob K. Javits Gifted and Talented Child and Youth Education Act. The Javits Act established a program for the funding of research related to gifted identification and education, as well as to local education agencies and non-profit private schools seeking financial assistance in developing their gifted education programming. Alongside its funding program, the

Javits Act also established the National Research Center for the Education of the Gifted and Talented Children and Youth (NRCGT). This research endeavor sought to improve schools' ability to plan, implement, and modify gifted identification and education practices. Aside from its innovative focus on evidence-based practice in gifted education, one of the core tenets of the Javits Act was its emphasis on the provision of services to underserved populations, particularly "economically disadvantage individuals, individuals who are English Language Learners, and children with disabilities" (ESEA, 1988; Gubbins et al., 2014).

Numerous projects aimed at increasing access to gifted education for underserved populations owe their success to the Javits Act. In Indianapolis, Project G.A.T.E and Project C.L.U.E provided didactic trainings to teachers focused on identifying and teaching gifted students from backgrounds of poverty, racial, ethnic, and linguistic minority. These trainings resulted in stronger organization of identification procedures and ultimately increased the rate of identification of students from underserved backgrounds (Winkler & Jolly, 2011). Across Pennsylvania, 58% of schools are within rural areas, where many gifted students lack appropriate access to gifted identification and education programming. Project REAL, a Javits funded program designed by the Pennsylvania Department of Education, supported schools in developing more accurate identification methods while providing identified students with access to individual counseling, mentors, video/web-based supplemental instruction, summer programming, apprenticeships, and early access for college coursework (Winkler & Jolly, 2011).

Unfortunately, in 2011, the Javits Act was defunded by the federal government, due to budgeting constraints. Many recognized this action as indicative of prioritizing

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remedial education over that of accelerated programs, a sentiment often seen in education

both in research and in practice (Winkler & Jolly, 2011). This action left schools

nationwide without a federal source of financial assistance for gifted programming.

Luckily, in 2015, the reauthorization of ESEA known as the Every Student Succeeds Act

(ESSA), reinstated the Javits program and brought with it a renewed source of funding

for gifted education and research (ESSA, 2015).

No Child Left Behind Act of 2002 (NCLB)

Since Marland's definition in 1971, the federal definition of gifted and talented

children in the U.S. has remained largely unchanged. In 2002, the reauthorization of the

Elementary and Secondary Education Act (ESEA) known as the No Child Left Behind

Act of 2002 (NCLB), revised the federal definition of gifted and talented slightly, stating

that gifted and talented students are those 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" (NCLB; Section 9101[22]). This

definition removed psychomotor ability from the areas considered when determining if a

student is gifted and talented and included the provision that such students require

additional services outside of those provided in the regular education environment. While

this definition is enacted within federal education legislation, states are not required to

adopt this definition entirely and are grated the authority to utilize their own definition

within their gifted identification procedures (NAGC, 2015).

<center>*Common Practices in Gifted Identification*</center>

State and District Level Policies

Research related to state and local level policies in gifted education is limited, with sparse evidence of improved practice over time (Callahan et al., 2017; Plucker & Callahan, 2014). The 2014 *State of the States* report by the National Association for Gifted Children (NAGC) examined gifted education across the U.S., with 40 of 50 states reporting. Of those 40 states, 32 had state-mandated policies related to gifted identification. Despite these policies, districts are afforded an immense level of autonomy and in most cases, are not required to report education plans, services, or outcomes to state education agencies. Only 18 states required districts to submit education plans, with only 12 requiring state approval of the plan. Furthermore, 24 states required reporting on the types of services offered to students, with only 12 requiring program evaluation and only seven requiring student-level outcome data (NAGC, 2015).

Callahan et al. (2017) examined gifted identification policies in 1,556 school districts across the U.S. Most districts reported following their respective state definition of giftedness. Of the areas found in the NCLB definition, intellectual giftedness was the most commonly referenced area (99.5%), followed by creative/divergent thinking (55.9%), visual/performing arts (44.9%), specific academic aptitude (41.6%), leadership (35.9%), and academic giftedness across domains (28.8%). While all elementary schools were indicated to possess an existing process for the identification of gifted students, the use of such processes was found to decrease with the age of students. Only 81.4% of middle schools and 58.9% of high schools reported the use gifted identification processes.

Gatekeeping Process of Referral

The gifted identification process begins with the gatekeeping process of referral. In some cases, this referral is automated based on universal screener results, state-wide testing scores, or school-wide achievement scores. Aside from automatic referrals, the second most common source of referral for gifted identification are teachers. Other sources include parent referrals, self-referrals, peer referrals, and referrals from other third-party sources (community members, other relatives, outside clinicians, etc.) (Acar et al., 2016; Callahan et al., 2017; McBee, 2006). Alongside their increased prevalence, automatic and teacher referrals demonstrate the strongest validity in identifying gifted students (McBee, 2006).

The Role of Teachers

The Teachers' Role in Gifted Referrals

Aside from universal screening, the most common pathway to gifted services begins with a referral submitted by students' teachers. In McBee (2006), teacher referrals accounted for roughly 40% of gifted referrals, second only to automatic referrals. A large body of research has examined teachers' efficiency and effectiveness in referring students for gifted programming. Efficiency in teachers' gifted referrals has been empirically defined as the ratio of referred students to eligible students (specificity), while effectiveness is viewed as the ratio of students who are nominated to the true number of gifted students in the school population (sensitivity). Unfortunately, research has shown that teacher's may lack efficiency and effectiveness in their ability to identify students in need of gifted programming (Baudson & Preckel, 2016; Şahin & Çetinkaya, 2015; Siegle & Powell, 2004). A wide variety of characteristics have been found to be considered by

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teachers in determining students' eligibility for gifted referrals. To date, research has been unable to determine a common approach to gifted referral among teachers. Throughout numerous studies, teachers have regarded creativity, problem solving abilities, leadership, academic performance, and interpersonal skills with varying degrees of importance (Baudson & Preckel, 2016; García-Cepero & McCoach, 2009; Siegle & Powell, 2004).

Lack of Teacher Training in Gifted Identification

Alongside a tendency among teachers to devote greater attention towards students experiencing academic difficulty, teacher training on gifted identification has been found to lag behind training on the identification and referral of students experiencing academic difficulties, such as specific learning disabilities (Callahan et al., 2017; Plucker & Callahan, 2014; Siegle & Powell, 2004). In 2015, the biennial *State of the States* report by the NAGC found that only one U.S. state, Nevada, required all teachers to receive specific training related to giftedness prior to beginning their work in a classroom (NAGC, 2015). Furthermore, in an examination of gifted policy across the US, Callahan et al. (2017) found that only seventeen US states require teachers with the responsibility for teaching gifted students to hold a certificate or endorsement in gifted education. Of those seventeen states, only five require teachers to receive annual professional development specifically related to giftedness and gifted education. Given that this study examined teachers responsible for gifted programming, it can be assumed that the outlook for training of regular education teachers on issues related to giftedness and its identification is equally sparse at best.

Şahin & Çetinkaya (2015) examined the effect of a training program on the efficiency and effectiveness of regular education teachers' referrals for gifted evaluations by comparing an experimental and control group in a quasi-experimental study. Over ten hours across one week, teachers in the experimental group received a training consisting of general knowledge about giftedness, factors that affect giftedness, traits of gifted students, and measures used to identify gifted students. Following the training, teachers from both the control and experimental groups were asked to evaluate students from grades 2 to 4. Trained teachers' demonstrated an efficiency of 27% and effectiveness of 83%, compared to untrained teachers efficiency of 15% and effectiveness of 50%. In layman's terms, out of every four students referred by trained teachers, one was a gifted student. Out of every five gifted students, trained teachers would correctly identify four. Untrained teachers referrals were roughly half as efficient and effective, with one out of every seven students referred being gifted, and one of every two gifted students being identified. In sum, Şahin and Çetinkaya concluded that participation in the training program was associated with increases in efficiency and effectiveness of teacher referral (Şahin & Çetinkaya, 2015).

Teacher Perceptions of Giftedness

Research has demonstrated that the perceptions of both current and future teachers related to gifted students vary from a focus on positive socioemotional and academic functioning to assumptions of maladjustment. In some instances of research, teachers have associated giftedness with strong academic achievement, being able to excel academically with little support, demonstrating increased effort compared to one's peers, and goal development (Kroesbergen et al., 2016; Oliphant, 1985; Rizza &

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Morrison, 2003). In other studies, teachers expressed the belief that gifted students experience adjustment difficulties, specifically demonstrating less extraversion, emotional stability, agreeableness, and general prosocial behavior, especially in male gifted students (Heyder et al., 2018; Preckel et al., 2015). Regardless of their positive or negative connotations, teachers' perceptions of giftedness have often been found to align with stereotypical views of giftedness (Berman et al., 2012; Carman, 2011). The portrait of a gifted student often described by teachers tends to conform more closely to portrayals of gifted individuals in popular media - a "nerdy", noticeably intelligent student who excels globally in academics, but suffers from lacking social functioning – as opposed to that which is depicted in empirical research (Heyder et al., 2018).

Aside from the prevalent stereotypical views of giftedness, teachers also demonstrate different opinions towards their preference for working with gifted students. Research has shown that gifted students may be viewed with admiration by teachers and peers, thought to possess appealing personalities, be easy to work with, and refrain from causing trouble in the classroom environment (Berman et al., 2012; Oliphant, 1985; Rizza & Morrison, 2003). In Berman et al. (2012), when asked to describe the most difficult aspect of working gifted students, the most common response among teachers was "nothing". Conversely, gifted students may also be negatively appraised by teachers, who expect gifted students to exceed in the regular education environment without requiring additional support. Examples of this can also be seen in Berman et al. (2012), where statements such as "They should not get special things, it's not fair to the other kids" and "They get it on their own, why is this class required?" were shared by pre-service teachers prior to a training on giftedness. In Heyder et al. (2018), higher rates of

misconception of giftedness among teachers were found to be positively correlated with negative attitudes towards gifted students. It is important to note that the lacking support towards gifted programming among teachers found in research is likely not a result of legitimate negative biases towards gifted students, but rather a lack of pedagogical-psychological knowledge of giftedness combined with a tendency towards supporting students who struggle to exceed, rather than those who require an accelerated curriculum (Berman et al., 2012; Heyder et al., 2018; Siegle et al., 2016; Siegle & Powell, 2004).

Underidentification of African Americans in Gifted Programs

A Brief History of Underidentification

For decades, Black students have been underrepresented in gifted education, yet overrepresented in special education programs for students with learning disabilities, emotional disturbance, and intellectual disability (Ford, 1995). To date, Black students, especially males, are the most underrepresented group among all races and ethnicities in the American education system. This systemic underrepresentation perpetuates a growing "excellence gap"; Black students continuously experience a decreased level of academic success compared to their White and Asian-American peers (Ecker-Lyster & Niileksela, 2017; Ford & Whiting, 2011; Plucker & Callahan, 2014; Worrell, 2014).

This pattern can be found across decades throughout the country; since 1978, Black students have rarely experienced a gifted representation equal to greater than half of their representation among school populations (Yoon & Gentry, 2009). An examination of a 1998 report by the Office for Civil Rights found Black students experienced a 3.04% placement rate compared to 7.75% among White students and 9.98% among Asian American students (Donovan & Cross, 2002). McBee (2006)

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examined underrepresentation in gifted programs throughout the U.S. state of Georgia, finding that while 12.3% of White students were provided with gifted education services compared to only 3.2% of Black students. In 2011, Morton Sherman, superintendent of Alexandria, Virginia public schools was quoted stating, "the district has been resegregated" in response to disproportionality among the district's gifted programs (Sieff, 2011). During the 2011-2012 school year, a nationwide survey found that while Black students represent 15% of the total enrollment in U.S. schools, they only represented 9% of students receiving gifted services (Siegle et al., 2016). In 2013, 47% of students in gifted programming at New York Public School 163 were white, despite only representing 18% of the school's population (Baker, 2013). At a Title 1 Elementary school in Southeastern U.S. in 2017, White students represented 89.5% of the gifted population, while only representing 69% of the school population. Meanwhile, Black students represented 14.3% of the school population, but only 4.4% of students receiving gifted services (Allen, 2017).

Alongside underrepresentation in educational practice, a focus on the needs and identification of Black students has been continuously lacking in educational research (Ford et al., 2001; Plucker & Callahan, 2014; Worrell, 2014). In 1991, less than 2% of all articles related to gifted education to date had addressed gifted learners of racial and ethnic minority (Harris III & Ford, 1991). By 1998, only 36 of the 2,816 studies related to giftedness focused on Black gifted students (Ford, 1998). Despite the continued growth of the excellence gap, the issue of underrepresentation of Black students in gifted programming across the U.S. continues to be neglected throughout gifted research.

Systemic Association of "Giftedness" and "Whiteness".

Throughout the many explanations for the continued underrepresentation of Black students in gifted programming, the theme of a systemic association between "giftedness" and "Whiteness" becomes glaringly evident (Barlow & Dunbar, 2010; Carman, 2011; Staiger, 2004; Stark, 2014). Among teachers, the explicit stereotypical assumption that giftedness and Whiteness correlate has been demonstrated in research (Carman, 2011). However, this association can also be found in an implicit mismatch between teacher's expectations of gifted students and their perceptions of Black students. As noted previously, teachers expect gifted students to demonstrate social, emotional, and behavioral maturity (Whitmore, 1982). Additionally, gifted students are often expected to demonstrate leadership, academic achievement, intrinsic motivation towards academic endeavors, and high levels of effort (Gur, 2011; Heyder et al., 2018; Rizza & Morrison, 2003). In contrast, Black students are more often associated with negative behavioral expectations compared to their White peers and are significantly more likely to be perceived as "troublemakers" compared to their white peers (Okonofua & Eberhardt, 2015). In some cases, greater negative expectations have been found among Black teachers compared to White teachers (Gilliam et al., 2016). These negative expectations may have a profound impact on Black students, as the expectations of teachers for their students may guide the manner in which the two interact and the level of educational tasks directed towards the student. Greater negative expectations are associated with more negative teacher-student relationships and less exposure to academically challenging tasks that may result in student growth (Peterson et al., 2016). Such negative relationships may eventually lead to displays of challenging behaviors and

underachievement that serve a confirmation bias function for teachers. Meanwhile, students of racial and ethnic minority who are properly identified and provided with gifted services have been found to demonstrate less impulsivity, greater emotional control, and less aggressive behaviors compared to their unidentified peers (Bolland et al., 2018).

<p align="center">*Theoretical Explanations for Underidentification*</p>

Poverty Hypothesis

Throughout educational research, the negative correlational relationship between socioeconomic status and educational achievement is heavily demonstrated (Hamilton et al., 2018; McBee, 2006; Shernoff & Schmidt, 2008; Siegle et al., 2010; Warne et al., 2013). Students from low SES families regularly experience decreased academic performance compared to their peers of greater wealth. Many potential correlates are considered to play a role in this phenomenon, including environmental, family, and school level factors. At the environmental level, students living in impoverished settings suffer a greater risk of lead exposure, associated with a decrease in academic achievement as well as deficits in emotional and behavioral regulation (Zhang et al., 2013). Additionally, students of low SES experience limited exposure to new vocabulary, limited access to educational materials, and fewer opportunities to engage in academic activities outside of the school environment (Hamilton et al., 2018). At the family level, children of low-SES are faced with limited parental spending and parental involvement in education, as parents are greatly concerned with their ability to maintain housing and employment (Cooper et al., 2010). At the school level, the combined effects of environmental and family level factors present themselves such that students

experiencing poverty begin their academic careers with fewer skills than their wealthier peers. This disadvantage continues to manifest itself for the duration of students' time in school, as they continuously perform at decreased level on measures of cognitive ability and academic achievement compared to their peers of higher SES (Hamilton et al., 2018).

It should come as no surprise that gifted students are not shielded from the negative effects of poverty. Gifted students from low SES backgrounds are often underrepresented in gifted education (Hamilton et al., 2018; McBee, 2006; Yoon & Gentry, 2009). In most literature on the subject, the common metric for SES is the students' free/reduced lunch (FRL) status. Students FRL status is indicative of their family income and is easily accessible in educational record data compared to true family income. Disproportionate referral rates of students who are FRL-eligible have continuously been demonstrated in research, such that FRL-eligible students experience a significantly smaller probability of identification compared to their non-FRL peers. In a study across three states in the U.S., Hamilton et al. (2018) found that non-FRL students experienced odds of referral up to five times greater than students who were eligible for FRL. Across all three states, FRL-eligible students represented a majority of the sample, yet a minority of those identified for gifted services. In one state, FRL-eligible students represented 67% of the sample, yet only 6.6% of gifted students. At the school level, Hamilton et al. (2018) demonstrated a significant negative correlation across two of the three states between the percentage of FRL-eligible students and the percentage of students referred for gifted services overall, even after controlling for reading and math achievement. This finding suggests that even when students of low SES perform at levels

similar to their peers of higher SES, they still experience a lesser chance of identification

for gifted services.

Many aspects of poverty may play a role in the underidentification of students

from low SES backgrounds in gifted programming. Teachers, one of the most common

sources of gifted referral, may view low SES students from their own middle class lens,

resulting in a perception that low SES students do not meet the criteria for gifted services

(Yoon & Gentry, 2009). Additionally, teachers may experience a lack of awareness

towards the displays of giftedness seen in students of low SES (McBee, 2006).

Furthermore, despite their gifted status, students of low SES have been found to

demonstrate decreased performance on measures of verbal ability, including vocabulary,

reading, language, spelling, and verbal intelligence, compared to their gifted peers of

greater SES. Verbal ability is highly correlated with academic achievement, such that

gifted students of low SES may exhibit underachievement in the classroom due to

constraints on their verbal abilities (Kaya et al., 2016). Additionally, in districts that use

nation-wide or district-wide norms on assessments of cognitive and academic ability,

students from low SES backgrounds, especially those demonstrating decreased verbal

skills, are at a greater risk for a lack of identification (Hamilton et al., 2018; Kaya et al.,

2016).

Deficit Thinking Theory

Deficit thinking occurs when teachers, administrators, and other educational

personnel view student-level individual differences as indicative of deficits, dysfunctions,

and disadvantages, rather than from the lens of individual differences. Dr. Donna Ford, a

professor at Ohio State University, is among the foremost researchers studying the impact

of deficit thinking on Black students in the gifted identification process. In regard to Black students, cultural styles often found among such students have the potential to be negatively appraised, rather than viewed with multicultural competence (Ford, 2014; Ford et al., 2001; Ford & Grantham, 2003b). Cultural styles of Black students include verve, a preference for movement and psychomotor activities, preference for oral modes of communication, speaking frankly, directly, and honestly, affective orientations, and communalism (Ford et al., 2001). From a deficit thinking perspective, verve and a preference for movement may be interpreted as hyperactivity, inattention, or immaturity. Speaking frankly, directly, and honestly may be interpreted as rude or lacking social skills, especially if the student utilizes Black English vernacular. Affective orientations may be viewed as indicative of irrationality, decreased emotional regulation, immaturity, and low cognitive ability. Finally, communalism may be seen as immature, lacking independence, and in some academic situations, interpreted as cheating (Ford et al., 2001). Aside from indirectly affecting students of racial/ethnic minority via teachers' perceptions and decision-making, deficit thinking may directly impact students through a process of internalizing the views of others. Gifted students of racial/ethnic minority, particularly Black students, may begin to question their academic and cognitive abilities or purposefully sabotage their own achievement in an attempt to avoid "acting White" (Fordham & Ogbu, 1986).

Deficit thinking may not only play a role in a teacher's appraisal of, and interactions with, students of racial and ethnic minority, but also in their communication and interactions with students' families (Ford et al., 2001; Ford & Grantham, 2003b). Unfortunately, many teachers graduate from teacher training programs lacking necessary

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multicultural competence to ensure best practices in their work with diverse groups (Ford & Grantham, 2003b). Additionally, teachers that hold stereotypical beliefs of both gifted students and students of racial/ethnic minority are less likely to seek out training related to the education of these groups (Ford & Grantham, 2003b). Teachers who allow deficit thinking to affect their views of students' abilities and behavior are less likely to communicate with parents of racial/ethnic minority regarding gifted education services and opportunities. In turn, parents of students of racial/ethnic minority may be more likely to view schools with suspicion and doubt, thereby decreasing the likelihood that they will mutually engage in their child's education with their child's school (Ford et al., 2001).

In a system where teachers expect gifted students to demonstrate maturity, attention to academic endeavors, heightened cognitive socioemotional abilities, independence, autonomy, and outstanding academic achievement, deficit thinking acts as a form of blaming the victim. Alongside these expectations is the fact that many educators are White. The assessments and instruments used for their identification for gifted services are largely created by Whites. The individuals administering those assessments are often White. Lastly, the curriculum that a student may be exposed to following identification is likely created by one or more White individuals and largely encompasses themes of White culture (Ford, 2014). In such a system, it is not difficult to consider the possibility that Black students may be cast away from consideration for gifted education services due to inaccurate perceptions of their behavior or nonexistent acknowledgement of the impact that their culture has on their style of learning and interaction.

Identity Theories

Identity theories related to the underrepresentation of African Americans largely focus on the incongruence between Black identity and the perceived "Whiteness" of gifted education. In their Nigrescence model of Black identity development, Cross and Vandiver describe three potential initial stages: pre-encounter assimilation, pre-encounter miseducation, and pre-encounter self-hatred. Pre-encounter assimilation occurs when a Black individual places little emphasis on their racial group identity, refraining from actively affiliating with Black culture. Pre-encounter miseducation denotes an acceptance of negative stereotypes and societal misinformation about Black people while acknowledging one's affiliation with their Black group identity. Lastly, pre-encounter self-hatred consists of negative self-esteem and self-loathing as a result of being Black (Worrell et al., 2001).

Later in the development of Black identity, individuals may experience one of two identity types: immersion-emersion anti-White and immersion-emersion intense Black involvement. Immersion-emersion anti-White is seen when an individual demonstrates a profound distrust and borderline hatred towards White culture. In immersion-emersion intense Black involvement, rather than externalizing negative expressions towards White culture, individuals demonstrate overwhelmingly romanticized and positive expressions towards Black culture. In the final stages of Black identity development, individuals may find themselves within one of three categories: internalization nationalist, internalization biculturalist, or internalization multiculturalist. Internalization nationalists are represented by an Afrocentric perspective of oneself and open engagement in the Black community. Internalization biculturalists are African

Americans who hold their Black identity and American identity as equal, engaging in both cultures without conflict. Lastly, internalization multiculturalists are those who fuse their Black identity into two or more cultural lenses, demonstrating a need to address oppression at multiple levels for multiple groups. It is important to note that Cross and Vandiver also point out that an individual may be stuck at, or regress to, any stage at any point in their development (Worrell et al., 2001).

According to Ford and Grantham (2003a), Black students who demonstrate pre-encounter assimilation may be more likely to be placed in gifted education programs due to their ability to "blend in" with their White peers. However, individuals experiencing pre-encounter miseducation or self-hatred may feel as though they are not fit for gifted services, as they internalize the negative stereotypes associated with Black students in contrast to the positive stereotypes associated with giftedness. Furthermore, individuals in the immersion-emersion anti-White stage are unlikely to demonstrate any aspirations of joining gifted programs, as the behaviors associated with being gifted may be viewed as "acting White" (Ford & Grantham, 2003a).

Aside from personal views and opinions towards the incongruence between Black culture and gifted education, African American gifted students must also contend with the perceptions of others related to their participation in gifted programming. In many cases, the decision to participate in gifted programming by Black students involves a choice between academic enrichment and social acceptance (Ford & Grantham, 2003a; Whiting, 2009). For some students, this decision is made for them, as Black parents may choose for their child to not participate in gifted programming due to negative peer pressure, potential isolation from Black peers, and the threat of alienation by White

students in gifted education (Ford & Grantham, 2003a). For others, the threat of being accused of "acting White" or "selling out" is enough to lead students towards self-sabotage, intentionally refraining from engaging academically to avoid negative attention from their peers. In a study of Black students' perception of academic achievement, 62% of students knew someone who had been teased for doing well in school, while 42% reported being teased themselves. The majority of teasing was reported to have been perpetrated by peers, yet some students reported being teased for academic excellence by family members as well (Ford et al., 2008). This phenomenon is especially relevant for Black male students, whose display of academic prowess may not only be met by ridicule for "acting White", but also with questions of their masculinity, as academic achievement may be viewed as a more feminine trait by their peers. As a result, Black males may adopt a "cool pose", preferring to demonstrate toughness, a lack of emotion, and a general sense of apathy to cope with the pressures of their peers and systematic oppression (Whiting, 2009). In response to these pressures, Whiting (2006, 2009) called for the need to promote a scholarly identity among gifted Black male students. Whiting identified nine areas to address within Black male students' identities to reframe their views of academic achievement and giftedness, including self-efficacy, self-awareness, and self-confidence. Alongside these traits, Whiting included the need for goal-orientation and to acknowledge the necessity of occasionally sacrificing certain aspects of social life (e.g., parties, dating, popularity) to achieve academic goals (e.g., graduating from college). Lastly, Whiting stressed the importance of maintaining an internal locus of control, refraining from being constrained by social injustice, and refraining from conceptualizing masculinity as incompatible with academic excellence.

Stereotype Threat

In 1995, Steele and Aronson developed the first empirical conception of stereotype threat, defined as the "risk of confirming, as self-characteristic, a negative stereotype about one's group" (Steele & Aronson, 1995, p. 1). Stereotype threat has been demonstrated to impact academic achievement and test performance not only in African Americans, but in other groups as well, demonstrating a seemingly universal existence for any group for which negative stereotypes exist (Baker, 2011; Ford et al., 2008; Spencer et al., 1999; Steele, 1997). For African Americans in particular, stereotype threat has demonstrated its potential to negatively affect performance relative to White peers when tests were indicated to measure intelligence. When the same tests are presented as diagnostic assessments, rather than tests of intelligence, performance among African Americans and Whites was found to be similar (Steele, 1997).

Research has shown that Black students internalize negative stereotypes held by others towards their academic and cognitive abilities, as well as their behavior. Ford et al. (2008) demonstrated this internalization in a survey of 166 gifted Black students, where only one student indicated positive attitudes towards being Black. The remainder of the students surveyed associated "acting Black" with negative behaviors, low intelligence, poor academic performance, and low language abilities. In contrast, the same students associated "acting White" with being intelligent, devotion toward academic achievement, strong academic performance, being well behaved, and being "perfect". The only negative aspect of "acting White" that was reported was a tendency to be "uppity, stuck-up, and uptight" (Ford et al., 2008, p. 234). As stated by McGee (2013), stereotype threat acts as a form of confirmation bias. Black students that are presented with cognitive and

academic assessments for the purpose of a gifted evaluation may sense the constructs

being measured by those assessments, resulting in decreasing performance, thereby

confirming stereotypes they have internalized related to the intelligence and academic

performance of African Americans. The internalization displayed in Ford et al. (2008)

suggests that when faced with the cognitive and academic measures used in gifted

identification practices, Black students are at-risk for stereotype threat (Baker, 2011; Ford

et al., 2008; McGee, 2013).

Implicit Bias and Social Cognition

In 1995, Greenwald and Banaji delineated the concept of "implicit social

cognition". Attempting to integrate the psychodynamic concept of subconscious

behavior, behavioral concept of stimulus-response learning, and the cognitive concept of

thought guiding behavior, Greenwald and Banaji defined implicit social cognition as a

phenomenon occurring when aspects of past experience subconsciously influence current

social performance. Within their construct lay three forms of implicit social cognition:

implicit attitudes, implicit self-esteem, and implicit stereotypes. Implicit attitudes and

stereotypes best apply to the study of discrimination, consisting of "introspectively

unidentified (or inaccurately identified) traces of past experience" that guide either

positive or negative thoughts, feelings, or actions (attitudes) or those that guide

attributions of positive or negative qualities to members of a group (stereotypes)

(Greenwald & Banaji, 1995, pp. 8 & 14).

Implicit attitudes had previously been discussed in psychological research, yet not

labeled as such. An example can be seen in the examination of a phenomena known as

the "halo effect" found Thorndike (1920). The halo effect occurs when the presence of

one trait (Trait A) in an individual leads one to automatically appraise the individual positively in regard to another trait (Trait B) due to past experience with individuals who possessed Trait A. For example, if an individual has prior experiences with physically attractive individuals possessing a strong sense of humor, they may automatically generalize the same sense of humor to physically attractive individuals met in the future. This effect may be increased over time, with successive affirmations of the effect leading to confirmation bias within the appraising individual (Greenwald & Banaji, 1995). Implicit stereotypes possess a slightly newer research base yet demonstrate an equally strong foundation. Gaertner and McLaughlin (1983) demonstrated the existence of implicit stereotyping by measuring response latency in word pairing tasks involving pairing "White" and "Black" with positive and negative words. Results demonstrated that subjects responded faster when pairing positive words with "White" compared to "Black", suggesting the existence of an automatic and implicit discrimination. Dovidio et al. (1986) replicated the work of Gaertner and McLaughlin, finding the same decreased response latency among positive word pairings to "White", but also among negative word pairings to "Black", suggesting that automatic appraisals of social groups may operate in both positive and negative directions.

Due to its subconscious nature, implicit bias has experienced criticism related to its falsifiability, particularly regarding its measurement. The most common and easily quantifiable form of measurement can be found in response latency, with faster responses believed to indicate greater automaticity in attribution as seen in the previously mentioned studies. Researchers have also utilized observational methods, as seen in Word et al. (1974), where greater physical distancing and less eye contact among White

interviewers in response to Black interviewees was cited as evidence for implicit bias. In response to criticisms of potential for measurement error, Greenwald, McGhee, and Schwartz (1998) presented the Implicit Association Test (IAT), a psychometrically validated measure of implicit bias. The IAT is comprised of five sequences of stimulus-response tasks where two target concepts (e.g., flowers and insects) and two attributes (e.g., pleasant and unpleasant) are paired to two response keys. Over the course of the five sequences, subjects are asked to pair the attributes to stimulus words (e.g., flower and insect names) with a series of alternating instructions involving manipulation of the keys that correspond to each concept and attribute. Results demonstrated that when associated concepts and attributes (e.g., flower and pleasant) share the same key, responses are faster; however, even when highly associated categories do not share the same key, their pairing still occurs faster than disassociated categories (e.g., insect and pleasant).

Greenwald et al. (1998) validated the IAT across a series of three experiments, demonstrating that the IAT may measure implicit bias in situations where the participants both do and do not have known affiliations with the target concepts, and even in cases where participants state personal beliefs in direct opposition to the results of their IAT. Across all three experiments, the IAT possessed greater statistical significance than qualitative measures of the same target concepts. In one experiment measuring racial preference among White college students, the IAT was found to demonstrate significantly greater statistical significance ($p = .01$ vs. $p = 10^{-7}$) when compared with qualitative measures of racial discrimination, suggesting that the IAT may be able to bypass social desirability bias in qualitative self-report measures. In this same experiment, 25 of 26

White college students who self-identified as non-prejudiced demonstrated negative IAT scores indicating a preference for White vs. Black, yet 19 of 26 indicated either indifference towards race or a Black preference on qualitative measures.

Greenwald and Banali (1995) also discussed the role of attention in implicit bias, suggesting that distraction may increase negative implicit bias, while attention towards the source of the bias may reduce its effect. The latter implication has been thoroughly studied and examined. In one study, anticipation of an African American superior (boss) was associated with greater attitudes towards African Americans compared to anticipation of an African American subordinate (employee) (Bertrand et al., 2005). In another study, exposure to photographs of admired famous African Americans led to decreased implicit bias against African Americans with the effect lasting 24 hours (Bertrand et al., 2005). These findings indicate that implicit biases may be malleable and suggest a possibility of effectively intervening upon the manner in which they affect real-world decision-making.

Implicit Bias in Education

Research has demonstrated that like all other individuals, teachers both in the U.S. and in other countries are susceptible to implicit bias in educational decision-making. In a study of exam graders in India, graders were provided with exams completed by child participants then paired with randomized demographic information containing students' names, gender, caste information (SES), and age. Results demonstrated lower grades for lower caste and female students despite the randomization of demographic information and the fact that the graders had no prior interaction with the students. Additionally, lower caste graders demonstrated harsher grading of lower-class students (Hanna &

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Linden, 2009). In a study of U.S. teachers' disciplinary reactions to problem behaviors, teachers were provided with vignettes of a child demonstrating problem behaviors and asked to imagine the child in their classroom. The name of the child was alternated across participants to represent African American males (Deshawn), African American females (Latoya), White males (Jake), and White females (Emily). After reading the vignette, teachers were asked to rate the severity of the child's behavior and their likelihood of recommending the child be suspended or expelled. Findings showed that African Americans and males were rated as demonstrating more severe behavior even though the description of the behaviors were similar across participants. Like the results of Hanna and Linden (2009), African American teachers rated the behavior of African American males as more severe and recommended harsher punishments more often compared to White teachers (Gilliam et al., 2016).

The existence of implicit racial or socioeconomic bias within teachers implies more negative consequences than those found in simply grading or rating students' behavior, but has also been associated with students' academic performance, relationships with their teachers, and self-perceptions. Implicit bias may guide the level of tasks teachers expect their students to complete, leading students of teachers with generally low expectations to underperform or leading specific students whom teachers demonstrate low expectations for to experience less academic growth relative to their peers (Peterson et al., 2016; Rubie-Davies, 2015). Implicit bias may also affect the way teachers interact with students such that negative biases are associated with less time spent responding to students for whom the teacher has low expectations, less warmth in the teacher-student relationship, less eye-contact, and less social praise for academic

success (Brophy & Good, 1970). Finally, negative implicit biases may also impact students' self-perception, leading to emotional distress. Students for whom teachers have low expectations have demonstrated declining positive self-perception over the course of the school year that may be the result of an interaction effect between teacher's expectations and decreased academic success (Rubie-Davies, 2006).

Bertrand and Mullainathan (2004): A Popular Case of Implicit Bias

In 2004, Marianne Bertrand and Sendhil Mullainathan published a seminal work related to the impact of implicit racial bias on decision making. Researchers sent mock-resumes to help wanted ads for both sales and administrative positions in Boston and Chicago newspapers. The names of the applying individuals were randomized to represent African American males (Jamal), African American females (Lakisha), White males (Greg), and White females (Emily). These names were chosen according to birth certificate data of all children born in Massachusetts between 1974 and 1979 to match the ages of the mock applicants, ensuring content validity within the mock resumes' demographic information. Four mock resumes were created: two high representing highly qualified candidates and two representing lesser-qualified candidates. Ad responses were randomized by the quality of resume sent, the gender of the applicant, and the race of the applicant. With a large sample of 2,435 responses from potential employers, the results of Bertrand and Mullainathan (2004) demonstrated that applicants with White-sounding names received callbacks at a significantly greater rate than applicants with Black-sounding names, with approximately 1.5 times greater frequency. Additionally, high quality resumes led to significantly more callbacks for applicants with White-sounding names compared to low quality resumes; however, this effect was not found for

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applicants with Black-sounding names, suggesting the existence of implicit racial bias in that employers disregarded applicants' experience if their name sounded Black. Lastly, no effect was found for the type of position; applicants with Black-sounding names experienced an equally decreased callback rate across both sales and administrative positions (Bertrand & Mullainathan, 2004).

This seminal work is not without criticism. First, the outcome variable of callbacks does not necessarily imply that all applicants with White-sounding names will receive the job, but merely that they may receive an interview. Regardless, the results suggest that applicants with Black-sounding names were less likely to receive a callback and therefore subjected to decreased opportunity to receive the job entirely. Next, the resumes did not explicitly mention the applying individual's race, but only suggested race. As such, the results of the study may not be representative of African American individuals with White-sounding names. Additionally, Bertrand and Mullainathan did not establish any procedures to determine if the potential employers had noticed the applicant's name or considered the applicant's race based on the name prior to deciding upon whether or not to contact them. Given this shortcoming, there is a possibility that the applicant's name did not play a role in the decision-making of some potential employers. Finally, newspaper ads represent only one method of seeking employment; therefore, it is unknown if the level of implicit bias found in this study generalizes to other methods of job searches (Bertrand & Mullainathan, 2004).

Elhoweris et al. (2005): A Blueprint for Study

In an attempt to generalize the findings of Bertrand and Mullainathan (2004) to the field of gifted education, Elhoweris (2005) conducted a partial replication of Bertrand

and Mullainathan's study. Vignettes of students possessing traits found in gifted literature were sent to teachers, who were then asked to rate the likelihood that the student should be referred for, or placed in, gifted programming. Unlike Bertrand and Mullainathan, Elhoweris and her team of researchers distinctly stated the student's race, rather than using a name to suggest race. Additionally, a control vignette was utilized where race was not mentioned to allow for comparison. Vignettes were distributed evenly across the White, Black, and control descriptions to a sample of 207 teachers across 16 elementary schools in a large midwestern U.S. city public school district. Descriptions of the student were generated using textbooks and peer-reviewed literature to ensure validity of the gifted traits associated with each student. The same descriptions were used for each student with only the race of the student being randomized and without any mention of the student's gender. After reading the vignette, teachers were asked to respond to two questions noted below using a 6-point Likert scale (1 = strongly disagree, 6 = strongly agree):

1. This student should be referred for possible placement in a gifted and talented program

2. I feel this student should be placed in a gifted and talented program

Results of this study suggested a significant effect for ethnicity such that vignettes describing an African American student were less likely to be appraised by teachers as in need of an evaluation to determine eligibility for gifted programming compared to the control group. A significant difference between the decision to refer White students compared to Black students was not found. Additionally, no significant differences were found related to placement decisions. According to the authors, this may be because

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teachers felt the vignette did not provide enough data to determine eligibility for gifted placement.

While serving as an exemplary source of research regarding effects of students' race on teachers' decision to refer for gifted eligibility evaluations, Elhoweris et al.'s (2005) study is not without its limitations. Having only surveyed elementary school teachers, the results of this study cannot be generalized to middle and high school teachers without replication. Additionally, the results of this study are geographically limited to the midwestern U.S., as it did not utilize a nationwide sample. Lastly, the study's sample was relatively homogenous, consisting mostly of White female elementary teachers; future studies on the topic would benefit from the inclusion of more male teachers and teachers of racial and ethnic minority.

This dissertation was designed to replicate and improve upon the work of Elhoweris et al. (2005) by surveying teachers from both elementary and middle school to provide a greater sample of teachers who may be involved in the gifted identification process. Additionally, this study sampled teachers from a large, Northeastern metropolitan area and surrounding suburban and rural school districts. This study was designed to recruit a more heterogenous sample of participants, including both males and females, as well as teachers of racial and ethnic minority. Lastly, while Elhoweris et al. (2005) focused heavily on traditional characteristics of giftedness, this study sought to address the topic of hidden giftedness as well, which may provide an additional level of explanation for the underrepresentation of students of minority in gifted programming.

CHAPTER 3

METHODS

Participants

Public school teachers in and around a large, northeastern city were recruited to provide a sample encompassing urban, suburban, rural populations. Participants were recruited via a variety of sampling methods. In some cases, teachers were contacted via their school district email address after obtaining agreement to participate in the study from school district administrators. In others, teachers were recruited through snowball sampling using listservs, social media, and word of mouth. Inclusion criteria required participants to be a current public-school teacher in academic subjects grades 2-8 who teaches English/language arts, math, science, and/or social studies. Participants were provided with a link to complete the survey online using SurveyMonkey.com. Upon entering the link into their web browser, participants were presented with an online consent form to complete prior to beginning the survey. 189 teachers began the survey, leading to 120 complete responses.

Setting

Data collection took place from late August 2020 until late March 2021. Surveys were completed online; therefore, no specific setting was required for the study. It is worth noting that data collection occurred during the COVID-19 pandemic.

Measures

Teachers were provided with a brief survey consisting of a vignette about a student who possesses characteristics of giftedness. To ensure content validity, characteristics noted in the vignettes were derived from textbooks and empirical literature

related to giftedness in school-age students. Vignettes provided to teachers were be randomized to either describe a student possessing traits of "hidden" or "typical" giftedness. Names and races of students described in the vignettes were also be randomized between a name common to White males born in 2012 (Jack) or one common to Black males (Elijah). These two names were selected via birth data from a large, northeastern city in 2012 to align with the age of the child in the vignette. Vignettes used in this study can be found in Appendix A.

After reading each vignette, teachers were asked to respond to eight questions. The first two questions were rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). After responding to these questions, teachers were not able to return to the questions. This was used as a precaution to avoid the Hawthorne effect.

Following these two questions, teachers were asked to complete a question regarding their attention to the student's name and race, their experience related to giftedness and implicit bias, their perception of the characteristics associated with giftedness, and their schools' zip code (used to determine the SES of the area served by their school).

In addition to these questions, teachers were also asked to provide demographic information including their gender, race, educational level, grades taught, and teaching experience. A copy of the survey questions used in this study can be found in Appendix B.

Procedures

For participants whose district agreed to participate, teachers were contacted by the primary investigator via their school district email and provided with a link to the survey that presented an explanation of consent before presenting teachers with a randomized vignette. After reading the vignette, teachers were asked to answer the questions described above. Upon completing the survey, teachers were presented with a debrief statement include a brief overview of the study and its purpose, as well as an explanation of the need for deception in the study. Finally, teachers were thanked for their participation and asked to share the link of the survey with other academic teachers in grades 2-8. Teachers were also reminded of the need to conceal the study's purpose when sharing the survey with colleagues or others who qualified for participation. The debrief statement used in this study can be found in Appendix C.

CHAPTER 4

RESULTS

Data were collected via an online survey using SurveyMonkey. This survey was sent directly to teachers, principals, superintendents, and other educational professionals over the course of five months from November 2020 to March 2021. The primary purpose of the study was to examine the presence of implicit bias in teachers' ratings of giftedness and need for referral. Secondary data analyses were conducted related to teachers' age, gender, race, teaching experiences, training experiences, views on giftedness, and school SES to determine if these factors were related to teachers' ratings of giftedness and likelihood of referral.

Throughout data collection, a total of 189 teachers began the survey. Of those who began the survey, 69 teachers did not complete it. Therefore, 69 cases were removed from data analysis due to missing data. As a result, a total of 120 participants across 41 different zip codes throughout Pennsylvania and the Philadelphia metropolitan area were included in the analyses. While this sample size allowed for primary analysis of teachers' ratings of giftedness and likelihood of referral, secondary data analysis of participant-level data was unable to determine significant findings due to homogeneity across multiple participant-level variables (e.g., gender, race, educational level, etc.). This limitation, and others, will be discussed further in the following chapter.

Data Analysis

Prior to examining the existence of significant differences among gifted perception and referral rating according to students' perceived race and gifted presentation, participant demographics and survey delivery were inspected using simple

frequency analyses. The results of these analyses can be found in Table 4.1 through 4.11. Frequency data from participants' qualitative responses when asked to list characteristics they believe to be associated with giftedness can be found in Table 4.12. Descriptive statistics of giftedness rating and likelihood of referral can be found in Table 4.13.

Next, giftedness rating and likelihood of referral, as well participant-level variables such as age, race, years teaching, and others were examined using a two-tailed Pearson Correlation to determine initial estimates of relation between variables. The results from these analyses can be found in Table 4.14.

To examine the primary research question regarding the existence of significant differences among teachers' perceptions of students' displays of giftedness and referral ratings based on students' race and gifted presentation, a one-way MANOVA was conducted followed by secondary analyses using independent samples T-tests. The results of these analyses can be found in Table 4.14 through 4.16.

Table 4.1. Completed Surveys by Vignette

	n	*%*
Vignette Type		
White Typical	34	28.3
White Hidden	30	25
Black Typical	26	21.7
Black Hidden	30	25
Total Sample	120	100

Vignette type was evenly distributed across responses. This distribution was achieved using the SurveyMonkey randomization function set to a 25% chance for one of the four vignette types to be displayed during each survey response. Due to 69 participants leaving the survey incomplete, this distribution was slightly skewed in favor of more responses for vignettes describe White "typically gifted" students compared to

Black "typically gifted" students. However, sample sizes for White "hidden gifted" and Black "hidden gifted" students were equal.

Table 4.2. Participant Gender by Vignette Type

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	%	*n*	*%*	*n*	*%*
Female	33	97.1	27	90	20	76.9	21	70	101	84.2
Male	1	2.9	3	10	6	23.1	9	30	19	15.8

Participant gender was significantly skewed in favor of Female participants across the entire sample. Of the 120 complete responses collected, 101 were from female teachers. Compared to US Department of Education data collected during the 2017-2018 school year, the gender distribution seen in this study is slightly greater than that of national norms, where Female teachers represent an estimated 76.5% of all public-school teachers compared to the 84.2% in this study (Taie & Goldring, 2020).

Table 4.3. Participant Race by Vignette Type

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	%	*n*	*%*	*n*	*%*
White/European American	28	82.4	26	86.7	23	88.5	27	90	104	86.7
Black/African American	5	14.7	3	10.0	1	3.8	3	10	12	10.0
Hispanic/Latinx	1	2.9	0	0	1	3.8	0	0	2	1.7
Asian/Pacific Islander	0	0	1	3.3	1	3.8	0	0	2	1.7

Participant race was significantly skewed in favor of White participants across the entire sample. Of the 120 complete responses collected, 104 were from White teachers.

Compared to US Department of Education data collected during the 2017-2018 school year, the race distribution seen in this study is slightly greater than that of national norms, where White teachers represent an estimated 79.3% of all public-school teachers compared to the 86.7% in this study (Taie & Goldring, 2020).

Table 4.4. Participant Age by Vignette Type

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
22-36 years	7	20.6	9	30	8	30.8	7	23.3	31	25.8
37-45 years	11	32.4	8	26.7	3	11.5	9	30	31	25.8
46-52 years	9	26.5	5	16.7	8	30.8	5	16.7	27	22.5
53+ years	7	20.6	8	26.7	7	26.9	9	30	31	25.8

Participant age was evenly distributed across the four categories shown above in Table 4.4. Compared to US Department of Education data collected during the 2017-2018 school year, the median age of participants seen in this study was slightly greater than that of national norms, which showed a median age of 41.4 years compared to 45 years in this study (Taie & Goldring, 2020).

Table 4.5. Participant Highest Educational Level by Vignette Type

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Bachelor's degree	7	20.6	6	11.8	8	30.8	1	3.3	22	18.3
Master's degree	25	73.5	24	80	17	65.4	28	93.3	94	78.3
Doctoral degree	2	5.9	0	0	1	3.8	1	3.3	4	3.3

Participants' highest educational level was strongly skewed in favor of Master's degrees across the entire sample. This study demonstrates a significantly greater presence of teachers with Master's degrees compared to national norms, where an estimated 49.2% of teachers hold Master's degrees compared to the 78.3% seen in this study (Taie & Goldring, 2020).

Table 4.6. Participant Years Teaching by Vignette Type

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
1-10 years	7	20.6	7	23.3	5	19.2	6	20	25	20.8
11-15 years	6	17.6	9	30.0	6	23.1	4	13.3	25	20.8
16-21 years	8	23.5	7	23.3	3	11.5	7	23.3	25	20.8
22-27 years	8	23.5	1	3.3	5	19.2	9	30.0	23	19.2
27+ years	5	14.7	6	20	7	26.9	4	13.3	22	18.3

Participant's number of years spent teaching was evenly distributed across the five categories shown above in Table 4.6. Compared to US Department of Education data collected during the 2017-2018 school year, the mean number of years teaching amongst participants seen in this study was greater than that of national norms, which showed an estimated average years spent teaching of 13.8 years across all public schools compared to 18.65 years in this study (Taie & Goldring, 2020).

Table 4.7. Participant School SES

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	%	*n*	*%*	*n*	*%*
1st Quintile (> $28,084)	0	0	0	0	0	0	1	3.3	1	0.8
2nd Quintile ($28,084 - $53,503)	10	29.4	7	23.3	7	26.9	8	26.7	32	26.7
3rd Quintile ($53,504 - $86,488)	14	41.2	10	33.3	6	23.1	9	30.0	39	32.5
4th Quintile ($86,489 - $142,501)	10	29.4	13	43.3	13	50	12	40.0	48	39.2
5th Quintile (< $142,501)	0	0	0	0	0	0	0	0	0	0

Socioeconomic status of the area served by participants' school was determined by assessing the median household income reported for each of the 41 zip codes from which participants reported teaching using CensusReporter.org, an open-source independent project lead by the Knight Lab at the Medill School of Journalism at Northwestern University (http://www.censusreporter.org). These median household incomes were then compared to the median household income limits for each quintile reported by the United States Census Bureau for 2019. Results showed nearly all teachers reported teaching in areas with a median household income between the 2nd and 4th SES quintiles, with only one teacher responding from an area within the 1st SES quintile and no teachers responding from an area within the 5th SES quintile.

Table 4.8. Participant Self-Report of Experience with Giftedness

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	%	*n*	%	*n*	%
No experience	0	0	1	3.3	1	3.8	0	0	2	1.7
Little experience	3	8.8	6	20.0	5	19.2	6	20.0	20	16.7
Some experience	24	70.6	16	53.3	13	50.0	16	53.3	69	57.5
Extensive experience	7	20.6	7	23.3	7	26.9	8	26.7	29	24.2

Participants' experience working with gifted students was measured using self-report on a 4-point Likert scale ranging from no experience to extensive experience. Most participants reported having little or some experience working with gifted students (74.2%), while only two participants reported having no experience working with gifted students. Nearly a quarter of participants reported having extensive experience working with gifted students (24.2%).

Table 4.9. Participant Self-Report of Training on Giftedness

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	%	*n*	*%*	*n*	*%*
No training	3	8.8	9	30.0	8	30.8	7	23.3	27	22.5
Little training	15	44.1	8	26.7	6	23.1	7	233	36	30.0
Some training	14	41.2	11	36.7	10	38.5	10	33.3	45	37.5
Extensive training	2	5.9	2	6.7	2	7.7	6	20	12	10.0

Participants' experience with training related to giftedness was measured using self-report on a 4-point Likert scale ranging from no training to extensive training. Most

participants reported either little or some training on giftedness (67.5%), while nearly a quarter of participants reported not receiving training on giftedness during their careers (22.5%). Only 10% of teachers reported receiving extensive training on giftedness.

Table 4.10. Participant Self-Report of Training on Implicit Bias.

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	%	*n*	*%*	*n*	*%*
No training	4	11.8	4	13.3	1	3.8	3	10	12	10.0
Little training	4	11.8	9	30.0	6	23.1	6	20	25	20.8
Some training	21	61.8	12	40.0	18	69.2	15	50	66	55.0
Extensive training	5	14.7	5	16.7	1	3.8	6	20	17	14.2

Participants' experience with training related to implicit bias was measured using self-report on a 4-point Likert scale ranging from no training to extensive training. Most participants reported either little training or some training (75.8%), while only 14.2% reported extensive training. Ten percent of all participants reported not having received any training on implicit bias during their careers.

Table 4.11. Participant Grade-Level Experience by Vignette Type

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Elementary (K-5)										
Yes	28	82.4	23	76.7	20	76.9	18	60.0	89	74.2
No	6	17.6	7	23.3	6	23.1	12	40.0	31	25.8
Middle (6-8)										
Yes	21	61.8	20	66.7	16	61.5	25	83.3	82	68.3
No	13	38.2	10	33.3	10	38.5	5	16.7	38	31.7
High School (9-12)										
Yes	11	32.4	7	23.3	5	19.2	12	40.0	35	29.2
No	23	67.6	23	76.7	21	80.8	18	60.0	85	70.8

Participants' experience with varying grade levels was as expected, with most participants reporting experience in Elementary (74.2%) and/or Middle (68.3%) school grade levels. These data coincide with the sampling target of the study – current teachers in grades 2-8. Secondary analyses showed that no participants reported experience with only High School grade levels, suggesting that all participants fell within the inclusion criteria.

Table 4.12. Frequencies of Qualitative Descriptors

	Frequency	Percent
Creative/Artistic	38	6.9
Achievement	27	4.9
Problem solving	27	4.9
Curious	23	4.2
Bored	21	3.8
Speaks well/Vocabulary	21	3.8
Acquisition ease	20	3.7
Intelligent	20	3.7
Outside the box thinking	17	3.1
Motivated	16	2.9
Strong recall abilities	15	2.7
Perfectionist	14	2.6
Finishes quickly	12	2.2
Above grade level	11	2.0
Comprehension	11	2.0
Independent	11	2.0
Reading skills	10	1.8
Socially challenged	10	1.8

Table 4.12 displays qualitative responses provided by participants when asked to describe their understanding of characteristics associated with giftedness. The teachers in this study combined to report 547 characteristics they believed to be associated with giftedness. Of those reported, only responses that occurred ten or more times are presented in this table. The 324 responses presented above combine to account for over half of all responses obtained (59.2%). Of the 17 characteristics that occurred ten or more times, only three may be considered negative (e.g., bored, perfectionist, and socially challenged). These three negative characteristics account for only 8.2% of total responses within the study, compared to 51% among the remaining characteristics reported above.
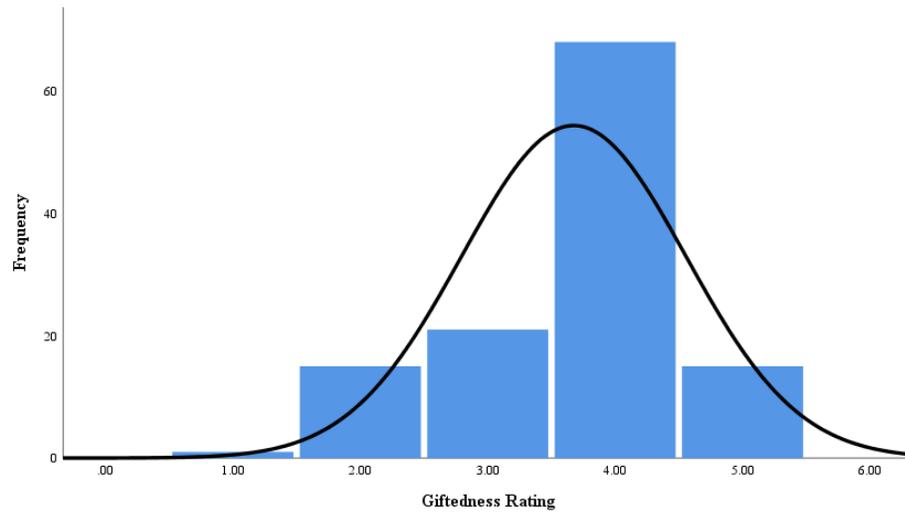
Figure 4.1. Distribution of Giftedness Ratings

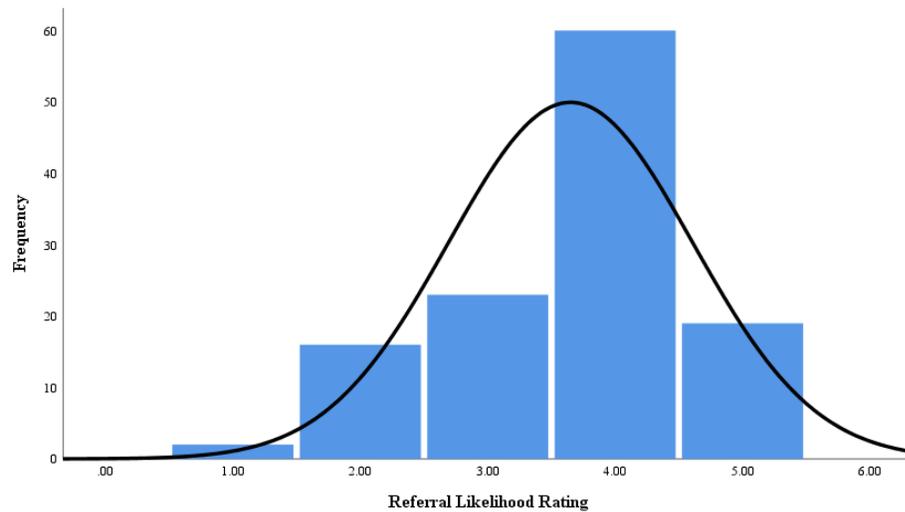Figure 4.2. Distribution of Referral Likelihood Ratings

Figures 4.1 and 4.2 display the distribution of teachers' ratings of giftedness and referral likelihood. The means of teachers' ratings of giftedness ($M = 3.68$) and referral likelihood ($M = 3.65$) were both above 3.00, suggesting that most teachers recognized that all vignettes described students who displayed traits associated with giftedness.

Across both ratings, "Agree" was the majority response, indicating that most teachers believed the children described in the vignettes displayed traits of giftedness and required a referral for additional evaluation to determine their eligibility for gifted services. Both dependent variables demonstrate a negative skewness (Giftedness Rating: -.736; Referral Likelihood: -.642), with their means and modes deviating towards the right of center.

Table 4.13. MANOVA Results for Giftedness Rating and Referral Likelihood by Vignette Race and Presentation

Effect	Pillai's Trace	F	df	Error df	Sig.	η_p^2
Vignette Race	0.052	3.126	2	115	0.048	0.052
Vignette Presentation	0.006	0.373	2	115	0.690	0.006
Vignette Race * Vignette Presentation	0.069	4.264	2	115	0.016	0.069

Multivariate results of a 2x2 MANOVA across both giftedness rating and referral likelihood by vignette race and vignette presentation revealed a significant main effect for the race of the child describe in the vignette ($p = 0.048$). Additionally, there was a significant effect for the interaction between vignette race and vignette presentation ($p = 0.016$). To follow up this test, separate ANOVAs were conducted for both giftedness rating and referral likelihood. The results of this follow can be found in Tables 4.14 through 4.19 and Figures 4.1 and 4.2.

Table 4.14. Means and (Standard Deviations) of Giftedness Rating

	Typical	Hidden	Row Mean
White	3.26 (.898)	3.80 (.887)	3.51 (.926)
Black	4.00 (.693)	3.73 (.868)	3.86 (.796)
Column Mean	3.58 (.889)	3.77 (.871)	

Participants rated their agreeance with the statement that the child described in the vignette presented to them displayed characteristics of giftedness on a Likert scale of 1-5,

with 1 representing Strongly Disagree and 5 representing Strongly Agree. The mean and

standard deviation of teachers' ratings of giftedness for each vignette type are presented

above in Table 4.14. For further analysis, these variables were considered as interval

data, given that lower ratings are associated with a decreased perceived presence of

giftedness, while higher ratings are associated with increase perceived presence of

giftedness.

Table 4.15. ANOVA Results for Giftedness Rating

Source	df	Mean Square	f	p	η_p^2
Vignette Race	1	3.323	4.628	0.034	0.038
Vignette Presentation	1	0.536	0.747	0.389	0.006
Vignette Race * Vignette Presentation	1	4.780	6.658	0.011	0.054

The ANOVA for giftedness rating yielded significant effects for vignette race ($p =$

0.034) with a mild effect size ($\eta_p^2 = 0.038$). Vignette presentation did not demonstrate

significant effects for perceived giftedness. The interaction between vignette race and

vignette presentation was significant across ratings of perceived giftedness ($p = 0.054$)

with a moderate effect size ($\eta_p^2 = 0.054$). To determine the direction of this significant

interaction, a plot of this effect was created and can be found below in Figure 4.1.
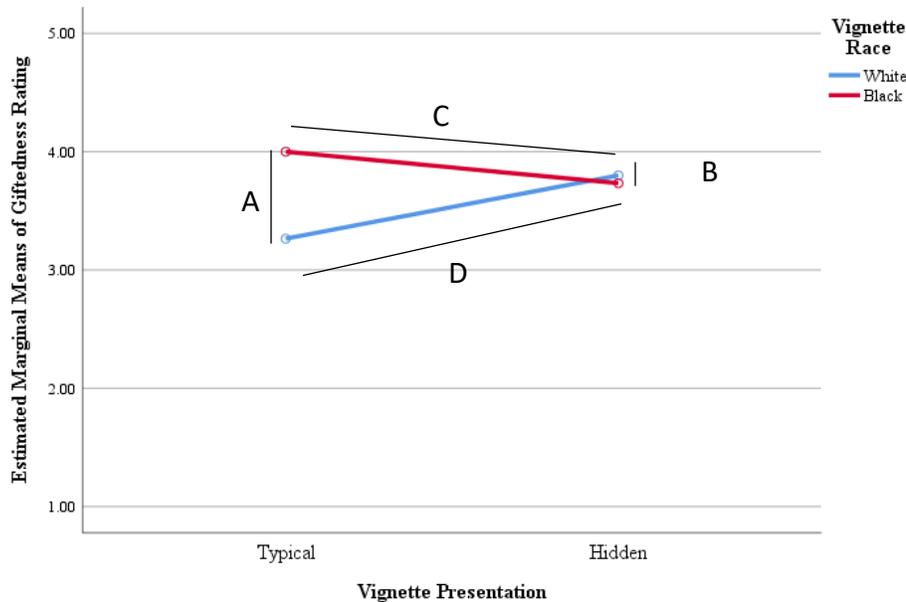
Figure 4.3. Interaction Effect for Giftedness Rating

The significant interaction among ratings of giftedness between the race of children described in vignettes and their behavioral presentation for can be seen above in Figure 4.1. This interaction demonstrates that displaying traits of "hidden" giftedness was associated with a decrease in ratings of giftedness for Black children, but an increase in ratings of giftedness for White children. Further analysis of this interaction using simple effects analysis can be found in Table 4.16.

Table 4.16. Simple Effects Analysis for Interaction of Vignette Race and Vignette Presentation among Giftedness Rating

	t	*p*
White vs. Black at Typical (Line A)	3.58	0.001
White vs. Black at Hidden (Line B)	0.29	0.770
Typical vs. Hidden for Black (Line C)	1.26	0.21
Typical vs. Hidden for White (Line D)	2.39	0.02

This simple effects analysis used independent samples T-tests to determine significant differences among teachers' ratings of giftedness across vignette race and presentation. The analysis revealed a significant difference in ratings of giftedness

between vignettes describing White "typically" gifted children and Black "typically"

gifted children. Vignettes describing Black children were significantly more likely to be

perceived as gifted compared to those describing White children when descriptions

consisted of characteristics associated with "typical" giftedness ($p = 0.001$).

The difference in ratings of giftedness between vignettes describing White

"hidden" gifted children and Black "hidden" gifted children was insignificant ($p = 0.770$).

Therefore, statistically significant racial differences did not occur between groups when

the child described in the vignette displayed characteristics of "hidden" giftedness.

Lastly, the difference in giftedness ratings between vignettes describing

"typically" gifted Black children and "hidden" gifted Black children was insignificant (p

$= 0.21$). However, the difference in giftedness ratings between vignettes describing

"typically" gifted White children and "hidden" gifted White children is significant ($p =$

0.02). Therefore, displays of "hidden" giftedness were associated with significantly

higher ratings of giftedness for vignettes describing White children, but did not result in a

significant difference in either direction for vignettes describing Black children.

Table 4.17. Means and (Standard Deviations) of Referral Likelihood

	Typical	Hidden	Row Mean
White	3.18 (.968)	3.77 (.898)	3.45 (.975)
Black	4.08 (.688)	3.70 (1.02)	3.88 (.896)
Column Mean	3.567 (.963)	3.73 (.954)	

Participants rated their agreeance with the statement that the child described in the

vignette presented to them should be referred for an evaluation to determine their

eligibility for gifted services on a Likert scale of 1-5, with 1 representing Strongly

Disagree and 5 representing Strongly Agree. The mean and standard deviation of teachers' ratings of referral likelihood for each vignette type are presented above in Table 4.17. For further analysis, these variables were considered as interval data, given that lower ratings are associated with a decreased likelihood of referral, while higher ratings are associated with increased likelihood of referral.

Table 4.18. ANOVA Results for Referral Likelihood

Source	df	Mean Square	f	p	η_p^2
Vignette Race	1	5.167	6.214	0.014	0.051
Vignette Presentation	1	0.338	0.407	0.525	0.003
Vignette Race * Vignette Presentation	1	6.952	8.361	0.005	0.067

The ANOVA for referral likelihood yielded significant effects for vignette race (p = 0.014) with a moderate effect size (η_p^2 = 0.051). Vignette presentation did not demonstrate significant effects for perceived giftedness. The interaction between vignette race and vignette presentation was significant across ratings of referral likelihood (p = 0.005) with a moderate effect size (η_p^2 = 0.067). To determine the direction of this significant interaction, a plot of this effect was created and can be found below in Figure 4.2.
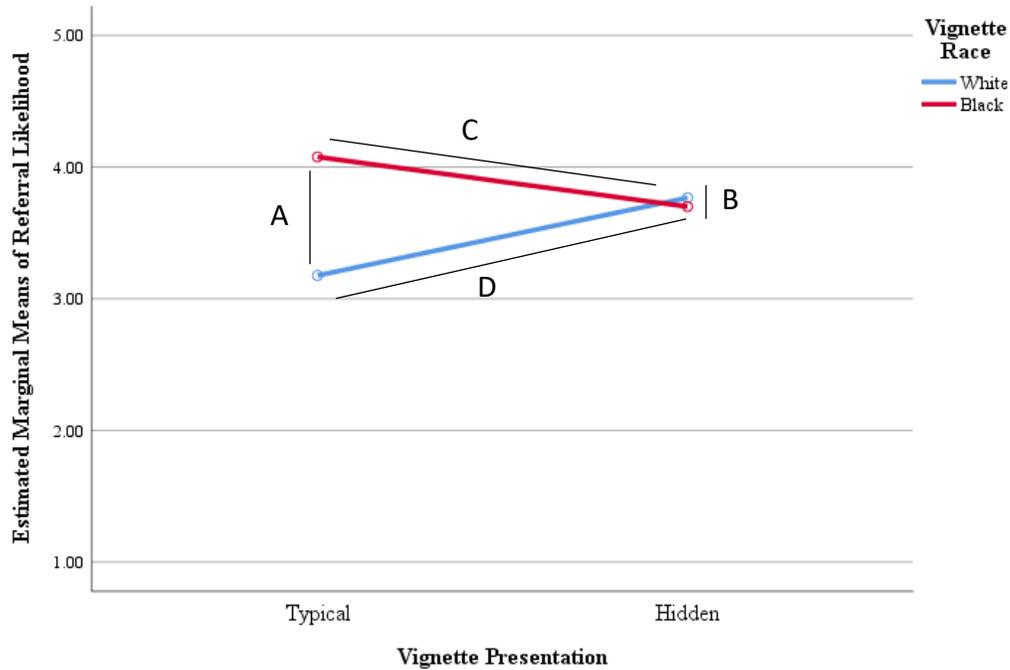
Figure 4.4. Interaction Effect for Referral Likelihood

The significant interaction among ratings of need for referral between the race of children described in vignettes and their behavioral presentation for can be seen above in Figure 4.2. Like the interaction among ratings of giftedness, this interaction demonstrates that displaying traits of "hidden" giftedness was associated with a decrease in ratings of need for referral for Black children, but an increase in ratings of need for referral for White children. Further analysis of this interaction using simple effects analysis can be found in Table 4.19.

Table 4.19. Simple Effects Analysis for Interaction of Vignette Race and Vignette Presentation among Referral Likelihood

	t	*p*
White vs. Black at Typical (Line A)	4.21	0.00
White vs. Black at Hidden (Line B)	0.27	0.79
Typical vs. Hidden for Black (Line C)	1.64	0.11
Typical vs. Hidden for White (Line D)	2.53	0.01

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Like the results seen in Table 4.16, this simple effects analysis used independent samples T-tests to determine significant differences among teachers' ratings of giftedness across vignette race and presentation. Also like the findings seen in Table 4.16, the results of this analysis revealed a significant difference in ratings of referral likelihood between vignettes describing White "typically" gifted children and Black "typically" gifted children. Similar to findings related to ratings of giftedness, vignettes describing Black children were significantly more likely to be perceived as in need of a referral for further evaluation compared to those describing White children when descriptions consisted of characteristics associated with "typical" giftedness ($p = 0.001$).

Echoing the results found for ratings of giftedness, the difference in ratings of referral likelihood between vignettes describing White "hidden" gifted children and Black "hidden" gifted children was insignificant ($p = 0.789$). Therefore, statistically significant racial differences did not occur between groups when the child described in the vignette displayed characteristics of "hidden" giftedness.

Finally, vignettes describing White children displayed a significant difference in ratings of White "typically" gifted children and White "hidden" gifted children ($p = .014$). Much like the results seen in giftedness rating, White "hidden" gifted children were rated as being significantly higher in need for referral than White "typically" gifted children. However, differences between Black "typically" gifted children and Black "hidden" gifted children were not statistically significant on ratings of referral likelihood ($p = .108$).

Table 4.20 *Pearson Correlation for Giftedness Rating and Referral Likelihood across Participant Demographic Variables*

		1	2	3	4	5	6	7	8	9	10	11	12
1	Giftedness Rating	-											
2	Referral Likelihood	.810**	-										
3	Participant Gender	.109	.135	-									
4	Participant Age	.158	.149	-.004	-								
5	Participant Education	.003	-.026	.148	.078	-							
6	Years Teaching	.186*	.12	-.028	.724**	.119	-						
7	School SES	-.108	-.191*	-.061	-.176	.094	-.008	-					
8	Giftedness Experience	-.047	-.054	.04	.092	.268**	.297**	.357**	-				
9	Giftedness Training	.108	.072	-.089	.194*	.147	.342**	.194*	.585**	-			
10	Implicit Bias Training	.007	.008	.085	.085	.165	.086	.107	.225*	.143	-		
11	Elementary Experience	-.045	-.077	-.318**	.067	.015	.053	-.193*	-.103	-.003	-.052	-	
12	Middle School Experience	-.109	-.081	.295**	.101	.256**	.134	.139	.276**	.063	.062	-.402**	-
13	High School Experience	-.013	-.014	.123	.082	.135	.135	.197*	.228*	.054	.052	-.417**	.397**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

After completing the 2x2 MANOVA and separate ANOVAs for giftedness rating and referral likelihood, the use of a multiple regression to determine the effects of participant-level variables on these ratings was considered. Prior to conducting a multiple regression, Pearson correlations among these variables were generated. Giftedness rating and referral likelihood demonstrated a strong positive correlation ($r = .810$, p = <.01), suggesting that teachers correctly indicated a need for further evaluation amongst students they perceived to be gifted. Giftedness rating also demonstrated a weak positive correlation with the number of years participants have taught ($r = .186$, p = .042), such that teachers with more years of teaching experience provided higher ratings of giftedness for students. Referral likelihood demonstrated a weak negative correlation with school

SES ($r = -.191$, p = .037) such that teachers from schools with lower SES provided higher ratings of referral likelihood. Given the low frequency of significant correlations among giftedness rating and referral likelihood across participant demographics, it was determined that a multiple linear regression amongst these variables was unnecessary, as this analysis would likely result in insignificant findings like those seen in the above Pearson correlations.

To further explain the significant differences seen among ratings of giftedness and need for referral for White "typically" gifted students compared to White "hidden" gifted students, further analyses considered participants' self-report of training on giftedness, experience with gifted students, and training on implicit bias. Prior to determining potential explanations using these variables, each variable was recoded to categories of high training/experience or low training/experience. Participants who reported some or extensive training/experience were rated as high, while participants who reported no or little training/experience were rated as low. The demographic results of this recoding can be seen below in Table 4.21.

Table 4.21. High/Low Gifted Experience, Gifted Training, and Bias Training by Vignette Type

	White Typical		White Hidden		Black Typical		Black Hidden		Full Sample	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Gifted Experience										
Low	3	8.8	7	23.3	6	23.1	6	20	22	18.3
High	31	91.2	23	76.7	20	76.9	24	80	98	81.7
Gifted Training										
Low	18	52.9	17	56.7	14	53.8	14	46.7	63	52.5
High	16	47.1	13	43.3	12	46.2	16	53.3	57	47.5
Bias Training										
Low	8	23.5	13	43.3	7	26.9	9	30	37	30.8
High	26	76.5	17	56.7	19	73.1	21	70	83	69.2

Of the three variables shown in Table 4.21, only participants' self-report of their

level of training related to giftedness was evenly distributed across vignette types and the

sample as a whole. Therefore, secondary analyses focused on giftedness training as a

potential moderator of the significant difference seen between ratings of giftedness and

need for referral between vignettes describing White "typically" gifted children and

White "hidden" gifted children. These secondary analyses consisted of splitting the data

between high and low reported levels of training on giftedness, then comparing the same

2x2 MANOVA seen in Tables 4.13 across the two sections of reported training. The

results of this analysis can be seen in Tables 4.22 through 4.25.

Table 4.22. MANOVA Results for Giftedness Rating and Referral Likelihood by Vignette Race and Presentation for Participants with Low Gifted Training

Effect	Pillai's Trace	F	df	Error df	Sig.	η_p^2
Vignette Race	0.072	2.241	2	58	0.116	0.072
Vignette Presentation	0.02	0.592	2	58	0.556	0.02
Vignette Race * Vignette Presentation	0.041	1.237	2	58	0.298	0.041

As seen in Table 4.22, results of the 2x2 MANOVA for participants who reported

low levels of training on giftedness revealed a lack of significant effects for vignette race,

vignette presentation, and the interaction between race and presentation.

Table 4.23. MANOVA Results for Giftedness Rating and Referral Likelihood by Vignette Race and Presentation for Participants with High Gifted Training

Effect	Pillai's Trace	F	df	Error df	Sig.	η_p^2
Vignette Race	0.027	0.724	2	52	0.489	0.027
Vignette Presentation	0.136	4.09	2	52	0.022	0.136
Vignette Race * Vignette Presentation	0.16	4.958	2	52	0.011	0.16

As seen in Table 4.23, results of the two-way MANOVA for participants who reported high levels of training on giftedness revealed significant main effects for both vignette presentation and the interaction between vignette race and presentation. These results differ from the multivariate results of the 2x2 MANOVA seen in Table 4.13 that examines the sample as whole. First, vignette race does not demonstrate significant effects for individuals who reported high levels of training on giftedness, although it had when the whole sample was considered. Second, vignette presentation (typical vs. hidden) demonstrated significant effects for individuals who reported high levels of training on giftedness, although it did not when the whole sample was considered. These results also differ from the multivariate results of the 2x2 MANOVA seen in Table 4.21 when only participants who reported low levels of training on giftedness were considered. First, vignette presentation demonstrated significant effects for individuals who reported high levels of training on giftedness, but not those who reported low levels of training on giftedness. Second, the interaction between vignette race and vignette presentation maintained its significance for individuals who reported high levels of training on giftedness, but not those who reported low levels of training on giftedness.

Table 4.24. ANOVA Results for Giftedness Rating and Referral Likelihood for Participants with High Gifted Training

		Giftedness Rating					Referral Likelihood			
Source	df	Mean Square	f	p	η_p^2	df	Mean Square	f	p	η_p^2
Vignette Race	1	0.489	1.118	0.295	0.021	1	0.849	1.321	0.256	0.024
Vignette Presentation	1	3.517	8.047	0.006	0.132	1	1.405	2.187	0.145	0.040
Vignette Race * Vignette Presentation	1	3.230	7.392	0.009	0.122	1	5.922	9.218	0.004	0.148

Table 4.24 displays the ANOVA results for ratings of giftedness and referral likelihood. For participants who reported high levels of training on giftedness, vignette race did not demonstrate significant effects for ratings of giftedness or referral likelihood. Vignette presentation demonstrated significant effects on ratings of giftedness, but not referral likelihood. Additionally, the interaction between vignette race and presentation maintained its significance for individuals who reported high levels of training on giftedness. Comparisons of this interaction across both giftedness rating and referral likelihood between participants who reported either low or high levels of training on giftedness can be seen in Tables 4.25 through 4.28 and Figures 4.3 through 4.6.

Figure 4.5. Interaction Effect for Giftedness Rating among Participants Reporting Low Levels of Training on Giftedness

Table 4.25. Simple Effects Analysis for Interaction of Vignette Race and Vignette Presentation among Giftedness Rating for Participants Reporting Low Levels of Training on Giftedness

	t	p
White vs. Black at Typical (Line A)	2.37	0.03
White vs. Black at Hidden (Line B)	0.08	0.94
Typical vs. Hidden for Black (Line C)	1.63	0.12
Typical vs. Hidden for White (Line D)	0.58	0.57

Figure 4.3 shows the interaction between vignette race and presentation for ratings of giftedness by participants who reported low levels of training on giftedness. Table 4.25 displays the simple effects analysis of this interaction. For participants who reported low levels of training on giftedness, the only significant difference found was between vignettes describing Black and White "typically" gifted students, such that participants' ratings of giftedness were significantly higher for Black students compared to White students when vignettes contained descriptions of "typical" giftedness ($p = .03$). It is worth noting that for participants who reported low levels of training, White students did not experience the same significant increase when comparing vignettes describing White "typically" gifted students to White "hidden" gifted students ($p = .57$), which was seen when considering the whole sample.
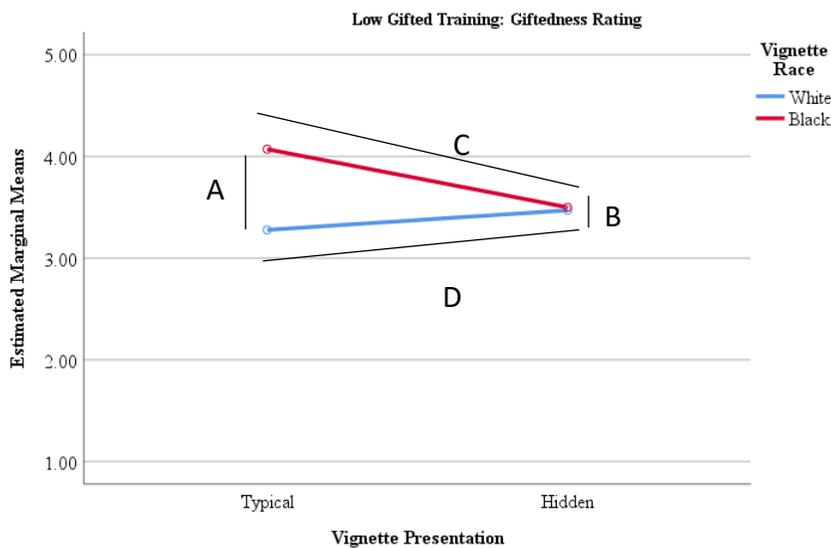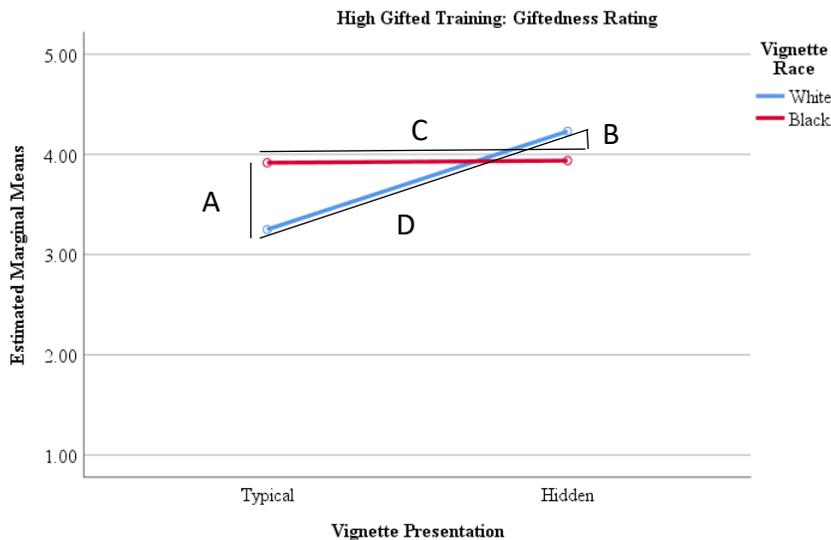

Figure 4.6. Interaction Effect for Giftedness Rating among Participants Reporting High Levels of Training on Giftedness

Table 4.26. Simple Effects Analysis for Interaction of Vignette Race and Vignette Presentation among Giftedness Rating for Participants Reporting High Levels of Training on Giftedness

	t	*p*
White vs. Black at Typical (Line A)	2.58	0.03
White vs. Black at Hidden (Line B)	1.23	0.23
Typical vs. Hidden for Black (Line C)	0.92	0.93
Typical vs. Hidden for White (Line D)	3.84	0.001

Figure 4.4 shows the interaction between vignette race and presentation for ratings of giftedness by participants who reported high levels of training on giftedness. Table 4.26 displays the simple effects analysis of this interaction. Results from participants who reported high levels of training on giftedness mirrored those of the whole sample. Analysis revealed a significant difference between vignettes describing White "typically" gifted students and Black "typically" gifted students such that ratings of giftedness were significantly higher for Black students when vignettes described "typically" gifted students ($p = .02$). Additionally, vignettes describing White "hidden" gifted students received significantly higher ratings of giftedness compared to vignettes describing White "typically" gifted students ($p = .001$).
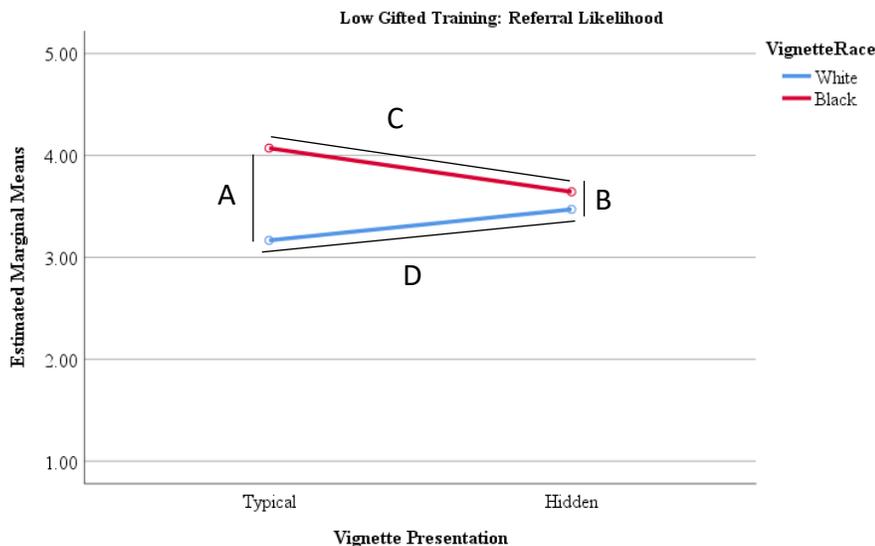

Figure 4.7. Interaction Effect for Referral Likelihood among Participants Reporting Low Levels of Training on Giftedness

Table 4.27. Simple Effects Analysis for Interaction of Vignette Race and Vignette Presentation among Referral Likelihood for Participants Reporting Low Levels of Training on Giftedness

	t	*p*
White vs. Black at Typical (Line A)	2.82	0.008
White vs. Black at Hidden (Line B)	0.43	0.67
Typical vs. Hidden for Black (Line C)	1.09	0.29
Typical vs. Hidden for White (Line D)	0.93	0.36

Figure 4.5 shows the interaction between vignette race and presentation for ratings of referral likelihood by participants who reported low levels of training on giftedness. Table 4.27 displays the simple effects analysis of this interaction. For participants who reported low levels of training on giftedness, the only significant difference found was between vignettes describing Black and White "typically" gifted students, such that participants' ratings of referral likelihood were significantly higher for Black students compared to White students when vignettes contained descriptions of "typical" giftedness (p = .008). Like the results seen in ratings of giftedness for participants who reported low levels of training on giftedness, White students did not experience the same significant increase in referral likelihood when comparing vignettes describing White "typically" gifted students to White "hidden" gifted students (p = .36), which was seen when considering the whole sample.
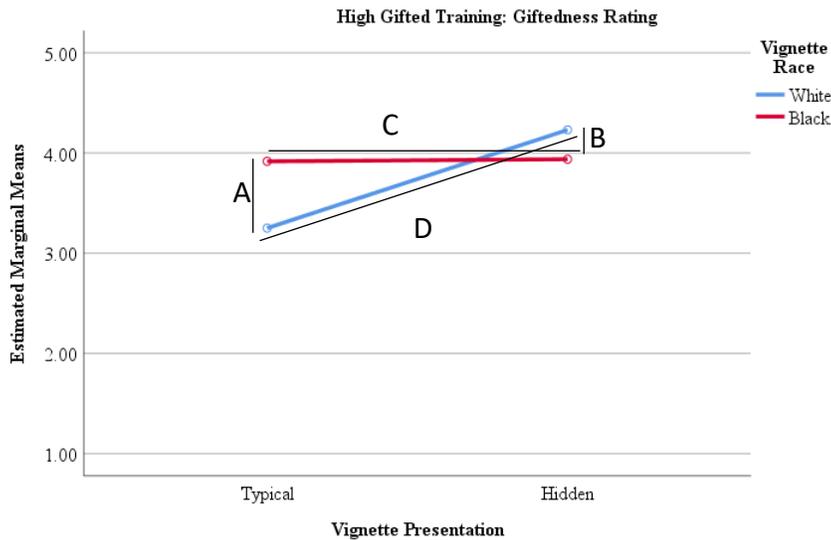
Figure 4.8. Interaction Effect for Referral Likelihood among Participants Reporting High Levels of Training on Giftedness

Table 4.28. Simple Effects Analysis for Interaction of Vignette Race and Vignette Presentation among Referral Likelihood for Participants Reporting High Levels of Training on Giftedness

	t	*p*
White vs. Black at Typical (Line A)	2.87	0.008
White vs. Black at Hidden (Line B)	1.41	0.17
Typical vs. Hidden for Black (Line C)	1.19	0.24
Typical vs. Hidden for White (Line D)	3.11	0.004

Figure 4.6 shows the interaction between vignette race and presentation for ratings of referral likelihood by participants who reported high levels of training on giftedness. Table 4.28 displays the simple effects analysis of this interaction. Results from participants who reported high levels of training on giftedness mirrored those of the whole sample. Analysis revealed a significant difference between vignettes describing White "typically" gifted students and Black "typically" gifted students such that ratings of referral likelihood were significantly higher for Black students when vignettes described "typically" gifted students ($p = .008$). Additionally, vignettes describing White "hidden" gifted students received significantly higher ratings of referral likelihood compared to vignettes describing White "typically" gifted students ($p = .004$).

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CHAPTER 5

DISCUSSION

The current study examined the existence of implicit racial bias among public school teachers within the gifted referral process using an online survey related to randomized one of four vignettes describing fictional gifted students. The four vignettes represented the four possible conditions of the study – a White "typically" gifted child, a White "hidden" gifted child, a Black "typically" gifted child, and a Black "hidden" gifted child. Teachers rated their perception of the students' displays of giftedness and need for referral. Teachers also provided self-reports of their demographic characteristics, teaching experience, and training experience. From this study three research questions were considered. The first and primary research question explored the existence of significant differences in teachers' perceptions of giftedness and need for referral based on student race and behavioral presentation. The second examined the role of teacher-level characteristics such as age, race, gender, teaching experience, and training experience in explaining significant differences among teachers' perceptions of giftedness and need for referral. Finally, the third explored the characteristics teachers associate with giftedness to provide qualitative explanation of significant differences among teachers' perceptions of giftedness and need for referral.

Summary of Findings for Primary Research Question

This study's primary investigation examined differences in teachers' perceptions of giftedness and need for referral based on students' race and behavioral presentation. Analyses demonstrated that significant differences existed based on student race, such that Black students were more likely to be viewed as gifted and in need of a referral for

further evaluation than White students. Race demonstrated a mild effect size for ratings of giftedness and a moderate effect size for ratings of need for referral. No significant differences among perceptions of giftedness or need for referral were found when considering behavioral presentation alone. However, a significant interaction between student race and behavioral presentation was discovered. This interaction possessed a moderate effect size for ratings of both giftedness and need for referral. Further analyses demonstrated a significant increase in teachers' perceptions of giftedness and need for referral when considering White "hidden" gifted students compared to White "typically" gifted students. Additionally, significant differences between teacher's ratings of Black and White students no longer existed when considering only vignettes that describe "hidden" giftedness.

These findings occurred in contrast to the study's hypotheses, which predicted a significant difference in favor of White children using historical and current trends in gifted identification as a basis for prediction. Additionally, "hidden" giftedness was hypothesized to be associated with decreased perceptions of giftedness and need for referral, especially among Black students, due to both implicit racial bias and teachers' biases towards the characteristics associated with giftedness. Overall, the results of the study were predicted to favor White "typically" gifted children. However, among all the vignettes rated by teachers, this group demonstrated the lowest mean ratings of both giftedness and need for referral.

Oppositional relationships between hypotheses and findings in studies examining the role of students' race in education have been found previously. When examining gifted identification rates among six school districts in Utah, Warne et al. (2013) found

that Black, Hispanic, and Asian American students were all more likely to be identified for gifted programming compared to their White peers with similar academic achievement and SES. While exploring racial differences among disciplinary practices in public education, Marcucci (2020) found that after reading a randomized vignette, teachers endorsed a significantly greater need for harsher disciplinary practices towards White male students compared to Black male students.

Shifting Standards Theory

The work of Biernat et al. (1991) and Biernat (2003) offers a potential explanation for this phenomena through shifting standards theory. Shifting standards theory states that individuals unconsciously base their perception of others on stereotypes, which create internal standards for members of different groups. When evaluating members of stereotyped groups, these standards represent the expectations one holds towards members of the group. These standards also result in comparisons across groups. For example, Biernat (2003) found that obtaining an average GPA in the A- range was associated with moderate ability for White students, but high ability for Black students. This is explained through shifting standards theory by reasoning that stereotypes about White students include strong academic performance, while stereotypes about Black students include poor academic performance. Therefore, when a White student earns an average GPA in the A- range, it aligns with the stereotypes held towards White students and does not result in a high rating since it does not go against what is stereotypically expected of a White student. However, a Black student earning an average GPA in the A-range occurs in contrast to stereotypes about Black students, and therefore results in a higher rating because a high performing Black student is stereotypically viewed as novel.

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In short, one's standards or expectations for members of stereotype groups shift between groups, such that similar behaviors among members of different groups may result in greater novelty and an inflated positive perception for the member of a group where those behaviors are outside of expectations.

In this study, one may consider the possibility that due to shifting standards, participants reading vignettes about Black "typically" gifted students were unconsciously biased in favor of higher ratings of giftedness and need for referral. Due to the differences between the student described in the vignette and stereotypes about Black students, participants may have perceived the Black "typically" gifted student as showing more signs of giftedness and being in greater need for referral compared to their White "typically" gifted peers. However, if increased ratings of Black "typically" gifted students are explained using shifting standards theory, one would also expect ratings of Black "hidden" gifted students to be lower than that of their Black "typically" gifted peers, since descriptions of Black "hidden" gifted students in this study do not demonstrate the same difference from stereotypes about Black students. This effect was not found. Black students maintained a similar level of ratings of giftedness and need for referral across both "typical" and "hidden" descriptions. Therefore, another explanation for the elevated ratings of Black students must be considered. One such explanation can be found in both the work of Warne et al. (2013) and Marruci (2020) – social desirability bias.

Social Desirability Bias

Social desirability bias denotes of the tendency among participants to provide responses they believe to be socially desirable, while also refraining from providing

responses that may be perceived as undesirable. Since the term was first described in Maccoby and Maccoby (1954), social desirability bias has been viewed as one of the most common sources of bias among self-report measures across social sciences (Fisher, 1993). Nederhof (1985) described social desirability bias as occurring in two separate modes: self-deception and other-deception. Self-deception occurs when participants believe that their response is reflective of their true self, despite it not actually being so. Other-deception occurs when participants purposefully misrepresent the truth to avoid negative evaluation. In explaining the behavior of participants within this study, self-deception is believed to be the most likely of the two.

Social desirability bias occurs due to a variety of factors. Tourangeau & Yan (2007) described a three-factor model for sensitivity towards social desirability bias among survey respondents. The first factor is known as intrusiveness, which reflects the degree to which a survey question explores a topic that is private or taboo among the respondents' culture. The second factor considers the threat of disclosure. This includes the negative consequences that are perceived by the respondent to be possible to occur if their true response was disclosed to others outside of the research team, such as job loss, decreased social connections, and even legal troubles. Lastly, the third factor refers to the level at which their true response is socially undesirable. True responses with high levels of undesirability are thought to occur less likely than true responses with low levels of undesirability. For example, a participant may be more likely to report that they shoplifted a low-value item, such as a pencil, compared to an item of higher value, such as a pair of diamond earrings.

While the work of Tourangeau & Yan (2007) provides multiple empirical explanation of respondents' sensitivity to social desirability, it is by no means an all-encompassing model. Lüke & Grosche (2018) demonstrated that aside from the factors noted above, the institution conducting the research may also play a role in the likelihood that participants' responses are affected by social desirability bias. This study recruited German teachers to complete a survey related to their attitudes towards inclusive education. Researchers manipulated the name of the researching institution shared on the survey webpage to one of four conditions representing fictional institutions: a university-based institute for inclusive education, an anti-inclusion nonprofit organization for general education students' rights, an anti-inclusion nonprofit organization for special education students' rights, and a pro-inclusion nonprofit organization. Results showed that teachers who received a survey labeled from either the university-based institute or the pro-inclusion organization reported significantly more positive attitudes towards inclusion than those who received a survey labeled from either of the anti-inclusion organizations. Results also showed no significant differences between the university-based institute and the pro-inclusion nonprofit organization. The study was then replicated with an additional independent sample; this time, the name of the university-based institute was removed and only the name of the University and its logo was displayed. The results of this replication aligned with the initial study. Even when only the university name and logo was provided, responses were still significantly more positive and showed no difference compared to fictional a pro-inclusion nonprofit organization.

When considering the findings of the primary investigation of this study alongside findings related to social desirability bias, the likelihood for social desirability bias to occur in this study becomes glaringly apparent. First, data collection for this study took place from late August 2020 until the end of March 2021. During this timeframe, the U.S. was embroiled in a racial awakening during a global pandemic. Earlier in the year, murders of George Floyd, Breonna Taylor, and others sparked the rise of the Black Lives Matter Movement. Alongside this movement, the country was in the midst of an election year where many sought to depose then-President Donald Trump after four years of polarizing and harmful rhetoric divided the country among political party lines. These situations were exasperated on a global scale, as citizens participating in nationwide lockdowns due to the COVID-19 pandemic were inundated with national and international media taking aim at each other and further propagating the divide. Citizens of the United States were stuck inside their home and faced with daily reminders of the injustices against Black Americans and divide between White and Black America, and rightfully so. As the importance of antiracism and cultural competency spread throughout the U.S., racism and cultural bias became more and more socially undesirable. Therefore, when participants of this study were presented with vignettes that specified a student's race as Black, the impetus for social desirability bias to occur was likely increased.

Alongside the racial awakening of 2020 was an increase in calls for individuals to be held responsible for past displays of behavior that is no longer socially desirable. This phenomenon, known by some as "cancel culture", was a potentially an additional force in the bias found among participants of this study. As noted in Tourangeau & Yan (2007), the threat of disclosure comprises a portion of one's sensitivity towards social desirability

bias and includes the possibility that one's response may have negative impacts on their career. While teachers who participated in this study were informed that their responses were entirely confidential, there remains a chance that participants did not entrust their careers within this statement. Instead, participants may have felt that providing a response that could be viewed as biased against students of a certain race would result in negative consequences, such as job loss. As a result, participants may have provided responses that were less likely to result in negative consequences should their response ever be disclosed outside of this research study.

Finally, the association of Temple University with this study may have further increased the likelihood that social desirability bias would occur among participants. Throughout recruitment, teachers and administrators who were contacted to participate were told that the study was being conducted by a doctoral candidate at Temple University. Additionally, when participants accessed the online survey to provide responses, they were met with multiple mentions of Temple University, including the Temple logo. As Lüke & Grosche (2018) demonstrated, the association of research with a particular institution may sway participants' responses in a direction that participants perceive to be aligned with that institution. Temple University is known throughout this study's sampling region as an urban university that promotes diversity, equity, and social justice. As such, participants may have provided responses that they believed to be aligned with those values. In the case of this study, that involves an active acknowledgement of the need to provide a response that does not insinuate cultural bias, which aligns with the findings of this study.

Summary of Findings for Secondary Research Question

The secondary investigation of this work attempted to determine how participant-level characteristics such as age, race, gender, teaching experiences, and training experiences affect teachers' decision-making. Teachers' self-report of training related to giftedness was evenly distributed across the study's four groups, which provided an opportunity to explore this variable with statistical significance. Findings indicated that responses from teachers who reported little or no training at all did not demonstrate the same significant interaction seen in the full sample. Additionally, White "hidden" gifted students did not experience the same significant increase compared to their "typically" gifted peers. However, responses from teachers who reported some or extensive training resulted in the same significant interaction with the same significant increase for White "hidden" gifted students.

Unlike the elevated scores for Black students across both "typical" and "hidden" gifted conditions, shifting standards theory can be applied in conjunction with the role of training to describe the significant increase seen among White "hidden" gifted compared to White "typically" gifted students in ratings of both giftedness and need for referral. It is hypothesized that as teachers are trained on behaviors and characteristics associated with giftedness, they become more attuned to the fact that giftedness encompasses a wide range of behaviors, some of which with the potential to be viewed as disruptive, unstable, or otherwise undesirable in the classroom setting (Şahin & Çetinkaya, 2015). As noted previously, when participants were presented with a description of a White "typically" gifted student, the description may have aligned with participants' stereotypes about White students and therefore resulted in a lack of novelty or increased positive

perception. The student was described as academically successful and socially well-adjusted. Since this description conforms to what is expected of White students, it met with less presumption of exceptionality. This helps to explain why vignettes describing White "typically" gifted children experienced the lowest ratings of giftedness and need for referral across the whole study. However, when participants were presented with a vignette describing a White "hidden" gifted student, the description no longer coincided with stereotypes about White students in general and was therefore less susceptible to shifting standards theory. This student was described as distracting towards others, disruptive, and socially maladjusted. Teachers with higher levels of training experience in giftedness may have recognized these traits and considered them as potential indicators of giftedness, rather than behavioral difficulties. Meanwhile, teachers with lower levels of training experience were unable to make this connection.

A final consideration related to this investigation involves the lack of significant increase among Black "hidden" gifted students compared to Black "typically" gifted students. Elevated ratings of giftedness and need for referral among Black "typically" gifted students were previously explained by social desirability bias. In stands to reason that social desirability bias occurred across responses for both "typically" and "hidden" gifted Black students. Therefore, it was unlikely that Black "hidden" gifted students would experience a similar increase compared to Black "typically" gifted students since ratings of their giftedness were already inflated by social desirability bias.

Summary of Findings for Tertiary Research Question

The tertiary investigation of this study sought to examine qualitative descriptions of teachers' conceptions of giftedness. Teachers were asked to list five characteristics that

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they believe were associated with giftedness. Open-ended responses were collected and analyzed for recurring themes. Similar to Moon & Brighton (2008), results of this investigation demonstrated that the teachers surveyed held traditional views of giftedness. Among the top five most common characteristics, four were traits that may be viewed by teachers positively. Teachers displayed a strong an emphasis on creativity, academic achievement, and problem solving, with these three characteristics comprising 16.8% of all responses. Only three characteristics that may be viewed negatively were common among teachers. Teachers acknowledged that a students' giftedness may lead them to be bored with the pace for general education instruction, that gifted students may display perfectionistic tendencies towards their work, and that gifted students may experience difficulties in social functioning.

Also seen in Moon & Brighton (2008), the characteristics provided by teachers in this study notably favor White students, who are often stereotypically viewed as more academically successful and possessing stronger verbal skills. The inclusion of reading ability can also be seen as favorable towards White students, who generally experience greater access to early learning opportunities compared to students of racial and ethnic minority. It is also worth noting that none of the common traits noted among teachers in this study acknowledged the possibility of overt externalizing behaviors, which are stereotypically associated with students of color, especially Black males. In short, while teachers' ratings of giftedness and need for referral were not in congruence with the hypothesized displays of implicit racial bias, their qualitative descriptions of giftedness provide evidence that such bias likely still occurs among the participants of this study.

Limitations and Considerations

Despite findings significant effects, this study possessed several limitations and potential confounds. First, this study took place during the COVID-19 pandemic. During recruitment, multiple district administrators referenced increased demands placed on teachers, administrators, and school districts as reasoning for their inability to participate. Therefore, this study obtained a small, homogenous sample, with the majority of responses coming from White female teachers with a Master's degree. As such, the effects of teachers' gender, race, and educational level could not be explored. Furthermore, correlations among other participant level variables, such as age, years spent teaching, school SES, grades taught, and training/experience levels were insignificant. The homogeneity of the sample, alongside the lack of significant correlations among remaining participant-level characteristics that were evenly distributed, rendered the initial data analysis plan void. Instead of analyzing findings using multiple regression, the results were better suited for analysis of variance.

Alongside the decreased response rate and ultimately homogenous sample, the COVID-19 pandemic resulted in significant increases in stress among teachers (Federkeil et al., 2020; MacIntyre et al., 2020). The exact nature of the impact this increase in stress had on teachers' participation in this study is unknown. However, the impact of stress on decision-making is well documented in scientific literature (Starcke & Brand, 2012). Therefore, it stands to reason that while the effects are unknown at this time, the potential for the COVID-19 pandemic to not only result in decreased response rate, but also impact the responses of those who participated is worth considering.

Aside from its timeframe, this study also possessed limitations within its design. First, only male students were described in the vignettes related to this study. If vignettes describing female students were included in this study, differences among not only student race but also student gender may have been explored. However, the number of responses required to ensure statistical power would have doubled. Since males represent the majority of gifted students and negative stereotypes towards Black students are especially strong towards Black males, the decision to include only vignettes describing male students was an intentional choice. This decision ensured that the study examined racial bias with the greatest social significance at the population level, while also decreasing the number of required responses due to anticipating the low response rate described above. Next, this study lacks a control group for comparison. A vignette that uses a racially neutral name and refrains from explicitly stating the student's race was considered during initial planning phases of this study. This control group would have allowed for the exploration of racial differences at an additional level of comparison and coincides with replication of Elhoweris et al. (2005) as a blueprint for this study. However, the inclusion of a control group would have also required an increase in sample size by one-third. Like the decision to refrain from using vignettes describing female students, the use of a control group was not included in the study to ensure statistical power among results due to a low anticipated response rate.

As is the case in nearly all studies involving the use of survey data, this study's use of self-report is an inherent limitation. Self-report data is subject to several biases and confounds. First, self-selection bias must be considered, especially given the conditions under which participants chose to engage in the study. As noted previously, teachers

recruited for this study were likely experiencing increased levels of occupational

demands and stress in the wake of the COVID-19 pandemic. Therefore, the possibility

that those teachers who chose to participate share similar characteristics (e.g., less

stressed, more favorable attitudes towards research, higher dedication to best practices,

etc.) must be noted. Next, one must consider the role of demand characteristics. Since

races of the student were explicitly stated in the vignettes presented to teachers, it is

possible that some teachers discerned the purpose of the study to examine racial

differences. This effect may have occurred alongside the social desirability bias proposed

in the discussion of this study's results. Participants who deduced the purpose of the

study based on demand characteristics may have provided responses that run counter to

the hypothesized existence of racial differences.

Lastly, the use of vignettes in this study represents an artificial example of gifted

identification. Participants were asked to make judgements and referral decisions based

on the vignette presented to them in isolation. Within the true school environment,

teachers spend much greater amounts of time face-to-face with their students before

judging them to be gifted and referring them for further evaluation to determine their

need for services. While based on gifted literature, the vignettes in this study likely do not

represent the entirety of a teacher's experience when considering a child for the gifted

identification process. As such, the artificial aspect of measurement in this study must be

considered when interpreting results.

Implications for Future Research & Practice

The findings and limitations of this study present numerous implications for

future research and practice. First and foremost, future research investigating the role of

teachers in racial differences among gifted identification must account for the possibility of social desirability bias. Without doing so, one cannot truly study this phenomenon with the validity necessary to obtain results similar to those seen in the real world. One potential option for accounting for social desirability bias is the use of a social desirability measure. Researchers should choose an empirically validated measure of social desirability bias, such as the Marlowe-Crowne Social Desirability Scales (Crowne & Marlowe, 1960). Questions on such measures are usually unrelated to the primary research question and describe socially desirable, yet improbable behaviors. When these questions are presented alongside a survey, participants' responses provide an indication of their susceptibility to social desirability bias. Researchers can then use the responses from these questions to understand the impact of social desirability bias within the study. If participants report engaging in all or most of the unrelated socially desirable behaviors, it can be assumed that their responses related to study are affected by social desirability bias as well (Nederhof, 1985). In the case of this study, high correlations between ratings of giftedness and/or need for referral to scores on the Marlowe-Crowne Social Desirability Scales would provide statistical evidence of social desirability bias amongst participants' responses.

Alongside the use of social desirability measures, researchers should also attempt to mitigate the impact of social desirability bias with indirect questioning. Indirect questioning asks participants to complete survey items through the lens of another individual, rather than attributing their responses to themselves. Removing the attribution of the survey item from the participant and placing it on another individual has been shown to decrease social desirability bias (Fisher, 1993). For example, participants in

future studies like this one may be provided with a vignette that describes a teacher who is considering a student for gifted identification. Participants would then be asked if they believe the decision made by the teacher in the vignette was correct or incorrect. By doing so, participants may be less likely to view the decision made during the gifted identification process to be a reflection on their cultural competency, and instead may provide responses that more closely align with real-world results that display racial bias.

Future research should also attempt to remedy other sampling and measurement limitations found in this study. Due to the constraints of the COVID-19 pandemic, this study was unable to investigate the role of teachers' race, gender, and educational level. Future research should attempt to obtain a larger, more heterogenous sample that allows for the examination of these variables. Additionally, this study's lack of vignettes describing female students and its lack of a control group represent significant areas for improvement in future research. Adding these elements to future studies alongside a significantly increased sample size and more heterogenous sample would provide researchers with more lines of investigation and greater social significance among results.

With regard to both future research and practice, the results of this study indicate that teacher training may result in an increased understanding of the spectrum of behaviors associated with giftedness. Teachers who reported higher levels of training related to giftedness provided increased ratings of giftedness and need for referral. This effect was largely seen among vignettes describing White students. This study postulates that this effect may either be a result of shifting standards theory leading to a decreased rating for White "typically" gifted that leads to an artificial significant increase when compared to White "hidden" gifted vignettes, or that training related to giftedness may be

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in need of evaluation for ethnocentrism. Few studies, if any, have explored the balance between the use of White students and the use of Black students in trainings related to giftedness. Future research should explore this potential confound, while future practice should strive towards a racially equitable balance when describing gifted students during teacher training.

Finally, future practices in gifted identification must recognize the excellence gap throughout the U.S. education system. For decades, students of color have been underrepresented among the gifted population. While it is likely that many variables play a role in this underrepresentation, including cultural bias in testing, poverty, social pressure, cultural identity, and implicit bias among teachers, school districts must actively monitor their gifted identification rates and gifted programming for the presence of underrepresentation. Districts who find evidence of underrepresentation within their population must consider the need for greater research into the factors propagating underrepresentation within their community and consider their need for systems-level change to ensure their students of color an equitable opportunity for maximizing their academic potential. With training related to assessment, data analysis, developmental trajectory, sociocultural dynamics, and consultation, school psychologists are positioned as possibly the greatest advocate for underrepresented students.

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Study Vignettes

<u>White Typical</u>

Jack is a 9-year-old White male in the fourth grade. He is physically healthy and lives with both of his biological parents. He is popular among his peers and well-liked by teachers. Jack enjoys school and experiences academic success relative to his peers; he can solve problems creatively and is goal oriented. When faced with a difficult task, Jack rarely gives up. On the last state-wide assessment, he scored in the advanced range in reading and math. Jack enjoys reading. Every Sunday, he reads the newspaper with his father to learn about current events in the world. He also enjoys drawing. Jack rarely, if ever, demonstrates problem behaviors in the school, home, or community setting. Jack tends to hold high expectations for himself and is viewed by adults both within and outside the school environment as having strong moral judgement. He demonstrates strong self-confidence and self-esteem. Jack's teachers and community members consider him to be a leader among his peers.

<u>Black Typical</u>

Elijah is a 9-year-old African American male in the fourth grade. He is physically healthy and lives with both of his biological parents. He is popular among his peers and well-liked by teachers. Elijah enjoys school and experiences academic success relative to his peers; he can solve problems creatively and is goal oriented. When faced with a difficult task, Elijah rarely gives up. On the last state-wide assessment, he scored in the advanced range in reading and math. Elijah enjoys reading. Every Sunday, he reads the newspaper with his father to learn about current events in the world. He also enjoys drawing. Elijah rarely, if ever, demonstrates problem behaviors in the school, home, or community setting. Elijah tends to hold high expectations for himself and is viewed by adults both within and outside the school environment as having strong moral judgement. He demonstrates strong self-confidence and self-esteem. Elijah's teachers and community members consider him to be a leader among his peers.

<u>White Hidden</u>

Jack is a 9-year-old White male in the fourth grade. He is physically healthy and lives with both of his biological parents. He is popular among some peers but disliked by others. His teachers state that Jack can complete academic tasks with ease when he wants to, but his behaviors tend to get in the way. In class, Jack occasionally distracts his classmates from their work, corrects the teacher, and calls out answers to his teachers' questions. Some teachers consider Jack to be a troublemaker. In the past, Jack has stated that he feels different than his peers and believes that those in his daily environments don't understand him. Jack holds high expectations for himself, as well as others, occasionally leading to social difficulties with peers and adults who do not meet his

expectations. When presented with a difficult task, Jack sometimes gives up, becomes visibly frustrated, and blames himself for his inability to meet his expectations for himself.

Black Hidden

Elijah is a 9-year-old African American male in the fourth grade. He is physically healthy and lives with both of his biological parents. He is popular among some peers but disliked by others. His teachers state that Elijah can complete academic tasks with ease when he wants to, but his behaviors tend to get in the way. In class, Elijah occasionally distracts his classmates from their work, corrects the teacher, and calls out answers to his teachers' questions. Some teachers consider Elijah to be a troublemaker. In the past, Elijah has stated that he feels different than his peers and believes that those in his daily environments don't understand him. Elijah holds high expectations for himself, as well as others, occasionally leading to social difficulties with peers and adults who do not meet his expectations. When presented with a difficult task, Elijah sometimes gives up, becomes visibly frustrated, and blames himself for his inability to meet his expectations for himself.

Survey Questions

1. This student demonstrates characteristics of giftedness.
    a. 5 – Strongly agree
    b. 4 – Agree
    c. 3 – Neutral
    d. 2 – Disagree
    e. 1 – Strongly disagree

2. This student should be referred for an evaluation to determine eligibility for gifted programming.
    a. 5 – Strongly agree
    b. 4 – Agree
    c. 3 – Neutral
    d. 2 – Disagree
    e. 1 – Strongly disagree

3. Based on the story, what best describes the student's ethnicity?
    a. White
    b. African American
    c. Hispanic
    d. Asian/Pacific Islander
    e. Native American/Alaskan Native
    f. Don't know

4. Describe your experience working with gifted students
    a. 4 – Extensive experience
    b. 3 – Some experience
    c. 2 – Little experience
    d. 1 – No experience

5. To what extent have you received training in gifted identification?
    a. 4 – Extensive training
    b. 3 – Some training
    c. 2 – Little training
    d. 1 – No training

6. To what extent have you received training on implicit bias?
    a. 4 – Extensive training
    b. 3 – Some training
    c. 2 – Little training
    d. 1 – No training

7. Please share at least five characteristics that you believe are seen in gifted students:

8. State the zip code of the school in which you are employed:

9. Please provide your age:

10. Please provide your gender:
    a. Male
    b. Female
    c. Non-binary
    d. Transgender

11. Please provide your race:
    a. White
    b. African American
    c. Hispanic
    d. Asian/Pacific Islander
    e. Native American/Alaskan Native

12. Please describe your highest education level:
    a. High school graduate
    b. Some college (not complete)
    c. Associate's Degree
    d. Bachelor's Degree
    e. Master's Degree
    f. Doctoral Degree

13. What grades have you taught throughout your career? (select all that apply)
    a. Pre-K
    b. K
    c. 1
    d. 2
    e. 3
    f. 4
    g. 5
    h. 6
    i. 7
    j. 8
    k. 9
    l. 10
    m. 11
    n. 12

14. How many years have you been employed as a teacher?

APPENDIX C

Debrief Statement

Thank you for participating in this study. The goal of this study was to determine how students' race/ethnicity plays a role in gifted identification decision-making. The name found in the vignette you received was randomized between a historically White name and a historically African American name according to birth data from the years 2011/2012 to align with a current-day 4th grader. Additionally, students' race was purposefully noted to ensure you were made aware of this information. Following your reading, you were asked to answer a series of questions regarding the information shared in the vignette. Among these questions, we asked you to characterize the student's fit for gifted programming, then later asked you to describe the student's race/ethnicity. Our interest in doing so was to determine how likely it was that participants' knowledge of the student's race may affect decision-making. This impact on decision-making is known as implicit bias, which occurs when subconscious views/attitudes towards groups are reflected in behaviors towards individuals. Implicit bias occurs regularly throughout our day-to-day lives and is not necessarily indicative of racism; however, its occurrence is important to the study of racial disproportionality in education.

Again, thank you for your time - your responses will help to inform future studies regarding racial disproportionality and implicit bias in gifted identification. If you have any questions, comments, or concerns, please contact us. Names and email addresses of researchers can be found below. Finally, we ask that you not share the purpose of this study with anyone who is currently participating in this study or may participate in the future (i.e., teachers, principals, other educational professionals). We are not able to accurately measure the likelihood that individuals will assume race based on students' names if they are aware of the true purpose of this study. We thank you for your understanding.

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