AN ABSTRACT OF THE DISSERTATION OF

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Gifted education has historically involved disproportionate rates of identification and enrollment for both students of color and students from lower socioeconomic backgrounds, depriving these groups of more challenging learning opportunities. Giftedness transcends subgroups, spanning all racial, socioeconomic, and disability categories; still, data indicate that Asian and White students are identified and enrolled in gifted programs at rates exceeding their respective proportions (overrepresented) within the general student population. Conversely, the rates for Black, Hispanic, and American Indian students enrolled in gifted education are smaller than their respective proportions (underrepresented) within the general student population. This dissertation aims to disrupt current educational practices by provoking a reevaluation of gifted policy, bringing multicultural considerations to the forefront, and applying inferential statistics to disproportionality data rather than relying solely on descriptive reports.

These studies used a cross-sectional observational design with two research arms. Arm A was designed to determine disproportionality rates within a large and diverse school district; Arm B was constructed to examine national disproportionality rates. The two-pronged, micro/macro approach allowed for the determination of disproportionality rates present in extant databases across special student populations, such as race, gender, SES, disability status, and language proficiency status. The data of participants enrolled in gifted programs were then compared to the total number of students from those special populations, yielding a range of proportionality. In specific terms, Arm A looked at prevalence rates by race/ethnicity, gender, and SES for elementary students enrolled for gifted services, while also asking whether the relevant race/ethnicity, gender, and SES proportions differed from those within the general student population. For its part, Arm B examined Gifted and Talented Education (GATE) program enrollment and focused on whether disproportionalities exist in student populations according to race/ethnicity, IDEA status, and ELL status, while also exploring the ranking of U.S. states in terms of racial disproportionalities in GATE program enrollment. Both studies deployed descriptive and inferential analyses, including a one-sample *z* test of proportions.

Across both arms, results indicated and confirmed statistically significant disproportionalities among all variables, in both local and national samples. Findings specifically showed that each state across the nation contained racial disproportionalities in enrollment data for underrepresented groups. The largest racial disproportionalities among states were almost all located in the south-east region of

the U.S. Results indicate causes of disproportionalities lurk beneath assessment and identification procedures, which are the most common arguments made in the literature. The present study argues that disproportionalities in gifted education are rooted in a culture-bound construct that guides our society's conceptualization of giftedness itself.

Disproportionality in Gifted Education

by
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APPROVED:

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Dean of the College of Education

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Allison List, Author

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I entered this program less than a year after my breast cancer diagnosis. To the surprise of most, I chose going back to school as part of my treatment plan. I began a journey in search of mental, physical, spiritual, and emotional growth after realizing how precious each aspect of my life was and would be in the future. In a strange way, OSU's rigorous program helped me drown out my fears that lurked late at night. Fear of death was slowly replaced by fear of the stats reaper—both of which are scary, but in separate ways.

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CONTRIBUTION OF AUTHORS

Cass Dykeman assisted with the research question development, methodology, and research design, as well as the conceptualization and presentation of the findings.

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DEDICATION

This dissertation is dedicated to the hundreds of students who I was privileged to work with throughout my career as a school counselor. Every day, I was amazed by the perseverance and resilience of children, as well as their openness as they allowed me to enter their lives in the most vulnerable of moments. I am no longer working with students as a site-based school counselor, but my service has transitioned to a larger scale. This dissertation is my way of continuing social justice advocacy efforts to support students and their futures. The desire to explore my observations and experiences as a school counselor drove the conceptualization of this research.

Chapter 1: A General Introduction

Overview

Research indicates that gifted programs help students develop and foster their talents (NAGC, 2017; Reis & Renzulli, 2010) however, gifted program enrollment data give the impression that "giftedness"—the quality or characteristic enabling access to such programs—is limited to only certain categories of students, especially those who are White and of a higher socioeconomic status (SES). The disproportionality in enrollment data (i.e., the incommensurate relationship between the rates of those enrolled in gifted programs and the presence of those groups within the general student population) negatively affects how our society understands intellectual superiority. In broad terms, if gifted education fails to become more inclusive, with a greater commitment to closing the opportunity gap for underrepresented populations, it will perpetuate oppression and deficit thinking toward diverse student groups possessing equal ability yet diminished access to gifted programming. Such disproportionality is not confined to any particular state or region (Civil Rights Data Collection [CRDC], 2014; National Association of Gifted Children [NAGC], 2015); these rates are evident and consistent throughout the United States. Focusing on disproportionality in gifted education, this dissertation is a social justice-rooted plea for change: a wake-up call urging us to reconsider what "giftedness" means, what we are teaching, what we want our students to be learning, and how we can better ensure that students—all students—have access to the opportunities they deserve.

Importance to the Counseling Profession

Disproportionality rates in gifted education have been evident for a considerable amount of time (Callahan, 2005; Ford, Grantham, & Whiting, 2008). This dissertation exposes inequities occurring throughout the United States in the hope of both contributing to gifted education reform and improving training methods in counselor education programs for school counselors. The studies at the heart of this dissertation are important to the counseling profession in two ways. First, this research supports the three pillars of the American School Counselor Association's (ASCA) National Model for Advocacy Competencies (2003), pillars that include the following: (a) disposition, (b) knowledge, and (c) skills (Trusty & Brown, 2005). Second, these studies demonstrate how counselor education programs can improve teaching advocacy skills for school counselors-in-training, while incorporating a multicultural relational perspective provided through supervision that enhances cultural, diversity, and social justice awareness (Hardy & Bobes, 2016). House and Sears (2002) explained how traditional counselor education programs have failed to provide teaching advocacy skills to school counselors, a shortcoming that has, in turn, produced professionals with minimal knowledge about social and systemic change, the political climate, power differentials, and systems of schools and communities.

Disproportionalities in gifted education are an inherently systemic, political, and social concern. School counseling advocacy plays a critical role in eliminating barriers to gifted programming for underrepresented populations. Developing advocacy competencies recommended by the ASCA National Model (2003) must start in counselor education programs. In the words of House and Sears (2002), for

school counselors, it is preparation that develops individuals who can "practice as leaders and advocates to influence the attainment of high achievement for all students, align school counselors with educational reform, and place them in the middle of the changes needed to support all students" (p.161).

Literature Review

This section addresses the general scientific knowledge surrounding gifted program enrollment rates, with particular attention to: (a) the definition of giftedness, (b) the purpose of gifted programming, (c) the prevalence of elementary gifted programs, (d) student access and identification, (e) gender differences, (f) race/ethnicity differences, (g) students who are culturally and linguistically diverse (CLD), (h) differences owing to socioeconomic status (SES), (i) students who are twice-exceptional, and (j) program retention.

To begin, the definition of *giftedness* has, itself, been the subject of much debate. Renzulli (1978) theorized that the needs and values of one's culture define how (and thus, whether) someone ends up recognized as gifted. While there is no generally accepted definition for this term or its various iterations, federal law (Public Law 91-230, Section 806) sets forth that:

> The term 'gifted and talented,' when used with respect to students, children, or youth, means students, children, or youth who give evidence of high achievement capability in such areas 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. (NAGC, 2017)

States draw on this description for their own definitions of giftedness and to develop their own gifted policies.

Still, while states look to the same federal operationalization for direction, definitions of giftedness vary greatly among states (Stephens & Karnes, 2000). It is also important to note that not every state requires its school districts to follow the state definition, and nor does every state even have a definition for this term (NAGC, 2015). The 2014–2015 *State of the States in Gifted Education* report noted that, of the 39 states that responded, 37 had definitions of giftedness (NAGC). Loose definitions and imprecise terms contribute to the underrepresentation of student groups in gifted programs. For example, within state definitions, only sporadically are themes of special gifted populations considered. Nine states address the needs of low SES students, eight states address the needs of ELL students, eight states address the needs of CLD students, six states address the needs of those deemed twice-exceptional, and three states address the needs of those who are geographically isolated (NAGC).

Programs that develop gifted students remain essential and deserving of support despite variances in prevalence and in the operationalization of definitions. Gifted programs meet the needs of gifted learners through an accelerated curriculum, faster pacing, and targeted teacher training. General education placements provide little to no differentiation for gifted learners (Reis & Renzulli, 2010). In a national survey given to classroom teachers, Archambault et al. (1993) found that 61% of teachers reported having never received training on gifted students or gifted teaching methods. A more recent study supported the findings of Archambault et al. where 65% of preservice teachers reported receiving little to no training in their teaching

programs regarding support for advanced students (Farkas & Duffet, 2008). In this light, Callahan and Hertberg-Davis (2012) assert that, for teachers, the bulk of knowledge about differentiation lies in supporting students who are below grade level, thus showing that students who are gifted and who are not enrolled in gifted programs could be at risk of insufficient attention.

Gifted programs are also vital because they have been shown to produce longitudinal benefits for students. In a study involving interviews with American academic Olympians who participated in gifted programs, Campbell and Wahlberg (2010) showed that 52% of participants went on to complete doctoral degrees. In terms of those interviewed, 74% of interviewees recognized the Olympiad as helping them achieve academically (Campbell & Wahlberg). So, too, do these programs offer benefits beyond their traditionally understood audiences; in a thematic review of gifted education programs, Reis and Renzulli (2010) showed that such programs not only increase success for those who are strong gifted students but also those who are underachieving.

Programs of this nature are important and common in public education districts nationwide; however, until recent years, quantifiable measures on national gifted program prevalence rates were scarce. Yaluma and Tyner (2018) reported that 68.3% of elementary and middle schools currently offered gifted programs to qualified students. Prevalence data are important because, while gifted programs have proven to be a critical and beneficial support for high achieving students (Reis & Renzulli, 2010), it is important to evaluate the accessibility of such programs. Still, these data can be hard to obtain for various reasons, contributing to the data gap in

gifted education. This is primarily because gifted education is handled locally, within each state (NAGC, 2017). There are no federal mandates applied to gifted education (NAGC), thus the governing structure that individual states have, which ranges in strength in gifted policy, encourages inconsistent or unavailable reporting and accountability measures across the country (Brown, VanTassel-Baska, Worley, & Stambough, 2006).

The 2014–2015 *State of the States in Gifted Education* report explained why the data gap, which includes program prevalence, has remained so difficult to address (NAGC, 2015). First, three states do not have staff dedicated to gifted education; second, 24 states have staff who are busy running other programs concurrently; third, 19 states do not audit or monitor their gifted programs; and, fourth, 28 states do not use accountability forms (NAGC). Another contributing factor, in a broader sense, stems from the No Child Left Behind (NCLB) Act. During the time of NCLB, trends showed that fewer gifted programs existed as government funds were funneled into serving students who were below grade level (Beisser, 2008), leaving little money for states to use to support students at or above proficiency levels.

Other broad contributing factors, beyond NCLB, derive from particularities of federal institutions and practices. In 2011, the Office for Civil Rights (OCR) asked states to report disaggregated data based on race and ethnicity of gifted program student enrollment (OCR, 2018). The benefits of this request were twofold. First, it made available quantifiable measures on the number of gifted children in the United States; and, second, it provided proof of the racial inequities existing within the gifted education structure. Reporting was, however, still only voluntary, leaving researchers

without a full scope of the state of gifted education.

In 2015, the Every Student Succeeds Act (ESSA) replaced NCLB, and even though gifted education remained the prerogative of states, ESSA added an important reporting requirement. Specifically, states were now required to report on disaggregated data on student achievement (including high achievement) with respect to the following variables: (a) race/ethnicity, (b) low-income status, (c) ELL status, (d) gender; and (e) disability (NAGC, 2017). The downside of this change associates with the level of gifted program policy within a state: If data on gifted students are not recorded at the state level, the high achieving students being reported on could simply be students performing above grade level.

Yaluma and Tyner (2018) collected their prevalence data from the 2014–2015 CRDC and their 2015–2016 data from the National Center for Education Statistics (NCES). This represented a big step in terms of increasing the data available to researchers, but the lack of any federal mandate still means that states are not required to offer gifted education to their students (NAGC, 2017). That said, the 2014–2015 *State of the States in Gifted Education* report stressed that 28 states currently mandate that their districts provide services for gifted learners (NAGC, 2015). Yaluma and Tyner also noted that reports on prevalence fail to indicate the level of gifted service offered, which is important because, in terms of support, gifted services are on a continuum (NACG, 2017). As the 2014–2015 *State of the States in Gifted Education* report demonstrated, only 32 states provided programs and services for specific areas of giftedness (NAGC, 2015). The U.S. Department of Education and the NCES are key players in holding states more accountable for their gifted programs and must do

a better job in this regard. Having quantitative data highlights recurring social justice issues, such as disproportionalities in enrollment.

These types of disproportionalities begin with access to gifted programs, and the methods by which gifted students are identified perpetuate inequity in this regard. Identification methods are used to assess and select those who could benefit from a gifted education program; these methods are the first step in accessing gifted services. Traditional methods of gifted identification, such as teacher and parent referrals and IQ tests, have been under scrutiny for years for contributing to gifted program disproportionality and underrepresentation (Callahan & Hertberg-Davis, 2012; Card & Giuliano, 2016; Elhoweris et al., 2015; Ford et al., 2008; Frasier, Maddocks, 2018; Morris, 2001; Naglieri & Ford, 2003; Passow & Garcia, 1995). Grissom and Redding's (2015) results showed that identification for gifted programs has little to do with a student's intellectual ability and indicated that the classroom teacher's alignment or misalignment of race played a key role in student identification when the teacher referral method was used. Based on the teacher nomination method of identifying potentially gifted students, Black and Hispanic students are less likely to be nominated (McBee, 2006). Black students placed in classrooms with non-Black teachers are less likely to receive gifted services, especially in reading, as Grissom and Redding found.

Traditional methods of gifted identification, such as IQ assessments, have historically been seen as valid measures of intelligence; however, research has shown that mean IQ scores differ across groups, raising concerns that these measures could be racially biased (Callahan & Hertberg-Davis, 2012; Naglieri & Ford, 2003). On this

note, Sternberg (2018) asserts that intelligence and cognitive tests merely reflect what is being taught in Western schooling, and the cultural presumptions often go undetected by educators based on their own cultural presupposition. IQ tests serve as a common form of screening for giftedness and potential, therefore minority populations who have not developed their abilities in the areas that IQ tests screen for will continue to be un-identified or under-identified (Hodges, Tay, Maeda, & Gentry, 2018), when compared against the majority population. For example, Wasserman and Becker (2000) compared students of various ethnic backgrounds on several popular IQ tests, including WISC-III, Stanford-Binet IV, and Woodcock–Johnson Tests of Cognitive Abilities, with results suggesting that fewer minority populations (as compared to White students) might be identified for gifted programs (in Naglieri & Ford, p. 156). These findings indicate the dangers of an educator's racial bias, showing how assumptions can widen the access gap, but these findings also color other approaches to gifted screening.

Recently, more contemporary identification approaches have focused on populations of students historically disadvantaged by traditional identification methods (Lo & Porath, 2017). Yaluma and Tyner (2018) addressed the use of universal screeners as policy implications after their review of prevalence rates in low SES schools. Card and Giuliano (2016) found that universal screeners increased gifted program participation for underrepresented minority populations, including low SES students; however, Carman et al. (2018) noted that even when universal screeners were employed, disproportionalities persisted.

For example, Black students scored, on average, 9.5 points lower than students from other races/ethnicities, while students on free and reduced lunch (FRL) scored 4.1 points lower than non-FRL students, and students receiving special education services (SPED) scored 5.3 points lower than non-SPED students (Carman et al., 2018). This information is helpful for two reasons. First, these results support the need to conduct more research specific to universal screening and the variables used; and, second, supporting the use of multiple identification screeners is useful because one source of data is insufficient to determine gifted qualification (Carman et al.). While these findings support issues with traditional methods as well as universal screeners, most states continue using traditional methods alone (McBee, 2006).

The above approaches address inclusionary efforts in gifted education, but they are not the only alternatives. Naglieri and Ford (2013) recommended the use of nonverbal intelligence tests to break down barriers for those with verbal disadvantages because of various cultural or socioeconomic backgrounds, such as the Naglieri Nonverbal Ability Test (NNAT) because it shows promise. Naglieri and Ford's results showed that the disbursement of a standard score of 125 (95th percentile) was equally distributed among the following groups: (a) White (5.6%), (b) Black (5.1%), and (c) Hispanic (4.4%). While the discussion of more inclusionary methods is the first step toward closing the opportunity gap, without federal mandates alternative identification methods could take years to become best practices, considering the prevalence of traditional methods across the country (McBee, 2016).

The 2014–2015 *State of the States in Gifted Education* report noted 33 states that responded to survey research on prevalence of methods, finding that 19 states

used multiple criteria to identify students, including both teacher referrals and IQ tests (NAGC, 2015). While using multiple criteria should, in theory, increase chances of identification for nontraditional gifted students, the multiple measures being used have a history of research-proven exclusion of minority populations, especially Black students (Morris, 2001). Additionally, 2014–2015 *State of the States in Gifted Education* report showed that 13 states solely used IQ scores and 12 states were still relying on teacher referrals as the primary identification methods for students (NAGC).

In much the same way, gender disproportion is pervasive in gifted programs. For example, Petersen (2013) discovered that, when academic grades are used as a primary form of gifted identification, girls are identified more often than boys in their elementary years. The 2014–2015 *State of the States in Gifted Education* report revealed survey data on demographic breakdowns of gifted program enrollees and found that, of the 21 states that responded, 11 had higher percentages of females identified, seven had higher percentages of males, and three had a split percentage between male and female (NAGC, 2015). So, too, in a study conducted by Pfeiffer and Jarosewich (2007), data revealed that small but significant differences in gender identification for giftedness were present, showing girls with a higher identification rate than boys. It is important to note that, while this study used a specific identification procedure to measure demographic disparity, gender differences exist no matter the means of measurement.

And yet, while boys are underrepresented in gifted identification and programming during their elementary years, an important developmental shift

happens during the adolescent years. Sadker's (1999) findings showed that, by tenth grade, girls dropped out of gifted programs at higher rates than boys. Pepperell and Rubel (2009) demonstrated that a social-emotional shift happens in middle school, when girls indicated that regulating their giftedness was crucial to fitting in within social spheres and being successful. Differences between genders, therefore, are evident at an early age, later reversing in their effect and implications. These findings indicate the importance of examining not only gifted program identification but also retention interventions, such as social emotional support, to address gender disproportionality.

Albeit in different ways, ethnic and racial minorities, compared to White students, also find themselves underrepresented in gifted programs. According to Ford (1998), gifted education has been criticized for harboring ethno-racial biases. Black, Hispanic, and American Indian students have been historically and consistently underrepresented in gifted education by at least 40% (Ford et al., 2008; Grantham, 2002). Results from a recent meta-analysis of gifted studies from 2002 to 2015 showed that the probability for gifted identification in Black, Hispanic, and American Indian students was about one third that of the probability of gifted identification for White and Asian students (Hodges, et al., 2018).

In particular, Black students are grossly underrepresented in gifted programs. Grissom and Redding (2015) found that, when compared to their White peers, Black students were 66% less likely to be identified for gifted programs. Hodges et al. (2018) found Black students qualified for gifted programs at lower rates than their Hispanic peers across all regions in the United States, with the largest gap existing in

the Midwest. Nationally, the data is alarming. As Grissom and Redding noted, the 2009 CRDC showed Black students comprising 16.7% of the total student population but only 9.8% of the total gifted student population. Also, of note, Elhoweris et al. (2005) analyzed identification rates for Black students with White teachers, by using vignettes, and discovered that teachers made referrals at higher rates for students with an unidentified ethnicity versus Black students.

In a related sense, Morris (2001) discussed the impact of assumptions of intellectual inferiority, experienced by Black students, and connected this feeling to their placement in gifted programs and advanced courses. Such a racial assumption is called *deficit thinking*. Deficit thinking creates blinders for educators, inhibiting them from seeing the potential and strengths in students of color (Ford, 2010; Morris, 2001). Deficit thinking contributes directly to the underrepresentation of Black students and transcends through all layers of gifted programming, not just identification. Ford found evidence and influences of deficit thinking in gifted definitions, theories, the selection of instruments, criteria, policies and procedures, curriculum, and student placement. For example, the 2014–2015 *State of the States in Gifted Education* report showed that only eight of 37 reporting states included the needs of gifted ethnic and racial minorities in their definitions of *giftedness* (NAGC, 2015). Clearly, racial assumptions have contributed to lower numbers of Black students in accelerated and rigorous courses.

For their part, Hispanic students constitute 22.3% of the total student population but only 15.4% of the gifted student population (Grissom & Redding, 2015). As Yoon and Gentry (2009) wrote, the 2006 CRDC data revealed that

Hispanics were underrepresented in gifted programs in 43 of 50 states, despite Hispanic school enrollment increasing (Hodges et al., 2018). Meanwhile, the 2011 CRDC reported that only four states had gifted populations of American Indians over 5%. The data collected nationally tell a story of the inequities that exist within gifted education; the data collected by individual states and school districts say the same.

In a study examining identification for gifted programs in Georgia, McBee (2006) found higher percentages of White students qualified for gifted programs, as opposed to students of color. Specifically, 12.3% of White students qualified for gifted programming, compared to 3.2% of Black students and 2.3% of Hispanic students. And, of these racial groups, identification rates were higher in upper-class groups across the board. For example, of the 12.3% of White students who qualified for services, 4.4% were considered low SES, while 15.6% were high SES. Of the 3.2% of Black students who qualified, 2.2% were considered low SES, while 5.4% were high SES (McBee). Morris (2001) reported on a disheartening example from the Georgia Department of Education, where Fulton County reported 31,889 White students and 26,683 Black students were enrolled for the 2000–2001 school year, but, of those enrolled, 4,862 students enrolled in gifted programs were White, compared to only 683 Black students.

Data from another state tell a similar story. In 2004, the Scottsdale Unified School District reviewed their gifted education enrollment rates and found that Hispanic students held 50% of the total student population but only 15% of the gifted population (King, Kozleski, & Lansdowne, 2009).

Shifting attention to the socioeconomic status of students, Yaluma and Tyner (2018) reviewed participation in gifted programs in high poverty schools and found that Black and Hispanic students enrolled in gifted programs at lower rates than their Asian and White peers. For example, Black students held 25.4% of the total student population in such schools but were only 19.3% of the gifted population, while Hispanic students held 50.3% of the total student populations but were only 43.7% of the gifted population (Yaluma & Tyner). In the same sample, White students made up 17.5% of the student population, but they made up 25.7% of the gifted program, while Asian students held 2.7% of the total student population and 5.8% of the gifted population.

These disproportionalities, although differing in disparity, also hold true for Black and Hispanic students in low poverty schools. In the same study mentioned above, Yaluma and Tyner (2018) found that Black students comprised 4.8% of the total student population in low poverty schools but only 2.6% of student participation in gifted programs, while Hispanic students were 11.2% of the student population yet only 7% of the population in gifted programs. Asians, for their part, were still overrepresented and White students maintained a proportional representation, at 69%, although that balance has not always been evident (Yaluma & Tyner).

Indeed, White and Asian students have been consistently overrepresented in such programs (Yoon & Gentry, 2009). In 2004, the Scottsdale Unified School District reviewed their racial and ethnic distribution of students enrolled in gifted programs and found that White students made up 38% of the total district population but 72% of the gifted education population (King et al., 2009). Also highlighting such

discrepancies, Ford et al. (2008) referenced the overrepresentation of Asian students using the 2002 CRCD and found that Asian students were 4.4% of the total student population in the United States but 7.6% of the gifted population.

The data clearly indicate the underrepresentation of specific racial groups, yet there are only a limited number of studies in this field (Ford, 1998; Petersen, 2013). Of studies on gifted education conducted between the years 1966 and 1996, only 8% focused on underrepresented populations (Ford). American Indian students are an especially—and perhaps the most—underrepresented population within gifted education (Yoon & Gentry, 2009), although, given the relatively small percentage of American Indian students in the general population, it is difficult to make determinations about relative disproportionality. American Indians make up only for 2% of the population in the United States (U.S. Census Bureau, 2017). And, as Hodges et al. (2018) have observed, "making inferences on a population that is ill defined frequently leads to error and/or bias" (p. 168). Put simply, with so few studies of American Indian gifted identification rates, it is difficult to draw larger conclusions about proportionality. Even more, Gentry and Fugate (2012) attributed the absence of American Indian gifted students in gifted program research to the location of remote schools, the failure of researchers to differentiate needs and identities across tribes, and deficit viewpoints.

Students who are CLD are also emphasized in the literature on underrepresentation. These students, also referred to as ELLs (English Language Learners), can be conceptualized as students from diverse ethnic and racial backgrounds whose primary language is not English. The formal definition of a CLD

student points to an individual possessing culture or language different from the dominant culture or language in the United States (Herrera & Murry, 2001). Black, Hispanic, and American Indian students who are CLD have historically been underrepresented in gifted education by at least 40% (Ford et al., 2008). The CRDC (2011) reported an overall gifted enrollment rate of 2.7% for ELL students in the United States. The 2014–2015 *State of the States in Gifted Education* report listed 12 states that had 1% or fewer of their ELL considered within the gifted population (NAGC, 2015). Colorado had the highest reporting rate with 4.5% (NAGC). The data referenced above paint a picture of participation rates, but literature on ELL disproportionality in gifted education is sparse. In fact, Ford (1998) noted that only 2% of studies in the field of gifted education included CLD populations.

Explanations for these low enrollment rates can, therefore, come only from the scant existing research as well as any logical inferences drawn from the literature on racial and ethnic disproportionality. So, too, can researchers look to studies showing the lack of multicultural teaching practices and identification of diverse gifted learners in teacher preparation programs as factors contributing to the underrepresentation of students who are considered CLD (Ford, 2008). That said, according to Ford (1998), even with the best recruitment methods and screening procedures, underrepresented student populations could still be overlooked.

Still, there have been some notable efforts to craft more attentive and attuned public policy responses. The Jacob K. Javits Gifted and Talented Students Education Act (Javits Act), for example, the only federal program dedicated to gifted students, was approved by Congress in 1988. The Javits Act directed resources toward

identifying and serving underrepresented populations (e.g., minority students, students from low-income backgrounds, ELLs, and children with disabilities) to address the opportunity gap for gifted students. In addition, the NAGC (2017) developed a position statement on CLD underrepresentation in gifted education and expressed support for the continuous reexamination of policies, procedures, and practices that created barriers to access for such students, while also endorsing funding to support "best practices"—even as states will undoubtedly vary in the practices deemed "best."

Socioeconomic status, transcending racial boundaries, presents yet another barrier keeping students from accessing gifted programs. Students living in poverty or those from lower SES households are underrepresented in gifted programming. Middle- and upper-class students qualify and enroll for these programs at higher rates (McBee, 2006). Students from low-income households are rarely identified for gifted services (Peters & Gentry, 2010), and even if they are identified, their rates of participation remain—as they always have—low (Callahan, 2005). Yaluma and Tyner (2018) discovered that even though high-poverty schools are just as likely to have gifted programs as low-poverty schools, student participation in gifted programs in low-poverty schools (12.4%), is twice the rate of student participation in high-poverty schools (6%).

Still, while disproportionality and participation rates are consistent across schools in Yaluma and Tyner's (2018) study, there is something of a greater magnitude occurring for students attending high-poverty schools. The 2014–2015 *State of the States in Gifted Education* report noted that, across 14 states, gifted

identification for students who are low SES ranged from 1% to 38.9% (NAGC, 2015). McBee (2006) analyzed gifted identification rates across various demographic factors in Georgia and found that 4.4% were low SES, while 15.6% were high SES. Additionally, McBee examined both race and SES, and found that Black students were 3.2% of the identified gifted population but that only 2.2% of those students were low SES. The effect of SES is palpable, transcending racial groups (Slocumb, 2001).

Standard identification methods for gifted programming often miss gifted students living in poverty, thus perpetuating the disproportionality affecting this group. Standardized assessments exclude the impoverished who are gifted but who are not identified as such because methods assess opportunity rather than giftedness (Slocumb & Payne, 2000). Put simply, these assessments measure student abilities from low SES backgrounds against skill sets created by middle-class norms (Slocumb & Payne).

Other identification options, such as teacher nomination methods, demonstrate bias when controlling for SES (Swanson, 2006). When teacher nomination methods are used, lower SES students are less likely to be identified when compared to students from middle and higher SES backgrounds (McBee, 2003; Swanson). The fact that students from lower SES backgrounds are underrepresented only reinforces the socially constructed assumptions that educators' hold, assuming achievers must be from either middle- or upper-class backgrounds (Grantham, 2002). These biases perpetuate the cycle of high-potential/lower SES students going unnoticed (Peters & Gentry, 2010).

There are, however, available methods that can help educators identify a more diverse group of potentially gifted students. Gifted programs have begun implementing universal screeners for student identification, as traditional methods have failed to produce equitable results. Yet, gifted children from lower SES backgrounds remain difficult to identify. Methods of identification that do not take environmental opportunities into account will always, to some degree, exclude gifted students living in poverty because standardized assessments identify exposure to opportunity (Slocumb & Payne, 2000). What students lack in terms of opportunity has a direct impact on their academic performance, thus contributing to disproportionate rates in not only gifted education but also special education (Ford, 2008).

Gifted students who have a learning disability are called *twice-exceptional*. Students who are twice-exceptional are rarely present in gifted programs. In a study conducted in Mississippi, examining twice-exceptionality, students with speech and language delays made up only 1.5% of the identified gifted population (Karnes & Bisland, 2004). In terms of students deemed twice-exceptional, this percentage was the largest. Those who were learning disabled and identified as gifted were the second largest group, registering at .5% (Karnes & Bisland). The 2014–2015 *State of the States in Gifted Education* report stressed that, across 15 states, rates for twice-exceptional students ranged from .1% to 6% (NAGC, 2015). Teachers' perceptions of and assumptions about students with a "disability" label are significant in this respect, influencing the willingness of educators to refer such students for gifted programming (Bianco, 2005). This bias is taking the same form as that indicated within the "best

practices" that states can—but need not—adopt, bias that tends to favor what is perceived to be the "norm" (i.e., what works for the majority) while failing to recognize potential of an unconventional nature, especially that of underrepresented populations.

Researchers enjoy considerable data on identification or recruitment methods used in gifted programs, but information tracking student retention is less available (Ford, 1998; Ford et al., 2008). And, in the case of CLD students identified for a gifted program, a much bigger obstacle affects retention: fitting in and experiencing camaraderie with White peers and teachers. Curriculum must be rigorous and culturally responsive for the engagement and motivation of CLD students (Ford, 2010). Social Emotional Learning (SEL) strategies, for example, are gaining more momentum in classrooms—helping all students feel a sense of community and caring from students and staff alike.

In the case of gifted students living in poverty, Slocumb and Payne (2000) stressed the importance of retaining poorer students by supporting their emotional development and affective needs. These principles are the core values of an SEL program. In terms of twice-exceptionality, approaches that allow students to use their strengths and abilities foster their giftedness and decrease the chance that their disorder will inhibit retention (Foley-Nicpon, Allman, Sieck, & Stinson, 2010). A gifted program that adopts a rigorous culturally responsive curriculum, applies SEL principles and techniques, and allows students opportunities to demonstrate learning through strengths is good for underrepresented populations and gifted students in general. The benefits far outweigh any concerns and enhance the overall experiences

of gifted learners. And yet, gifted programs continue to decline invitations to change, burdening society with perpetual rates of underrepresentation for certain populations. This dissertation aspires to reform the administration of gifted education, providing original data, context, and insight to inform the larger debate and advocate for change—change that has been long-needed and just as long resisted.

Description of the Research Manuscripts

The first research manuscript looked at disproportionality rates for first grade students enrolled in gifted programs. Disproportionality was conceptualized by taking the proportion of students from the whole population and comparing that figure to the proportion of students represented in gifted programs. Identifying and analyzing disproportionality rates can inspire more inclusive practices, thereby closing the opportunity gap for gifted students who tend not to be identified. Traditional methods have contributed to the disproportionality epidemic (Callahan & Hertberg-Davis, 2012; Naglieri & Ford, 2003), but they are still the most widely used measures in gifted identification (McBee, 2006). This study contributes to the field of gifted education because there is so little literature focused on underrepresented populations (Ford, 1998; Petersen 2013), while also supporting the social justice movement for more inclusive and equitable practices for all potentially gifted students.

The target journal for this study was *Gifted Child Quarterly* (GCQ), a premier journal published by the NAGC and that features work presenting new information and insights about giftedness and talent development in homes, schools, and society at large, as well as material on public policy and policy implications. This journal, with an impact score of 1.179, is appropriate because it is the primary clearinghouse

for gifted education research and because there is a dearth of published work focusing on issues from a social justice perspective. The audience for *GCQ* is well-suited to the material in this manuscript because the topic transcends counselor education, venturing into educational specialties such as teacher education, educational leadership, and school psychology. As an example of the appropriateness of this journal, a recent article by Goings and Ford (2018) reviewed empirical literature looking at the intersectionality of giftedness, race, and socioeconomic status over the past 15 years.

Gifted Child Quarterly is also the best venue for this work given the research questions guiding the first manuscript: What were the prevalence rates by race/ethnicity, gender, and SES for elementary students enrolled for gifted services? And: In terms of elementary students enrolled for gifted services, do race/ethnicity, gender, and SES proportions differ from their corresponding proportions within the general student population? To answer these questions, this study employed a cross-sectional observational design using archival data (Mann, 2003). The variables examined in this study included (a) gender (binomial), (b) race/ethnicity (binomial), and (c) SES (binomial). The first research question, concerning prevalence, employed measures of central tendency and percentages. The second research question examined proportional differences for various demographic variables between gifted students and the entire student population. When analyzing an expected proportion (p_0) against an observed proportion ($\hat{p}$), a one-sample *z* test of proportions is used (Daly & Bourke, 2008).

The second research manuscript examined national and state disproportionality rates in gifted education enrollment. While gifted programs are necessary to the development of gifted minds (NAGC, 2017), these programs are criticized for catering to middle- to upper-class White students (Morris, 2001). Gifted disproportionality is a function of larger systemic problems, rather than simply methods of identification. Bronfenbrenner's ecological model (1994) theorized a paradigm, or system, that governs the processes and conditions of human development. The macrosystem is a societal blueprint (Bronfenbrenner); and, as such, it can be applied to the belief systems and opportunity structures that dictate the processes of gifted education as a microsystem (Bronfenbrenner). To support this idea, Ford (2010) and Morris addressed how deficit thinking on a broad scale has impacted the construct of intellectual inferiority that society reserves for Blacks (Morris) and that has shaped gifted definitions, theories, the selection of instruments, criteria, policies and procedures, curriculum, and student placement (Ford). This study is meant to catalyze gifted education reform by highlighting national and state gifted disproportionality rates and by fostering conversations about how larger structures shape and perpetuate the current crisis. This work brings preexisting research on underrepresented populations to the forefront of gifted education research.

The target journal for this manuscript is *Roeper Review*, a quarterly peer-reviewed academic outlet with an impact score of 1.03 and with a focus on gifted education. This journal is appropriate because it publishes work on topics such as underrepresentation in gifted populations, including, in 2002, a special issue

containing articles on underrepresentation in gifted education, stressing the history of the problem and future implications. Cross and Cross (2017) published the most recent article of relevance here, looking at the problem of underrepresentation by removing IQ testing as the gatekeeper for gifted identification.

Roeper Review is also appropriate for this work given the research questions guiding this study: In terms of Gifted and Talented Education (GATE) program enrollment, do disproportionalities exist in student populations according to race/ethnicity, Individuals with Disabilities Education Act (IDEA) status, and ELL status? And, second: When considering GATE program enrollment, what is the ranking of U.S. states in terms of evident disproportionalities with respect to race/ethnicity? To answer these questions, this study employed a cross-sectional observational design using archival data (Mann, 2003). The variables examined in this study included (a) race/ethnicity, (b) IDEA status, and (c) ELL status. The first research question examined proportional differences on different demographic variables between GATE students and the entire student population. In terms of these demographic variables, all three were binomial. When analyzing an expected proportion (p_0) against an observed proportion ($\hat{p}$) a one-sample *z* test of proportions is used (Daly & Bourke, 2008). The second research question relied on the Rae Index, which quantifies the size of evident disproportionalities by calculating the mean average deviation. This method was used for the interpretation of effect size as well as allowed obtained index scores from individual states to be rank-ordered based on the size of racial disproportionality.

Glossary of Specialized Terms

Civil Rights Data Collection (CRDC). Educational data collected from public schools that focuses on access and equity.

Culturally and Linguistically Diverse Students (CLD). Students who come from diverse cultural and linguistic backgrounds. This term is interchangeable with English Language Learners (ELLs) and will be applied as such in this study.

Deficit Thinking. The notion that the academic capability and perceived lack of achievement of students are driven by their race, culture, and/or socioeconomic status.

Disproportionality. The over- or underrepresentation of a particular group of students compared to the general population. For example, there is a larger proportion of White students in gifted education than the proportion of White students in the general population, therefore a disproportionate representation exists.

Every Student Succeeds Act (ESSA). U.S. law passed in December 2015 that gives federal accountability back to each state to determine student standards.

Fluid Intelligence (G*f*). A theory of intelligence defined as the ability to solve problems, think abstractly, and identify patterns. Such ability is independent from prior experience and/or education.

Gifted. Reference term for a student who has been identified for a gifted and talented program.

Gifted and Talented. Federal term that describes students who demonstrate evidence of high achievement capability.

Gifted Program. Various models that exist to support the needs of gifted learners.

Individuals with Disabilities Education Act (IDEA). Legislation that ensures a student with a disability is provided with a free and appropriate public education (FAPE).

Jacob K. Javits Gifted and Talented Students Education Act (Javits Act). The only federally funded program that focuses on gifted and talented development. This program does not give funds to local gifted education programs; rather, it supports students who are typically underrepresented in gifted education.

National Association of Gifted Children (NAGC). Association geared toward using education, research, advocacy, and community involvement to support those who develop and enhance gifted development in children.

No Child Left Behind (NCLB). Reauthorization of the Elementary and Secondary Education Act that was based on raising standards. The federal government, rather than the states, determined the standards to which students would be held in areas such as math and reading.

Occam's Razor. The principle used to defend reductionism.

Overrepresentation. Representation by numbers that are disproportionately high. Racial groups deemed historically overrepresented in the gifted education literature include White and Asian students.

Prevalence. A statistical concept used to calculate the number of elementary students by race, gender, and SES present in the gifted population during the time of enrollment.

Rae Index. A term of measurement used to evaluate effect size and quantify the size of disproportionality.

Social Emotional Learning (SEL). A framework that educators, families, and communities use to facilitate and promote social, emotional, and academic learning for students.

2014–2015 State of the States in Gifted Education Report. A biennial report that highlights ten areas in which states provide support to gifted students and gifted education.

Talent. A developed ability to achieve difficult goals that fit with one's personal interests, skills, and social context.

Underrepresentation. Insufficient or inadequate representation. Racial groups deemed underrepresented in the gifted education literature include: (a) Black, (b) Hispanic, (c) American Indian, (d) Pacific Islander, and (e) multi-racial.

Thematic Links Between Manuscripts

Both studies analyzed archival gifted enrollment data and shared an observational research design. Both manuscripts also analyzed a shared variable in gifted program enrollment, specifically race/ethnicity. In terms of statistical analyses, the present studies applied both descriptive and inferential statistics, such as a one-sample *z* test of proportions to evaluate proportional differences. Both studies aspired to show that the disproportionalities existing within the present data were not due to chance, and both indicate that such results should inform gifted education reform. Differentiating factors existed between additional categorical variables and the population of data. The first study's participants were first graders from a large rural

and urban school district, while the second study's participants were students who were reported nationally to the Office for Civil Rights (OCR) as enrollees in a gifted education program.

Organization of the Dissertation

Following this introductory chapter, Chapter 2 (i.e., the first research manuscript) presents a review of recent scientific literature focused on six themes, including: (a) the definition of *giftedness*, (b) the purpose of gifted programing, (c) the prevalence of gifted programing, (d) gender differences evident in gifted enrollment patterns, (e) race/ethnicity differences evident in gifted enrollment patterns, and (f) SES differences evident in gifted enrollment patterns. Following the literature review, this chapter addresses the first research manuscript's central questions, which were, once more: What were the prevalence rates by race/ethnicity, gender, and SES for elementary students enrolled for gifted services? And: In terms of elementary students who enrolled for gifted services, do race/ethnicity, gender, and SES proportions differ from their corresponding proportions within the general student population?

Chapter 3 (i.e., the second research manuscript) reviews the recent scientific literature attending to the following five topics: (a) CLD students, (b) low SES students, (c) twice-exceptional students (d), identification methods in gifted education, and (e) retention in gifted education. Drawing on this review of the literature, Chapter 3 concentrates on two research questions. The first is: In terms of GATE program enrollment, do disproportionalities exist in student populations according to race/ethnicity, IDEA status, and ELL status? And the second is: When

considering GATE program enrollment, what is the ranking of U.S. states in terms of their disproportionalities with respect to race/ethnicity?

Chapter 4 concludes the dissertation by summarizing the findings of each research manuscript, as well as the limitations of the studies. Chapter 4 also presents a general discussion of each manuscript, relying on the results of the work to raise general issues for discussion and to offer broader recommendations for addressing disproportionality in gifted education. Finally, Chapter 4 demonstrates linkages between the studies, articulates the precise contributions these works make (independently and jointly) to this body of research, and outlines a research agenda for future investigations drawing on this experience and these data.

Chapter 2: A Research Manuscript

The Relationship of Gifted Program Enrollment to Race/Ethnicity, Gender, and SES

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Abstract

Disproportionalities in gifted and talented enrollment exist among individuals regardless of race/ethnicity, gender, or socioeconomic status (SES). Inequities are most pronounced for/in cases where race/ethnicity and SES are factors. To discern why specific student groups benefit from gifted program access, while others do not, a cross-sectional observational design was applied to extant data from a large school district that included both rural and urban schools. Proportional distribution among race/ethnicity, gender, and SES was evaluated using prevalence rates and a one-sample *z* test of proportions. Results showed that, while disproportionalities existed across all variables, student racial groups exhibited the most disproportional distribution. These findings indicate that issues driving disproportionality in gifted education go deeper than acknowledged by previous arguments. Historic and current conceptualizations of *giftedness* rest on a culture-bound construct that perpetuates disproportionate representation of student groups. Gifted measures and assessments of intellect are biased, excluding some while benefiting others, and thus gifted identification procedures and assessments warrant heightened scrutiny.

Keywords: disproportionality, underrepresentation, identification, race, SES, gender, gifted

The Relationship of Gifted Program Enrollment to Race/Ethnicity, Gender, and SES

"It's not *what* we do, it's what we *say* we do." A former administrator working with the first author would often utter these words to express his disdain for current district practices and policies that sounded good but that lacked the follow-through he valued as a professional. As educators, it is one thing to assert what we stand for; it is another to do something about it. Discussions about educational inequity, which have become as common as students opting for hot lunch on pizza day in the cafeteria, can be equally frustrating. Unfortunately, both discussions of equity in education and hot lunch pizza leave behind empty promises.

Modern public education is rife with examples of inequity, including disparities in gifted and talented programs. As an attribute or ability, *giftedness* transcends demographic groups; but still, there are specific types and classes of students who are routinely underrepresented in gifted and talented programs. Enrollment data for these programs reflect differences in proportional distribution among students (Civil Rights Data Collection [CRDC], 2014). Students of color, as well as students living in poverty, have faced limited access to gifted education opportunities (Callahan, 2005; Ford, Grantham, & Whiting, 2008; Hamilton et al., 2018; Wright, Ford, & Young, 2017). Both students of color and those living in poverty have been underrepresented as long as gifted education has existed (Callahan; Ford et al.).

Surprisingly little published research has focused on issues of disproportionality in gifted education. Of the studies available, most works have

addressed the factors contributing to disproportionality in basically the same way. For example, researchers have pointed to inadequate gifted identification processes and measures of intelligence as factors driving disproportionality (Card & Giuliano, 2016; Lohman & Gambrell, 2016; Naglieri & Ford, 2003; Yaluma & Tyner, 2018). Other researchers have emphasized the consequences of inequities in processes for identifying gifted students, presenting these practices as, on the whole, a troublesome reinforcement of Western perceptions of the intellectual capacities of diverse student groups (Ford, 2010; Ford et al., 2008; Goings & Ford, 2018).

The present study addressed two critical elements associated with both building the nomothetic web in a field and engaging in relevant research. These elements are gap-spotting and disruption of practice (Alvesson & Sandberg, 2011; Tadajewski & Hewer, 2011). In terms of gap-spotting, there is a shortage of published literature speaking to disproportionalities among identification and enrollment rates in gifted programs. According to research summarized in Elhoweis, Mutua, Alsheikh, and Holloway (2005), only 2% of gifted education studies specifically addressed students from diverse cultural and linguistic backgrounds. Further, the scant research on this topic is limiting in terms of statistical influence, given that available literature often evaluates disproportionalities in data by utilizing descriptive rather than inferential statistics.

A “gap” must exist, therefore, to warrant attention; but gap-spotting, by itself, does not justify a research study. A study should also have an element of surprise and should compel change (Tadajewski & Hewer, 2011). Attention from only a small group of concerned scholars is insufficient; as a society, we should all be challenging,

not accepting, the fact that the gift of opportunity to exercise and strengthen intellect has been reserved for only selected students. Advocacy informed by scholarship should focus on revealing the deeply rooted disparities among student groups, causes that go beyond the contributing factors with which we are already familiar. It is time to challenge the status quo by holding gifted identification practices accountable for the disproportionalities they have established, reinforced, and even normalized in American education.

In order to address disproportionalities in gifted education, Critical Race Theory (CRT) will be utilized. Writing through the lens of CRT communicates a different viewpoint that is often drowned out by the mainstream narrative (Bell, 1995). CRT positions the problem of gifted inequities within an educational, political, and historical context (Daftary, 2019). The story of underrepresentation in gifted programs is one with historical roots in systemic inequity in education and contributes to the marginalization of students of color and those living in poverty. The perspective of those who are underrepresented is a voice that is not equally heard or equally valued as supported by studies that produce data that consistently reflects historical gifted disproportionality (Callahan, 2005; Ford et al., 2008; Hamilton et al., 2018; Wright, Ford, & Young, 2017). The application of CRT attempts to bring about awareness of the prevalence of racial and class dominance in gifted education frameworks.

The present study's examination of the literature on the relationship between gifted program enrollment and race/ethnicity, gender, and SES attended to the following seven primary themes: (a) the definition of giftedness, (b) the purpose of

gifted programing, (c) the prevalence of gifted programing, (d) gifted identification, (e) gender differences occurring in gifted enrollment patterns, (f) race/ethnicity differences evident in gifted enrollment patterns, and (g) SES differences present in gifted enrollment patterns. A discussion of the research questions guiding this study will follow the explication of the above themes.

Much debate has surrounded the mere definition of *giftedness*. Renzulli (1978) theorized that the needs and values of one's culture determine whether one is recognized as gifted. While there is no universally accepted definition for this notion, according to the National Association for Gifted Children (NAGC), federal law stipulates that the term *gifted and talented* refers to:

> students, children, or youth who give evidence of high achievement capability in such areas 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. (NAGC, 2017)

States use this federal definition as a guide for informing their operationalizations of giftedness as well as associated policies and practices for reaching and teaching gifted students.

Still, while the federal version affords some direction, constructions of giftedness vary greatly among states (Stephens & Karnes, 2000), with some states having yet to adopt any official definition (NAGC, 2017). It is also important to note that not all states require their school districts to abide by the formal state definition (NAGC). The 2014–2015 *State of the States in Gifted Education* report showed that,

of the 39 states that responded, 37 had definitions of giftedness. And, of special note for the present study, language addressing diverse student populations was rarely included in the descriptions set forth by those 37 states (NAGC, 2015). For example, only nine states referred to the needs of low SES students; only eight states addressed the needs of English Language Learners (ELLs), as well as those students deemed culturally or ethnically diverse (CLD); only six states contemplated students designated twice-exceptional (i.e., gifted and disabled); and a mere three states recognized issues of geographical isolation (NAGC).

Even amid variance in both the prevalence and the conceptualization of gifted definitions, the literature demonstrates a shared purpose in supporting specific programs that foster, strengthen, and develop gifted students (Archambault et al., 1993; Callahan & Hertberg-Davis, 2012; Campbell & Walberg, 2010; Farkas & Duffet, 2008; Reis & Renzulli, 2010). Reis and Renzulli pointed to gifted programs as offering a better fit for students identified as gifted, as opposed to what those students might experience in a general education setting. Programs for gifted students offer accelerated curriculum and pacing, as well as specific teacher training to identify and nurture the talents of students; general education placements, by contrast, afford little to no differentiation for gifted learners (Reis & Renzulli).

In a national survey given to classroom teachers, Archambault et al. (1993) found that 61% of general education teachers reported having never received training on gifted students or gifted teaching pedagogy. Farkas and Duffet (2008) confirmed such findings, noting that 65% of preservice teachers self-reported experiencing little to no training in their teaching programs in terms of how best to support academically

advanced students. As a function of this relative inattention to the special nature of gifted education, Callahan and Hertberg-Davis (2012) observed that the bulk of teachers' knowledge regarding differentiation is derived from supporting students who are below grade level. Gifted students not enrolled in gifted programs could, therefore, be at risk of stagnant academic performance, given that the teachers with whom they are most likely to engage are not, themselves, versed in the tools and techniques best suited for this gifted population.

Not surprisingly, gifted programs are geared to support students who are ready and eager to learn, although there is also evidence that such a curriculum can benefit gifted young people who might lack ancillary abilities traditionally associated with academic success. In a thematic review of gifted education programs, Reis and Renzulli (2010) found that gifted programs increased achievement for both those deemed strong gifted students and those who were underachieving in their studies. This finding underscores the importance of a gifted program in addressing the needs of all gifted students, especially as underachievement is particularly common among gifted populations who are diverse in some respect (Reis & McCoach, 2000). In other words, gifted programs can be an effective intervention for students possessing great potential but lagging in performance.

Gifted programs are, by nature, designed to discern and develop the intellectual gifts within students. Such attention encourages achievement during the school years, but evidence also points to longer-term benefits. For example, Campbell and Walberg (2010) interviewed American academic Olympians who participated in gifted programs and found that 52% of participants went on to earn doctoral degrees.

Meanwhile, 74% of Olympians credited the Olympiad with helping them enjoy academic success (Campbell & Walberg). Results such as these demonstrate that gifted programs can play a vital role in the education of gifted young people, even accepting the range of gifted needs.

Gifted programs have proven to be beneficial for high-achieving students, a finding demonstrated by many researchers (Archambault et al., 1993; Callahan & Hertberg-Davis, 2012; Campbell & Walberg, 2010; Farkas & Duffet, 2008; Reis & Renzulli, 2010); but it is also essential to accurately assess the accessibility of these options. Until recently, exact data on the prevalence of gifted programs was hard to come by; as one example, Yaluma and Tyner (2018) reported that 68.3% of public elementary and middle schools currently offer gifted programs to qualified students. More research on accessibility, bolstering studies on achievement, would enrich our understanding of gifted education.

There are, however, several issues that have, heretofore, complicated efforts to gather such information. First, there are no federal mandates that apply to gifted education. Currently, program decisions are handled locally, within each state (NAGC, 2017). The governing structures in place within individual states, ranging in strength, contribute to inconsistent or unavailable reporting and accountability measures across the country (Brown, VanTassel-Baska, Worley, & Stambough, 2006). Second, the 2014–2015 *State of the States in Gifted Education* report accounted for the absence of data on program prevalence by emphasizing that (a) three states do not have staff dedicated to gifted education, (b) 24 states have gifted staff who administer other programs concurrently, (c) 19 states do not audit or

monitor their gifted programs, and (d) 28 states do not use accountability forms (NAGC, 2015).

In a broader sense, a third contributing factor flows from the No Child Left Behind Act (NCLB, 2002). During the time of NCLB, fewer gifted programs existed because government funds went to students who were working below grade level (Beisser, 2008). Little money remained for states to support students who were at or above academic proficiency levels. Finally, factors contributing to the data gap stem from policies of the U.S. Department of Education. In 2011, the Office for Civil Rights (OCR) asked states to report disaggregated data based on race and ethnicity categories, giving more specific information for gifted program student enrollment (Office for Civil Rights, 2018). The benefits of this request were twofold: First, quantifiable data became available on the number of gifted children in the United States, and, second, the racial inequities existing within the gifted education structure became more apparent. Still, while these data have been revelatory and enlightening, states are not mandated to respond. Therefore, scholars and practitioners are still without a full scope of the state of gifted education.

While the OCR created opportunity in the realm of gifted program analysis, the implementation of the Every Student Succeeds Act (ESSA), which, in 2015, replaced NCLB, was a crucial turning point for the state of gifted education because the new law required states to, on an annual basis, report disaggregated data on student achievement, including high-achieving students. Required student achievement data must now also address the following demographic markers: (a) race/ethnicity, (b) low-income status, (c) ELL designation, (d) gender, and (e)

disability designation (ESSA, 2015). The downside of this change—of the requirement for more collection, administration, and reporting of data—reflects the level of gifted program policy within a state. If data on gifted student identification goes unrecorded at the state level, then interpretation should be approached with caution; students considered "high-achieving" are not necessarily those who have been deemed gifted. Said differently, students who are considered high-achieving might just be students who are performing above grade level.

In the wake of the ESSA and due to the OCR's efforts, Yaluma and Tyner (2018) reported gifted program prevalence rates, extracting data from the 2014–2015 CRDC series, as well as the 2015–2016 data from the National Center for Education Statistics (NCES), which included data from the ESSA. Yaluma and Tyner took an informative and helpful step in terms of reporting on program prevalence, but their study was limited by the fact that types of gifted programs and services were unknown within these data. Understanding the types of program services is important to any evaluation of student access. Service programs can range from general education classrooms offering differentiated instruction to schools specifically designed for gifted students (NAGC, 2017).

The limitation of the Yaluma and Tyner study (2018) relates to the absence of federal mandates regarding gifted education and accountability, an absence that ultimately gives states the authority to provide gifted education as deemed necessary, if at all (NAGC, 2017). Currently, 28 states mandate their internal districts to provide services for gifted learners, while 32 states provide programs and services for specific areas of giftedness, as discussed in the 2014–2015 *State of the States in Gifted*

Education report (NAGC, 2015). This leaves the state of gifted education a mystery for at least one third of the nation.

Scholars working in the field, gifted stakeholders, and the U.S. Department of Education are best suited to holding states more accountable for their gifted programs. Having quantitative data allows interested parties to highlight recurring social justice issues, such as disproportionalities in enrollment. These types of disproportionalities appear to initiate with gifted program opportunities, options, and availability—pointing to access as the great inequity in gifted education.

Identification is the first step in accessing gifted services. Traditional gifted identification methods have been under scrutiny for years, decried for contributing to gifted program disproportionality and underrepresentation (Card & Giuliano, 2016; Callahan & Hertberg-Davis, 2012; Morris, 2001; Naglieri & Ford, 2003). As an example, Marquardt and Karnes (1995) investigated discriminatory cases filed with the OCR from 1985 to 1991 and discovered that 77% of cases concerned discrimination claims involving Black students and their access to gifted education. While traditional gifted identification methods, such as IQ tests, have historically served as valid measures of intelligence, other research has shown that mean IQ scores differ across groups, raising concerns that these measures could be racially biased in effect even if not in intent (Callahan, 2005; Callahan & Hertberg-Davis; Naglieri & Ford).

These findings have informed the use of other approaches to gifted identification that were designed to close the opportunity gap for underrepresented populations. One approach, discussed by Yaluma and Tyner (2018) and following

their review of prevalence rates in low SES schools, specifically addressed the use of universal screening methods as policy implications. Another approach is a specific universal screener, notably the Naglieri Nonverbal Ability Test (NNAT). Naglieri and Ford's (2003) administration of the NNAT found that the mean differences in high standard scores between White students and students of color were small, meaning percentages of students identified as gifted were similar across racial groups. Card and Giuliano (2016) used the NNAT in their study and found that it increased gifted program participation for students of color and students living in poverty by 180%. Yet, while this assessment method has shown promise, most states continue to use traditional techniques, including IQ testing and nomination methods (McBee, 2006).

Nomination methods are a persistent problem for both students of color and students living in poverty (Callahan, 2005; Ford et al., 2008; McBee, 2006; Naglieri & Ford, 2003; Swanson, 2006). Such methods are often the initial step in gifted identification, and extending the responsibility for nominations to educators can be problematic, leaving room for bias. For example, the typical Western and middle-class values of educators could, whether knowingly or not, anchor the nominators' conceptualizations of and assumptions about gifted behavior (Sternberg, 2018; Yoon & Gentry, 2009).

Consider the results from a study examining identification for gifted programs in Georgia, where teacher nomination methods were part of a multi-step identification process. As McBee (2006) revealed with respect to the Georgia process, 12.3% of White students qualified for gifted programming, compared to only 3.2% of Black students and 2.3% of Hispanic students. Of these racial-group findings, identification

rates were higher across the board in upper-class groups. For example, of the 12.3% of White students who qualified for services, 4.4% were of low SES, while 15.6% registered as high SES. Of the 3.2% of Black students who qualified, 2.2% were of low SES, while 5.4% registered as high SES (McBee). These data reflect larger trends associated with socioeconomic status and race, thereby impacting students' opportunities and perpetuating disproportionalities.

But differences in proportional distribution are also evident between males and females. Petersen (2013) discovered that, when course grades served as a primary form of gifted identification, girls were identified more often than boys were during their elementary years. The 2014–2015 *State of the States in Gifted Education* report showed the demographic breakdown of gifted program enrollees and found that, of the 21 states that responded, 11 had higher percentages of females identified, seven identified more males, and three showed an even split between males and females (NAGC, 2015). In a study conducted by Pfeiffer and Jarosewich (2007), using a multi-step identification process, data revealed small but significant differences in gender identification for giftedness, with higher identification rates in females. However, Petersen's meta-analysis of 120 studies showed that, when using IQ and standardized scores to identify giftedness, boys were more likely to be identified than girls. It appears that the identification measures employed are related to differences between genders.

While it is possible that females are overrepresented in their early years of schooling, an important developmental shift happens in the adolescent years. Sadker (2000) noted that, although girls may be identified at higher rates in their younger

school years, by 10th grade they drop out of gifted programs with greater frequency than boys. Pepperell and Rubel (2009) revealed that a social–emotional shift happens for girls in middle school. Female participants struggled to regulate their giftedness, both in terms of aspiring to succeed and trying to fit in within the social environment (Pepperell & Rubel). Broadly speaking, gender differences appear in elementary school, while inverting once adolescent males and females reach secondary school. These findings indicate the importance of examining not only gifted program identification but also retention interventions, such as social–emotional support, in the interest of remediating gender disproportionality.

Available data indicate disproportionalities of a different kind for racial groups. Racial minorities are underrepresented in gifted programs, and traditional identification methods have long been criticized for contributing to gifted program disproportionality and underrepresentation (Callahan & Hertberg-Davis, 2012; Morris, 2001; Naglieri & Ford, 2003). According to Ford (1998), gifted education programming has historically evinced ethno-racial biases, while showing minimal interest in remedial efforts. For example, when examining teacher nomination methods used to identify potentially gifted students, data have shown that Black and Hispanic students are less likely to be nominated than their White counterparts (McBee, 2006). In the same vein, Grissom and Redding (2015) referenced a 2009 report from the CRDC which revealed that Black students made up only 9.8% of the total gifted student population, despite representing 16% of the U.S. population, while the gifted Hispanic student population was 15% and the Hispanic share of the U.S. population was 22%.

Current research indicates the same trends in terms of racial underrepresentation. Yaluma and Tyner (2018) reviewed participation in gifted programs in high-poverty schools and found that Black and Hispanic students enrolled in gifted programs at lower rates than their Asian and White peers. Specifically, Yaluma and Tyner found that Black students amounted to 25.4% of the total student population but only 19.3% of the gifted program, while Hispanic students totaled 50.3% of the total student population but only 43.7% of the gifted program. In the same sample, White students made up 17.5% of the student population but represented 25.7% of the gifted program; meanwhile, Asian students were 2.7% of the total student population but 5.8% of the gifted program (Yaluma & Tyner). Finally, when shifting their focus to include the added variable of poverty within the academic setting, Yaluma and Tyner found that Black students comprised 4.8% of the total student population in low-poverty schools but only 2.6% of the students in gifted programs, while Hispanic students represented 11% of the total student population in these same schools but only 7% of the students in gifted programs. Asian students were still overrepresented in the case of low poverty schools, with 16% being identified as gifted despite a 10% representation in the general student population (Yaluma & Tyner). Meanwhile, the representation of White students (69%) was, in this case, proportional (Yaluma & Tyner).

The number of studies addressing inequities in ethnic and racial minority distribution in gifted education is small, but research is growing. Of studies on gifted education conducted from 1966 to 1996, only 8% contemplated underrepresented populations (Ford, 1998). Even more, published articles dealing with racial and ethnic

underrepresentation in gifted programming have limited their attention to issues of gifted identification, deficit thinking, recruitment methods, and retention methods (Ford, 2010; Ford et al., 2008; Grissom & Redding, 2015, Morris, 2001; Naglieri & Ford, 2013). The journal *Gifted Child Quarterly* recently published a special issue focusing on gifted identification and poverty, which is helpful. Still, researchers must go further; the opportunity gap is a wide one.

Like other groups discussed above, students from low-income households are under-identified for gifted services (Peters & Gentry, 2010). Indeed, disproportionate rates in gifted education have always been present and steady for students living in poverty and for students of color (Callahan, 2005; Ford et al., 2008). Socioeconomic status has influenced student identification rates in gifted programs (McBee, 2006), even when achievement and race are controlled for (Hamilton et al., 2018; Slocumb & Payne, 2000). Such findings reinforce Ford's (2010) call for researchers to resist using poverty as a proxy for race.

Results from Hamilton et al. (2018) suggest a relationship between high poverty schools and gifted identification rates. Schools that held higher Free and Reduced Lunch (FRL) rates had lower gifted student identification rates (Hamilton et al.) which aligned with findings from Yaluma and Tyner's (2018) study. Additionally, the authors found that both institutional poverty (i.e., income inequality) and individual poverty helped explain pieces of the disproportionality puzzle making up gifted programs (Hamilton et al.). On this note, McBee (2006) evaluated SES levels among gifted racial groups and found that, of the 12% of White students who qualified for services, 4% were of low SES, while 15.6% registered as high SES.

Meanwhile, of the 3% of Black students who qualified, 2% were of low SES and 5% registered as high SES (McBee, 2006).

As these data make clear, socioeconomic status impacts student opportunity. While there is certainly an association between the racial and socioeconomic variables discussed above, future research must recognize the distinctive contributions of each influence, resisting the over-relation of factors. Socioeconomic status presents its own challenges for scholars and practitioners; the scant number of low SES students in gifted programs reinforces the socially constructed assumptions of educators that one must be from either a middle- or upper-class background to achieve (Grantham, 2002; Yoon & Gentry, 2009) or that students of color must always be associated with low SES situations (Ford, 2010).

Such biases perpetuate the cycle whereby low SES students with great potential go unnoticed by the system (Peters & Gentry, 2010). In a review of studies, Goings and Ford (2018) showed that most scholars looked at how poverty impacts students, rather than focusing on the systemic barriers that create and reinforce inequality in the first place. For their part, Olszewski-Kubilius and Corwith (2018) recommended that future studies explore poverty's systemic impact on giftedness. Gifted programs have begun implementing universal screeners for student identification with the hope of addressing such inequities.

Still, methods of identification that do not account for environmental opportunities will always, to some degree, exclude gifted students living in poverty. This is because standardized assessment identifies opportunity rather than giftedness (Slocumb & Payne, 2000). Students living in poverty lack both quantity and quality

of access to opportunity, thereby affecting academic performance and disadvantaging those from low SES households when measured against skill sets rooted in middle-class opportunity norms (Slocumb & Payne). Standard gifted identification methods often miss gifted youth living in poverty, contributing to identification disproportionality. Even worse, when low SES students are identified for gifted programs, their participation rates remain low. Yaluma and Tyner (2018) discovered that, even as high-poverty schools are just as likely to have gifted programs as low-poverty schools are, 12% of students participate in gifted programs in low-poverty schools—a rate that is twice the number participating in high-poverty schools.

Many factors contribute to underrepresentation in gifted education, as is evident from the above discussion, but the present study was designed to help us better understand one portion of the larger problem: specifically, the nature and implications of disproportionalities in gifted and talented education. Two research questions guided this exploration. The first question was: Considering elementary students enrolled for gifted services, what were the prevalence rates according to race/ethnicity, gender, and SES? And the second question was: Are the proportions of elementary students enrolled for gifted services, when organized according to race/ethnicity, gender, and SES, commensurate with the proportions of elementary students according to those same categories within the general population?

Method

Design

The present study employed a cross-sectional observational design using archival (i.e., pre-existing) data (Mann, 2003). The variables included (a)

race/ethnicity (binomial), (b) gender (binomial), and (c) SES (binomial). An a priori power analysis, using G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009), helped determine the necessary sample size for the second research question. Given the one sample and the binomial nature of the research variables, the power analysis was for a difference from a constant. The proper effect size is Cohen's *h* (Rosnow & Rosenthal, 2003). The effect size came from Harris, Rowley, Beck, Robinson, and McColgan (2011). The constant proportion of males was pulled from the same state where the study was conducted (Kids Count Data Center, 2016). The G*Power inputs were as follows: (a) test family: exact, (b) statistical test: proportion: difference from constant (binomial test, *one-sample case*), (c) type of power analysis: a priori: compute required sample size, (d) tails: two, (e) effect size $g = .14$, (f) α error probability = .05, (g) power (1-β error probability) = .80, and (h) constant proportion = .51. The G*Power 3.1 output included a sample size of 101 and an actual power of 0.81 and (e) $\alpha = .05$.

Participants

Data drawn from the 2015–2016 academic year and involving 4,000 first-grade students were collected from a large school district, containing urban and rural schools, located in the western United States. Every first-grade student received the Cognitive Abilities Test Form 7 (CogAT) as a universal screening device to guide academic talent identification. The data on these 4,000 students included the following for every child: (a) cognitive aptitude score, (b) age, (c) gifted identification marker, (d) gifted program service approval, (e) FRL status (serving as a proxy for SES), (f) gender, and (g) race. The cognitive aptitude score had a mean of

100, with a standard deviation of 16. With reference to age, the participants were almost equally split between 9-year-olds (49%) and 10-year-olds (51%). Participant SES consisted of 56% coded as *high* and 44% coded as *low* based on FRL status. In terms of gender, 55% were female, while 45% were male. Lastly, the racial makeup of participants consisted of American Indian/Alaskan Native (1.3%), Asian (3.4%), Black (1.8%), White (44.7%), Hispanic (42.1%), multi-racial (5.4%), and Pacific Islander (1.3%). Regarding analysis, race/ethnicity, gender, and SES were the only variables retained from the data set.

Measures

Gifted Program Enrollment Status. Program enrollment was coded as 0 = *No* and 1 = *Yes*.

Population Race Proportions (p_0). Race was divided into two groups: 0 = *historically underrepresented* (American Indian/Alaskan Native, Black, Hispanic, Pacific Islander, and multi-racial) and 1= *historically overrepresented* (Asian and White). The proportion was drawn from the total student population by under- and overrepresented racial groups.

Sample Race Proportions ($\hat{p}$). Race was divided into two groups: 0 = *historically underrepresented* (American Indian/Alaskan Native, Black, Hispanic, Pacific Islander, and multi-racial) and 1= *historically overrepresented* (Asian and White). The sample proportion was drawn from students who enrolled in gifted programs by under- and overrepresented racial groups.

American Indian/Alaskan Native. American Indian/Alaskan Native was converted to the term *Indigenous* and was coded as *I* during analysis.

Population Gender Proportions (p_0). Dummy coding was used for gender, where 0 = *male* and 1 = *female*. The population proportion was drawn from the total student population by gender.

Sample Gender Proportion ($\hat{p}$). Dummy coding was used for gender, where 0 = *male* and 1 = *female*. The sample proportion was drawn from students who were enrolled in the gifted program.

Population SES Proportions (p_0). FRL status served as the proxy for SES (Harwell & LeBeau, 2010). The dummy coding for this variable was 0 = *not low SES* (i.e., not FRL-qualified) and 1 = *low SES* (i.e., FRL-qualified). The population proportion was drawn from the total student population by SES.

Sample SES Proportions ($\hat{p}$). FRL status served as the proxy for SES **(**Harwell & LeBeau, 2010**)**. The dummy coding for this variable was 0 = *not low SES* (i.e., not FRL-qualified) and 1 = *low SES* (i.e., FRL-qualified). The sample proportion was drawn from students who were enrolled in the gifted program.

Data Analysis

The first research question concerned prevalence and employed measures of central tendency and percentages. The second research question examined proportional differences on different demographic variables between gifted students and the entire student population. All three demographic variables were binomial. When analyzing an observed binomial variable (i.e., $\hat{p}$) against a known population proportion (i.e., p_0), a one-sample *z* test of proportions is appropriate (Daly & Bourke, 2008). The significance level for all analyses was set at .05. All analyses were conducted using the statistical programming language, R.

Results

The analysis of the first research question, regarding prevalence, generated raw counts and percentages in gifted program enrollment across race/ethnicity, gender, and SES. Taken together, the percentage of Asian and White students (typically overrepresented) who enrolled in a gifted program was 77.71% (a raw count of 136 out of 175 students). Meanwhile, the percentage of Black, Hispanic, Indigenous, multi-racial, and Pacific Islander students (typically underrepresented) who enrolled in a gifted program was, when combined, only 22.29% (a raw count of 39 out of 175 students). Regarding gender, the percentage of females who enrolled in a gifted program was 42.86% (a raw count of 75 out of 175 students). In terms of the SES variable, where FRL status was used as a proxy, the percentage of students who enrolled in a gifted program, and who were FRL qualified (i.e., low SES) was 24% (a raw count of 42 out of 175 students).

In terms of the second research question, which measured proportional differences across binomial variables, the one-sample *z* test of proportions produced statistically significant results with respect to race/ethnicity, gender, and SES levels. In terms of race/ethnicity, results for the historically overrepresented racial groups (i.e., Asian and White) were as follows: $p_0 = .48$, $\hat{p} = .77$, and $p = < .05$. Results for the historically underrepresented racial groups (i.e., Black, Hispanic, Indigenous, multi-racial, and Pacific Islander) were as follows: $p_0 = .52$, $\hat{p} = .23$, and $p = <.05$. With respect to gender, results for females were as follows: $p_0 = .50$, $\hat{p} = .42$, and $p_0 = <.05$. Finally, in terms of SES, results for students who were FRL qualified were as follows: $p_0 = .57$, $\hat{p} = .24$, and $p = <.05$.

Discussion

The observed percentages associated with the first research question (concerning prevalence in gifted program enrollment across demographic variables) describe the rate of gifted enrollment, for different demographic groups, existing in the sample. Such results could be a function of the single homogenous sample obtained, while an alternative explanation could be that the CogAT does not, itself, identify giftedness equally across groups (Lohman, 2012). Both explanations are plausible, but the most logical is the latter option, because the CogAT is known to reduce (but not diminish) group differences; therefore, discrepancy across groups in enrollment is to be expected when using the CogAT.

Results for the second research question (inquiring of differences in proportions across variables of race, gender, and SES) reflected that statistically significant disproportionalities exist in the sample across all variables. While the findings are consistent with previous research in the above literature review, further analysis is warranted to arrive to potential reasons for the obtained results.

Potential reasons for the obtained results concerning race/ethnicity and SES include: (1) a construct of giftedness based upon G*f* is inadequate, (2) G*f* is an adequate construct *but* the primary measure of the construct (i.e., CogAT) is inadequate, (3) the utility of the CogAT was used inappropriately, and (4) the differences in achievement across groups exist because of some unidentified third variable(s).

An argument for the first potential reason (i.e., G*f* construct) can be made as to why the disproportional enrollment results were obtained. Cattell (1963)

conceptualized G*f* as the following: (1) the capacity to perceive relations and educe correlates, (2) is mostly biologically and physiologically determined, (3) is affected by gestation period influence and later physical trauma and physiological change, and (4) operates independent of cultural knowledge or experience. However, research subsequent to Cattell's work has documented the strong interactional nature between variables such race, SES, and experiences such as trauma (e.g., Berger, 2019). As such, there exists sound logic and data to argue that the idea of reasoning processes that operate independent of the actual world is illusory.

One can make a case for the second reason (i.e., CogAT as inadequate) because evidence exists that the CogAT could be a culture-bound measure of gifted intellect (Wasserman & Wasserman, 2017). Mean group differences exist in quantitative and verbal batteries of the CogAT, but have also been found in the what is assumed to be a culture-neutral component, known as the nonverbal battery (Carman et al., 2018). This finding is not unique to ability tests, as there is also ample evidence of the CogAT's convergent validity with other known measures of G*f* (Lakin & Gambrell, 2014). Given this evidence, a reasoned argument can be made that present measures of gifted intellect fall short of a full operationalization of G*f*.

The third reason (i.e., test utility) can be advanced because of the known impact of poor cognitive testing utility on underrepresented groups (Carman, Walther, & Bartsch 2018; Peters & Engerrand, 2016; Peters & Gentry, 2012). For example, using scores as the sole determinant and applying improper norms during the gifted identification process have shown to serve as gatekeepers for underrepresented student groups (Carman et al., Peters & Engerrand; Peters & Gentry). Therefore, data

exist supporting the argument that CogAT was used inappropriately, therefore possibly responsible for the disproportional enrollment across student race and SES.

The fourth reason (i.e., moderator) can be defended by the idea that a moderator unaccounted for in this study's design lead to the results encounter. For example, mental illness is known to covary with G*f* (Keyes, Platt, Kaufman, & McLaughlin, 2017). As such, active symptoms of attention deficit/hyperactivity disorder, conduct disorder, and/or oppositional defiance have been known to interfere with cognitive functioning and result in lower scores on assessments measuring G*f* (Keyes et al.). Mental health status in this study is not completely unaccounted because of the SES variable. SES has served in prior studies as a proxy for mental health status (McLaughlin, Costello, Leblanc, Sampson, & Kessler, 2012). As such, data shows it is possible that actual differences in achievement exist across groups of students based on variables that were not directly analyzed such as mental illness.

Which of the four proceeding explanations of the obtained results concerning race/ethnicity and SES has the greatest explanatory likelihood? Use of Occam's Razor suggests the first (i.e., G*f* construct). G*f* is the most commonly used construct used to identify giftedness in U.S children (McBee, Peters, & Miller, 2016). As such, the construct produces a foundational template and shapes all related gifted programming. Gifted programs in the US seek to identify students that show adaptive skills and achievement that are consistent with mainstream Western culture and values (Sternberg, 2018); creating a culture-bound construct. This results in the over-identification of students who are fluent in the sociocultural context embedded in Western educational systems, and the under-identification of those who aren't. While

the second argument pertaining to the CogAT is surely a contributing factor because the assessment's purpose is to measure fluid intelligence (Lakin & Gambrell, 2014), when looked at more critically, the CogAT is only a reflection of a culture-bound construct. For example, underrepresented student groups may possess gifts and talents specific to their own sociocultural context (Sternberg, 2018), but such skills being identified are beyond the measurement capacity of the CogAT. The utility of the CogAT could also be a factor, but the participating district did not elaborate beyond the usage of a multi-step identification process and the utilization of national norms. Therefore, we can assume then, that the utility of the CogAT's Standard Age Score (SAS) was used as only part of multiple pieces of data, rather than the sole determinant for student access. While national norms were utilized by the participating district is it difficult to know how the identification and norming process interacted with one another and contributed to the disproportional results. This rationale is supported by a similar argument in a study with one sample utilizing the CogAT as part of a multi-step identification process (Carman et al., 2018), as such there is a lack of sufficient evidence to make the claim that the utility of the CogAT could be responsible. The argument that the comorbidity between mental health disorders and fluid intelligence is relevant; however, a high prevalence of mental health disorders that would have caused the disproportionalities across groups would be rare specifically because the onset of most behavioral disorders begins around early adolescence (Merikangas et al., 2010) and the sample was comprised of first grade students. Additionally, SES has been used as a proxy for mental illness, but a lack of evidence exists to show the overall association low SES has on mental health

(McLaughlin et al., 2012). Thus, showing that while the web of gifted disproportionality is complex and surely interrelated, the root cause of the present disproportionalities can most likely be determined by turning to a theory of intelligence bound by Western societal norms and values.

With respect to gender, there are two possible reasons for the results obtained. The first explanation addresses differences in academic performance across gender, differences evident in young children (Pomerantz, Altermatt, & Saxon, 2002). Altermatt, & Saxon, 2002). Specifically, regarding the CogAT, females have scored better on the verbal battery while males have excelled on the quantitative battery (Lohman & Lakin, 2009). Second, the CogAT has shown trends in overidentifying males. The variability hypothesis holds true against the CogAT, where an overrepresentation of males occurs in tails of ability distribution (Johnson, Carothers, & Deary, 2008; Lakin & Gambrell, 2012; Lakin & Gambrell, 2014, Petersen, 2013). Johnson et al. (2008) identified substantial sex differences on the extremes of ability distribution across the CogAT batteries. Lakin and Gambrell (2014) reported similar findings, where males showed higher variability across CogAT batteries. Of the two options, the explanation of the CogAT as overidentifying males is the most plausible; research has shown that the assessment consistently selects for males at the extremes of ability distribution. Gifted programs seek to identify those who are two standard deviations from the mean. Therefore, if males often score at the extreme ends of the tails, including two standard deviations both above and below, this would explain the overrepresentation of males in these results.

Limitations

The inferential nature of the one-sample *z* test of proportions lends itself to making generalizations about the larger population. Given that gifted students comprise a small proportion of students is the general population, one must be careful when drawing conclusions from a small sample. Future research might, in this spirit, collect more samples to generate a larger *n*.

A second limitation would be the binomial nature of the race variable in this study. The original variable was multinomial with five categories (Alaskan Native/American Indian, Black, Hispanic, multi-racial, Pacific Islander). To address the issue of small category counts, race was collapsed into two categories: "overrepresented" and "underrepresented." Future research should then attempt to collect a sufficiently large sample to effectively evaluate the relationship between specific racial groups and gifted program enrollment to better understand and advocate for marginalized groups.

Implications

This study has implications in the areas of the current gifted construct and its controlling definitions, evaluative tools, and future research prospects. First, starting with the foundation, considerations should address a construct that is increasingly unsustainable within a rapidly changing and diverse society. Gifted definitions and appendages of the gifted construct privilege fluid intelligence by association, even when inclusive language, acknowledging of multicultural needs, is included in operative definitional metrics. No longer is it appropriate to blame certain forms of identification tools for disproportionality rates; such tools are only measuring a highly

culturally bounded construct. A shift in conceptualizing giftedness is necessary—a shift that reframes the construct *itself*, basing the revised approach on a skill set adaptive to specific social contexts.

Given the above described boundness, there are also certain implications for gifted measurement practices. Specifically, dynamic assessment is a more accurate approach for quantifying what a student from a non-mainstream culture should know or should have the ability to know (Sternberg, 2018). Dynamic testing examines performance over time, allowing students to develop familiarity toward a type of test (Sternberg). In other words, dynamic assessment enables the tester to show learning based on experience. In sum, the present study underscores the need for an approach that focuses on student racial predictor variables and cognitive-testing outcomes using the dynamic assessment approach.

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Chapter 3: A Research Manuscript

Disproportionalities in Gifted and Talented Education Enrollment Rates: An Analysis of the U.S Civil Rights Data Collection Series

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Abstract

Certain student groups have remained underrepresented within gifted and talented education (GATE) programs since the advent of such curricular options. The literature tracking disproportionality in gifted education is sparse and of recent vintage, and it has primarily evaluated inequities pertaining to race/ethnicity and SES while failing to consider students who are either culturally and linguistically diverse (CLD) or gifted and disabled. The present study used a cross-sectional design to analyze gifted disproportionality rates in extant data gathered by the Office for Civil Rights (OCR). Proportional representation in gifted program enrollment was assessed in terms of students' race/ethnicity, English Language Learner (ELL) status, and disability status under the Individuals with Disabilities Education Act (IDEA). A one-sample *z* test of proportions showed statistically significant disproportionality across the three student groups evaluated. In addition, state-by-state rankings of racial disproportionality sizes revealed inequities across the United States. While identification procedures and metrics designed to detect gifted status have been singled out for encouraging disproportionality, this study locates problems at a deeper level: within the theory of intelligence used to measure giftedness in Western school systems. Addressing broader-form disproportionalities in gifted education calls for correctly diagnosing the nature of these systems' underlying inequities.

Keywords: GATE, disproportionality, fluid intelligence, twice-exceptional, ELL, CLD

Disproportionalities in Gifted and Talented Education Enrollment Rates: An Analysis of the U.S Civil Rights Data Collection Series

Charles is a homeless Black male with autism—but he is also a homeless Black male with autism who is *gifted*. The fact that his ability might not be recognizable to those in a position to make decisions about his education goes to the heart of the problem with gifted and talented education (GATE) programs. Students like Charles are statistically less likely to be identified for gifted education; those who are diverse in terms of race, ability, and class also have decreased access to and participate less in gifted programs in the United States (Ford & Grantham, 2003; Ford, Grantham, & Whiting, 2008). Throughout much of American history, underrepresented groups have seen their abilities go un- or under-recognized (Card & Giuliano, 2016; Morris, 2001).

Charles represents a gifted student profile that is rare because he possesses characteristics historically underrepresented in gifted programs; moreover, his unique ability might not be noted by school staff because gifted classrooms tend to be filled with students who are White, upper-middle-class, native English speakers, and free from an identified disability under the Individuals with Disabilities Education Act (IDEA). In order to better understand the importance of Charles, and what he represents, Critical Race Theory (CRT) will be utilized.

Writing through the lens of CRT has multiple objectives. First, CRT conceptualizes a problem through a historical, educational, and political context (Daftary, 2019). As such, disproportionality in gifted education can be better understood by exploring how the historical roots of racism in the U.S. has impacted

political and education policies and procedures for students who are not of the dominant culture. Second, CRT seeks to provide a change in perspective by viewing the problem from the counter-narrative point of view (Bell, 1965), which in the case of the present study is that of underrepresented student groups. The perspective of those who are marginalized in gifted education has been a voice that is not equally heard or equally valued as supported by studies that produce data that consistently reflects historical gifted disproportionality (Callahan, 2005; Ford et al., 2008; Hamilton et al., 2018; Wright, Ford, & Young, 2017). Lastly, CRT makes a commitment to be critical while seeking to build awareness in those who hold positions of power to make decisions that impact disempowered student groups (Bell).

Data demonstrate longstanding and consistent underrepresentation of certain racial and socioeconomic groups within gifted programs (Callahan, 2005; Ford et al., 2008; Yaluma & Tyner, 2018), and research has addressed the impact of race/ethnicity and SES on rates of identification for and enrollment in gifted programs (Callahan; Ford, 2010; Ford et al.; Grissom & Redding, 2015; Yaluma & Tyner). Still, scholars have not sufficiently considered students who are diverse in other respects and who are, likewise, underrepresented. Those with identified disabilities under IDEA, for example, as well as those who are English Language Learners (ELLs), register disproportionate rates of enrollment in gifted programs as compared to their numbers within the general school population (Civil Rights Data Collection [CRDC], 2014).

Yet, even as data from the federal government bear out this lack of proportion, only 2% of academic studies pertaining to gifted education have focused on culturally and linguistically diverse (CLD) students (Elhoweris, Mutua, Alsheikh, & Holloway, 2005). What is more, the available literature on disproportional enrollment in gifted programs fails to employ inferential statistics, instead applying descriptive statistics to identify rates of prevalence for underrepresented student groups. The present study utilized inferential statistical methods to discern differences in enrollment for students in specific demographic groups, before evaluating the size of individual state differences and using descriptive statistics to rank state results by size. Previous studies have failed to take this next critical step: deploying statistics that allow the researcher to draw inferences about the evident disproportionality in rates of gifted program enrollment—the gap—while also divining whether these differences exist in the larger population of underrepresented student groups. Using inferential statistical methods targets a clear gap in the current gifted literature, but it can also facilitate researchers' attempts to disrupt gifted policy.

The development and implementation of gifted education policy has created its own type of gap in student opportunity (Callahan, 2005; Card & Giuliano, 2016; Ford, 2010; Ford et al., 2008; Morris, 2001; Naglieri & Ford, 2003; Yaluma & Tyner, 2018). Scholars have advocated for policy changes that address the inequities existing in opportunity by, for example, integrating culturally sensitive definitions and by adopting universal screening techniques (Callahan; Card & Giuliano; Ford et al.; Yaluma & Tyner). Other researchers have discussed contemporary methods of evaluation, such as nonverbal instruments, which measure intelligence in more

appropriate ways for both children of color and children from lower SES households (Callahan; Ford; Ford et al.; Naglieri & Ford). Because underrepresented groups require more culturally sensitive practices to meet their needs, the GATE literature on disproportionalities that is reviewed below attends to the following themes: (a) racial/ethnic differences, (b) CLD, (c) low SES, (d) twice-exceptionality (i.e., those identified as gifted but who also have special needs), (e) identification methods, and (f) retention. The research questions guiding this study will follow a review of the above six categories.

Enrollment disproportionalities exist across students' racial backgrounds. Callahan (2005) reported that Black and Hispanic students were less than half as likely to take part in gifted programs; so, too, were Native Alaskan and American Indian students profoundly underrepresented. Students who are Black, Hispanic, and American Indian have, in fact, been annually underrepresented in gifted education programs by at least 40% (Ford et al., 2008). Results from a recent meta-analysis of gifted studies, from 2002 to 2015, showed that Black, Hispanic, and American Indian students were about one third as likely to be identified for gifted education as were their White and Asian counterparts (Hodges, Tay, Maeda, & Gentry, 2018).

Certain ethnic groups endure more disproportionality than others. Grissom and Redding (2015) found that, for example, when compared to their White peers, Black students were 66% less likely to be identified for gifted programs. Yaluma and Tyner (2018) offered more in this regard, finding that, among schools with gifted programs around the nation, Black students were 15% of the total student population but only 10% of the enrolled gifted population. Meanwhile, Hispanic students were

27.6% of the total student population but only 20.8% of the enrolled gifted population.

By contrast, Asian students were 4.8% of the total population but almost double that percentage with respect to the gifted population (8.6%), while White students were 47.9% of the total student population but 55.2% of the gifted population. Further, Hodges et al. (2018) demonstrated that Black students qualified for gifted programs at lower rates than did their Hispanic peers across all regions of the United States, with the largest gap occurring in the Midwest. Even more, Morris (2001) presented data from the Georgia Department of Education, showing that, of the 31,889 White and 26,683 Black students enrolled for the 2000–2001 school year in Fulton County, Georgia, 4,862 White students enrolled in gifted programs compared to only 683 of their Black peers.

Although their rates are less disparate than the rates evident in poorer settings, Black and Hispanic students in low-poverty schools—schools where fewer than 75% of students receive free and reduced lunch (FRL)—also face disproportionalities. Yaluma and Tyner (2018) sampled low-poverty schools and found that, among those with gifted programs, Black students represented 4.8% of the total student population but only 2.6% of enrollees, while Hispanic students, for their part, were 11.2% of the student population but only 7% of gifted enrollees. Meanwhile, Asian students were overrepresented, with 16% identified as gifted despite a 10% representation within the general student population. The representation of White students ended up being proportional, registering at 69% (Yaluma & Tyner).

Numerous factors have contributed to the above noted disproportionalities. Scholars have addressed these influences, but the ways assumptions about race and ethnicity influence decisions about gifted student identification and placement, and especially the roots of such assumptions, warrant greater attention within the literature (Ford, 2010; Morris, 2001). On this note, Morris discussed the impact of Black students feeling they were intellectually inferior to White students, connecting these impressions to the placement rates of Black students in gifted programs and advanced courses.

This type of racial assumption is known as *deficit thinking*. Deficit thinking creates blinders for educators, inhibiting them from seeing the potential in students of color (Ford, 2010) and leading to the underrepresentation of Black students in all layers of gifted programming—not just during the identification process. Ford noted the influence of deficit thinking in definitions of *giftedness,* as well as the definition's supporting theories and related instruments, criteria, policies, procedures, curricula, and methods of student placement. For example, the 2014–2015 *State of the States in Gifted Education* report showed that only eight of the 37 reporting states included the needs of CLD students in their definitions of giftedness (NAGC, 2015). Racial assumptions have also contributed to lower rates of Black student enrollment in accelerated and rigorous courses, accounting even more for the traditional overrepresentation of White and Asian students in such programs (Yoon & Gentry, 2009).

Data have also shown that American Indian and Hispanic students are underrepresented in gifted programs. The CRDC (2011) reported that only four states

in the United States achieved enrollment rates greater than 5% for American Indian students. These numbers are discouraging, but research has yet to determine precisely how underrepresented American Indian students are when compared to other ethnic groups. One reason for the dearth of scholarly attention to this subgroup could be that American Indians make up only 2% of the U.S. population (U.S. Census Bureau, 2014). No matter the cause, however, such scant attention presents challenges for future study. As Hodges et al. (2018) cautioned in this regard, "Making inferences on a population that is ill defined frequently leads to error and/or bias" (p. 168).

The story is different for Hispanic students. According to the National Center for Education Statistics (NCES, 2017), data from 2014 showed that 25% of students in public schools were Hispanic, with the number projected to reach 29% by 2026. And yet, while rates of enrollment for Hispanic students in public schools have increased, rates of gifted identification have not (Hodges et al., 2018). Indeed, reflecting on CRDC data from 2006, Yoon and Gentry (2009) found that Hispanics were underrepresented in gifted programs in 43 of 50 states.

Disproportionality rates in gifted education are discouraging for students of color, but CLD students face the same challenges. Designated as ELLs by the U.S. Department of Education, CLD students can be distinguished by racial/ethnic minorities, language, and social class standing when compared to mainstream culture (Terry & Irving, 2010). Or, according to Herrera and Murry (2005), a CLD student is one who possesses a language or culture that differs from the dominant language or culture present in the United States. While each child can be considered culturally diverse, those who are set apart from mainstream culture tend to be marginalized

(Terry & Irving). As a term, CLD is more apt than ELL, because it recognizes students from diverse backgrounds carry experiences that likely differ from their mainstream American counterparts—accepting, too, that the learning needs of these diverse students require more than merely efforts to increase their English language proficiency. That said, for this study, CLD and ELL were used interchangeably, because ELL has been the preferred term in federal data sets and definitions.

Students who are ELLs typically have not participated in gifted education. The CRDC (2011) reported an overall gifted enrollment of 2.7% for ELLs in the United States. The 2014–2015 *State of the States in Gifted Education* report listed 12 states that counted ELL gifted populations of 1% or under (NAGC, 2015), with Colorado reporting the highest rate, at 4.5% (NAGC). These data underscore the disproportionality in participation rates across groups, with scholars attending to larger demographic subgroups. Still, the literature on ELLs is rather limited. Indeed, Ford (1998) noted the small amount of published work available on CLD populations. Because of this relative dearth of data, we can only speculate on why enrollment rates are so low for this population, relying on the literature on racial and ethnic disproportionalities in gifted programming to focus on (a) identification methods, (b) teacher expectations, (c) recruitment methods, and (d) retention methods (Ford et al., 2008; Grissom & Redding, 2015; Petersen, 2013). Ford et al. discussed how teacher-preparation programs have contributed, inadvertently, to the underrepresentation of CLD students, because they lack both multicultural teaching practices and an emphasis on best practices for identifying giftedness in diverse learners.

Despite the evident and longstanding underrepresentation of certain student groups in gifted education, it remains unclear how to raise rates of enrollment. The Jacob K. Javits Gifted and Talented Students Education Act (Javits Act), the only federal program dedicated to gifted students, was signed into law in 1988, with the purpose of directing resources toward identifying and serving underrepresented populations, such as minority students, students from low-income backgrounds, ELL students, and children with disabilities. The Javits Act sought to address the opportunity gap for gifted students—an especially pronounced gap for students considered CLD—but, a few decades later, little has changed.

With the same interests in mind, the NAGC (2011) developed a position statement on underrepresentation of CLD students in gifted education, encouraging the continuous reexamination of policies, procedures, and practices that could be restricting access for this group of students. The NAGC also allocated funding to support "best practices"—a determination made at the state level. And yet, systemic issues remain. Gifted programs still struggle to close the opportunity gap for not only racial and ethnic minorities but also CLD students.

Race plays a factor in gifted identification and enrollment, but SES also prevents students from accessing gifted programs. Students living in poverty are underrepresented in gifted programs, even though, as Suitts (2015) found, in 2013, low-income families constituted 51% of the student population. The 2014–2015 *State of the States in Gifted Education* report showed that rates of gifted enrollment for low SES students ranged from 1% to 38.9% across the 14 states that provided data (NAGC, 2015). Finally, Callahan (2005) noted that the National Education

Longitudinal Study (NELS) pointed to only 9% of all gifted students coming from low-income families.

These low enrollment rates could be a function of the identification methods that states have used to identify students, because metrics such as standardized assessments exclude poor students who might be identified as gifted but often are not, underscoring how such techniques reflect opportunity more than anything else (Slocumb & Payne, 2000). Importantly, standardized assessment methods measure the abilities of students from low SES backgrounds against skill sets created by middle-class opportunity norms (Slocumb & Payne). Put simply, identification methods perpetuate disproportionalities in gifted education for culturally diverse populations and the impoverished; however, it is also true that students from special populations who are identified for participation do not necessarily end up taking part in gifted programs.

This relationship between identification methods and disproportionalities applies to all students, regardless of racial or ethnic background and socioeconomic level. That said, Yaluma and Tyner (2018) discovered that, even as high-poverty schools were as likely to have gifted programs as low-poverty schools, student participation in gifted programs at low-poverty schools (12.4%) was over twice the rate of student participation in high-poverty schools (6%). Clearly, something more profound is occurring in the case of students attending high-poverty schools.

These data reveal obvious discrepancies among gifted students living within a low SES; yet, the same discrepancies are present, albeit less evident, in the case of students deemed *twice-exceptional*, or those who are gifted but who also have a

disability. Twice-exceptional students can be identified in federal data sets under the IDEA designation, and they are rarely present in gifted programs. The 2013–2014 CRDC results indicated that students qualified under IDEA amounted to only 2.4% of gifted program enrollment in the United States. According to the 2014–2015 *State of the States in Gifted Education* report, rates for twice-exceptional students ranged from .1% to 6% across the 15 states reporting data (NAGC, 2015). In a study examining twice-exceptionality in students living in Mississippi, those with speech and language delays—but who were still deemed gifted—made up only 1.5% of the identified gifted population (Karnes & Bisland, 2004). This percentage was the largest of those considered twice-exceptional; those who were learning disabled and identified as gifted were the second largest group, registering at .5% (Karnes & Bisland).

Macrosystemic barriers, such as conceptualizations of critical definitions, could also be contributing to the disproportionalities in these data. The systemic impact is best understood by applying Bronfenbrenner's (1984) ecological model. The terms *giftedness* and *learning disabled* have inspired vigorous debate on the macrosystemic level (Bronfenbrenner; Maddocks, 2018), debate that has, in turn, affected public school policy. For example, the 2014–2015 *State of the States in Gifted Education* report showed that, of the 37 states reporting data on gifted definitions, only six included students served under IDEA (NAGC, 2015).

Additional debates have discouraged identification in those who are both gifted and learning disabled. Maddocks (2018) showed that, in addition to disputes over definitions, disagreements over identification criteria for this population could perpetuate disproportionality rates. Teachers' perceptions of and assumptions about

the potential of students with learning disabilities could be another contributing factor affecting referrals to gifted education (Bianco, 2005). In addition to staff misperceptions regarding giftedness, underrepresentation of those who are twice-exceptional will undoubtedly occur when traditional identification methods are employed. Researchers have consistently pointed to traditional methods—generally, parent and staff referrals and IQ testing—as the main reasons for gifted disproportionality rates for students who are minorities, CLD, twice-exceptional, and from low SES situations (Card & Giuliano, 2016; Elhoweris et al., 2005; Ford et al., 2008; Frasier, Passow, & Garcia, 1995; Maddocks), meaning that identification for diverse groups will continue to be missed as long as traditional methods are used.

In this regard, Wasserman and Becker (as cited in Naglieri & Ford, 2003) compared students of various ethnic backgrounds on popular IQ tests such as WISC-III, Stanford-Binet IV, and Woodcock–Johnson Tests of Cognitive Abilities, and reasoned that, compared to White students, fewer minority students were identified for gifted programs. In the same vein, Grissom and Redding (2015) showed that identification methods have little to do with a student's intellectual ability—and, even more, that the classroom teacher's alignment or misalignment of race played a key role affecting student identification in the case of teacher referrals.

For example, Black students placed in classrooms with teachers who were not Black, were less likely to receive gifted services, especially in reading. Additionally, Elhoweis et al. (2005) used vignettes to analyze rates of gifted identification for Black children who were students of White teachers. Results showed that teachers made referrals at a higher rate when students were an unidentified ethnicity than they did

when the students were Black (Elhoweis et al.). These data indicate the dangers of racial bias in educators, and they highlight the significance of assumptions that can widen the opportunity gap for underrepresented populations. And yet, even while circumscribing opportunity for minority populations, the teacher-referral method still prevails in the United States. In fact, the 2014–2015 *State of the States in Gifted Education* report showed that, of the 33 states that responded, 19 used multiple criteria to identify students, including teacher referrals and IQ tests (NAGC, 2015). These data also showed that 13 states used only IQ scores and 12 states used teacher referrals as their primary identification methods (NAGC).

In theory, using multiple criteria should increase opportunity for nontraditional gifted students, given that the measures currently used have tended to exclude minority populations, especially Black students (Morris, 2001). Identification methods that are more contemporary and oriented toward greater inclusion could address populations of students historically disadvantaged by traditional approaches (Lo & Porath, 2017). For example, Naglieri and Ford (2013) recommended using nonverbal intelligence tests to limit barriers for those with verbal disadvantages associated with their cultural or socioeconomic backgrounds. Here, the Naglieri Nonverbal Ability Test (NNAT) is apt. Naglieri and Ford's results showed that the disbursement of a standard score of 125 (95th percentile) was equally distributed among Whites (5.6%), Blacks (5.1%), and Hispanics (4.4%). The findings from the meta-analysis conducted by Hodges et al. (2018), however, showed no statistical significance in terms of gifted identification rates for Black and Hispanic students when using verbal or nonverbal identification methods.

Another nonverbal screening option is the Cognitive Abilities Test (CogAT), although few articles have reviewed this instrument (Warne, 2015). The most recent literature examining the relationship between underrepresented populations and the CogAT found that group differences were not eliminated by using a universal screener such as the CogAT (Carman, Walther, & Bartsch, 2018). Universal screeners are strongly encouraged, because all students are tested within a chosen grade level (Card & Giuliano, 2016; Yaluma & Tyner, 2018), therefore, in theory, increasing opportunity. Still, this method can also lead to disproportionalities (Carman et al.). For example, Black students scored, on average, 9.5 points lower than students from other races/ethnicities; meanwhile, FRL students scored 4.1 points lower than non-FRL students, and students receiving special education services (SPED) scored 5.3 points lower than non-SPED students (Carman et al.). While this information differs from the results of previous studies, it underscores the need for more research and supports the use of multiple identification screeners.

A single source of data, even one involving nonverbal instrumentation, is insufficient to determine gifted qualification (Carman et al., 2018). Discussing more inclusionary methods is the first step in closing the opportunity gap for underrepresented populations. At the same time, alternative identification methods could take years to reach the status of "best practice," if they get there at all. One significant challenge here is that, while students can be identified for gifted services in numerous ways, there are no federal guidelines directing the states on the establishment or administration of such methods. There are only best practices; and

best practices are often based on research showing what works for groups in the majority—not those who have been routinely underrepresented.

As challenging as recruitment is for underrepresented populations, professionals also struggle to retain students who end up enrolling in gifted programs. Data tracking student retention is not readily available (Ford, 1998; Ford et al., 2008); national retention rates are difficult to determine because available data track only enrollment rather than gifted program completion (Ford; Ford et al.). Especially in the case of CLD students, retention could be affected by recruitment—which is to say, CLD students might be concerned about fitting in and experiencing camaraderie with White peers and teachers, perhaps making the students less inclined to participate. CLD students deserve a rigorous and culturally responsive curriculum that better meets their unique needs (Ford, 2010). Social Emotional Learning (SEL) strategies, for example, are gaining more momentum in classrooms, helping students to feel a sense of community.

Regarding gifted students living in poverty, Slocumb and Payne (2000) stressed intervention to support the emotional development and affective needs of impoverished students and to prevent them from dropping out of gifted programs. These principles are the core values of an SEL program. This sort of program allows twice-exceptional students to use their abilities, but it also reduces the likelihood of interference associated with the difficulty or disorder because SEL principles and techniques allow students the opportunity to demonstrate learning through their strengths. A culturally responsive curriculum benefits all students, not just those

underrepresented. Such strategies secure retention (Foley-Nicpon, Allman, Siek, & Stinson, 2010) and enhance a gifted learner's overall experience.

Why do rates of underrepresentation in gifted programs remain stagnant? To better understand this stagnancy, this study proposed two primary research questions. The first question was: In terms of GATE program enrollment, do disproportionalities exist in student populations according to race/ethnicity, IDEA status, and ELL status? And the second question was: When considering GATE program enrollment, what is the ranking of U.S. states in terms of their disproportionalities with respect to race/ethnicity?

Method

Design

This study employed a cross-sectional observational design using archival (i.e., pre-existing) data (Mann, 2003). The examination of gifted program enrollment attended to variables of race/ethnicity (binominal), disability status (binomial), and ELL status (binomial). Power analyses were not conducted, because the data contained the entire population.

Participants

Data were obtained from a publicly shared file within the 2015–2016 CRDC series. All participants were public school students within the United States.

Measures

GATE enrollment status. Program enrollment was dummy coded as 0 for *No* and 1 for *Yes*.

Disability status. Students designated with a disability under IDEA were coded as 0 for *does not have a disability* and 1 for *has a disability*.

Race/ethnicity status. Race was divided into two groups, with 0 representing *historically underrepresented* (i.e., Black, Hispanic, Indigenous, multi-racial, Pacific Islander) and 1 standing for *historically overrepresented* (i.e., Asian and White).

ELL status. English Language Learners were coded as 0 for *no ELL status* and 1 for *ELL status*.

Total population disabilities proportion (p_0). This is the proportion of students among the national population who are disabled.

Sample GATE disabilities proportion ($\hat{p}$). This is the proportion of students who were both enrolled in GATE and disabled. The sample proportion was drawn from this group.

Total population race/ethnicity proportion (p_0). This is the proportion of students among the national population by race/ethnicity.

Sample GATE race/ethnicity proportions ($\hat{p}$). This is the proportion of students, by race/ethnicity, who enrolled in GATE. The sample proportion was drawn from students within over- and underrepresented racial groups who enrolled in GATE programs.

Total population ELL status proportion (p_0). This is the proportion of students among the national population who are ELL status.

Sample GATE ELL status proportion ($\hat{p}$). This is the proportion of students who enrolled in GATE and who are ELL status. The sample proportion was drawn from students who both enrolled in GATE programs and were ELL status.

Data Analysis

The first research question measured proportional differences between GATE students and the entire student population. All three demographic variables were binomial. A one-sample *z* test of proportions allows researchers to analyze an observed binomial variable (i.e., $\hat{p}$) against a known population proportion (i.e., p_0) (Daly & Bourke, 2008). The significance level for all analyses, including inferential ones, was set at .05. The second research question relied on the Rae Index to quantify the size of each state's racial disproportionality, producing an index value. Descriptive statistics were then used to rank-order individual state racial disproportionality index values. Both research questions were computed using the statistical programming language, R, for their analyses.

Results

A one-sample *z* test of proportions demonstrated proportional differences with respect to the first research question, rendering statistically significant results in terms of race/ethnicity, language status, and disability status. In the case of race/ethnicity, the results for historically underrepresented racial groups were: $p_0 = .47$, $\hat{p} = .31$, $n = 1{,}034{,}427$, $p = < .05$., while the results for ELL status were: $p_0 = .10$, $\hat{p} = .02$, $n = 90{,}998$, $p = <.05$. Finally, the results for IDEA designation were: $p_0 = .12$, $\hat{p} = .02$, $n = 88{,}063$, and $p = <.05$.

The second research question relied on the Rae Index to quantify the size of the racial disproportionality within each state by measuring the absolute deviation between expected and observed proportions. Rae Index scores closer to 0 have smaller differences between expected and observed proportions, and scores closer to

1 have larger differences. Index scores among states were then ranked from smallest to largest—that is, from least disproportionate to most disproportionate. See Table 1 for individual state rankings.

Discussion

There are four possible explanations for the racial disproportionalities found in the results. These explanations are: (1) inconsistent gifted identification procedures, (2) biased gifted measures, (3) inappropriate utility of gifted measures, and (4) G*f* is a culture-bound gifted construct.

An argument for the first explanation (i.e., inconsistent procedures) can be made because states and school districts are responsible in developing their own gifted programs, which result in inconsistent gifted identification procedures (NAGC, 2015). For example, 12 states in the U.S. make identification procedure decisions at the state level, 21 states determine identification procedures on a local level, and 8 states reported not needing to use specific criteria or procedures for identification (NAGC, 2015). As such, there is no universal implementation or consistency in who makes decisions and how decisions are made to identify students, which leaves ample room for bias (Callahan, 2005; Card & Giuliano, 2016; Ford, 2010; Ford et al., 2008; Naglieri & Ford, 2003; Yaluma & Tyner, 2018). Thus, evidence advances the argument that a lack of consistent procedures across the nation result in disproportionalities found in data pertaining to students of color.

Second, racial disproportionalities in these data could be a function of cultural bias in the measures adopted to identify gifted status. While certain nonverbal measures, such as the Raven Standard Progressive Matrices (RAVEN, 1941), the

NNAT, and the CogAT, have been shown to reduce racial differences in gifted identification, entirely culture-neutral tests do not exist (Sternberg, 2018). For this reason, an argument can be made that even measures that reduce racial differences don't diminish them, therefore gifted measures are culturally biased.

Third, the utility in which gifted identification assessments were used could be contributing to the disproportional rates found. For example, when national norms are utilized, disproportional rates are maintained for students of color (Carman et al., 2018) and students living in poverty (Peters & Gentry, 2012). Because of these findings, national norms are a sound argument for the racial disproportionalities present.

Fourth, it could be that the construct of giftedness itself, which is based on fluid intelligence (i.e., G*f*), is culture-bound. G*f* has presumably been accepted as a culture-neutral theory of intelligence (Cattell, 1963) but consistent data revealing disproportionalities for students outside of mainstream culture in the U.S. questions whether the theory could be culture-bound more so than being culture-neutral (Sternberg, 2018). Arguably, a culture-bound construct could be driving the disproportionality rates in students of color.

While all four arguments are possible, which explanation is the most likely? Occam's Razor suggests the fourth explanation (i.e., G*f* as culture-bound) is responsible for driving the disproportionality rates for students of color. Although there are various types of intelligence, G*f* is the one used most commonly to identify giftedness in children (McBee, Peters, & Miller, 2016). In essence, Cattell (1963) describes G*f* as the ability to solve problems and develop adaptive skills to new

situations; where culture plays no advantage. However, learning how to solve problems, as well as understanding which problems are worth solving, are rooted in cultural context and are skills defined differently across cultures (Cocodia, 2014; Sternberg, 2018). Despite profound differences in cultural and racial backgrounds, children living in the United States are screened for giftedness in the same way, thereby assuming that giftedness is held and limited to the eye of Western culture. Related gifted programming is then built upon a culture-bound foundation. For example, in terms of giftedness in the U.S., students are identified who show a strong ability to solve problems that are found to align and be relevant in Western culture (Sternberg), which results in the overrepresentation of students from mainstream cultural groups. The identification of G*f* then contradicts Cattel's conceptualization because it is simply not possible to measure G*f* the same across various cultural groups without culture being a factor. Therefore, students who are overidentified for gifted programming reap the benefits of a construct that automatically provides advantage for some and disadvantage for others.

Inconsistent identification procedures which lead to a lack of best practices surely are a contributing factor, but upon further analysis of the available data in this area, 19 states utilize a multiple-step evaluation criteria for gifted identification (NAGC, 2015), which has been found to reduce disproportional rates in underrepresented groups (Carman et al., 2018). Further some states abide by regulatory codes that prevent school districts from making educational decisions for students based on a singular data point. Despite the attempt of 19 states using multiple data sources, racial disproportionalities still existed in all 50 states, which

leads to further investigation of what is lurking beneath the identification procedures. An argument then turns to culturally biased gifted measures. While information is not known on specific measures utilized by each state or district, research shows that despite the measures used, a culture-neutral or culture-free test simply does not exist (Sternberg, 2018). Concluding that gifted measures are only a reflection of a culture-bound theory of intelligence. The utility of gifted measures is also considered a possibility driving the disproportionality found in students of color. However, from a logical standpoint this argument becomes irrelevant because if gifted measures are culture-bound, then the results that have been established from national norms are also culture-bound.

Among the four arguments, all are only representing a foundation rooted to cater to mainstream middle-class students. Therefore, it is most likely that the underrepresentation of students of color found in the data is caused by a culture-bound construct of giftedness.

The ELL variable shows an unavoidable explanatory overlap in terms of results with the race/ethnicity variable. While both variables have unique characteristics, we cannot deny the depth and strength of the shared cultural component that sets these groups apart from mainstream Western culture.

The ELL designations invite us to consider three shared explanations as well as two additional explanations not yet considered. The first shared explanation addresses inconsistencies in identification processes across states and school districts (NAGC, 2015). The second shared explanation posits that gifted identification measures contain cultural bias privileging mainstream Western culture (Cocodia,

2014; Ford et al., 2008; Naglieri & Ford, 2003; Sternberg, 2018). Selected nonverbal batteries putatively assess the potential giftedness of ELL students, but Lohman, Korb, and Lakin (2012) found that the three most common instruments (CogAT, NNAT, and RAVEN) insufficiently assessed ELL students. Significantly then, inadequate attention discourages the adoption of nonverbal measures as best practices in gifted assessments for students who are linguistically diverse. A third and final shared argument targets the culture-bound theory of intelligence in which gifted identification is rooted (Cocodia; Sternberg).

Of the two explanations not yet considered, the first pertains to the administration of assessments. Assessing student performance by snapshot testing, where a test is administered only once, fails to address the needs of ELL students (National Council of Teachers of English, 2008), especially considering the level of familiarity that speakers of limited English have with standardized testing (Sternberg, 2018). The second explanation not yet considered focuses on an ELL student's experience with culture shock. The complicated relationship of external factors igniting culture shock can mask academic abilities, often resulting in the overrepresentation of ELL students in Special Education programs (Brown, 2004). As such, culture shock could also be responsible for the underrepresentation of ELL students in gifted programming.

Of the five plausible arguments, the most logical explanation is, again, a culture-bound theory of intelligence. Intelligence is a measure of adaptability, although acquiring adaptive skills is specific to the context of our environment (Sternberg, 2018). While the form of intelligence used to measure giftedness in

Western culture (i.e., G*f*) is a measure of adaptability, conventional cognitive testing does not identify skills that ELL students have acquired in their countries of origin (Sternberg). Arguments that target testing and assessment are, therefore, somewhat misplaced; looking at the results and consequences more critically indicates the problem is culture-bound.

In terms of IDEA designation, four possible explanations warrant consideration. The first argument states that stereotypes of giftedness have diminished opportunity within our educational system. Research encouraging a more complex and dynamic conception of giftedness is prevalent, but a combination of teacher training that is insufficiently attentive to diverse learners and the lasting influences of Terman's (1925) studies encourages educators to conceive of gifted students as needing to excel in *all* academic areas and as demonstrating great social and moral development (Bianco & Leech, 2010). The second argument involves perceptions that special education teachers have toward ability. Special education training calls for identifying deficits and employing intervention; thus, teachers view the ability of a student with an IDEA designation through a lens of remediation rather than through a lens of potentiality—potentiality that could, instead, emphasize the student's strengths (Bianco & Leech; Pfeiffer, 2009). Not surprisingly, given this tendency, Bianco and Leech showed that special education teachers have the lowest referral rates to gifted education programs.

The third argument suggests that the masking effect limits opportunity for students who are disabled and gifted (Bianco & Leech, 2010; Maddocks, 2018; Pfeiffer, 2009; Silverman, 2009). Students who are twice-exceptional, in terms of

giftedness and disability, are additionally challenged because the interaction of the students' two spheres of exceptionality can complicate their performance in testing, making them appear to be average (Bianco & Leech; Maddocks). The fourth explanation states that no clear process exists to identify, as gifted, students with a disability (Lovett & Sparks, 2013; Maddocks). Scholars and practitioners differ over the classification of twice-exceptionality (Lovett & Sparks; Maddocks), and this lack of consensus has resulted in inconsistent selection and administration of gifted measures used for identification, while also contributing to concerns over validity (Lovett & Sparks).

Among these possibilities, the most logical is the fourth explanation, pointing to the lack of a clear process for identifying twice-exceptionality. By nature, a process describes how something is done, while striving to make tasks more efficient, especially in situations involving large volumes. Any means by which a school district goes about identifying giftedness in students is a process; therefore, if identification processes differ across districts and states, they tend to become counter-productive, especially for student groups who are vulnerable populations and who exist in small percentages in gifted programs. Due to the inconsistent operationalization carried out by scholars, research has failed to generate valid forms of measurement and criteria for identifying twice-exceptional students. Without a clear recognition process and designated best practices, identification rates for this group will remain disproportionate.

In terms of the second research question, the Rae Index quantified the size of racial disproportionality existing within states. The scores were then rank-ordered

from smallest to largest disproportionality, nationwide on a 0–1 scale. Variability among index scores can be explained by considering the population proportion by race present in individual states. For example, the two states with the highest scores had a higher p_0 value (i.e., proportion of students expected to enroll) based on higher racial proportions of students in the total populations within their states. Yet the $\hat{p}$ value (i.e., proportion of students who actually enrolled) resulted in half of the expected proportion, creating a larger disproportionality size. Therefore, variability in racial disproportionality sizes among state rankings are driven by the size of the expected population proportion.

Limitations

This study suffers from two primary limitations. First, not every state made its identification procedures available. While an analysis of relationships among identification procedures and disproportionality was not the purpose of this study, having identification measures employed by each state could inform future research on enrollment-related equity gaps. Second, caution is necessary when interpreting the IDEA results, as specific disabilities associated with giftedness were not available. It is important to note, too, that while there are currently 13 disability categories under IDEA, the literature on twice-exceptionality typically focuses only on the three most often associated with giftedness (NAGC, 2017), including specific learning disabilities, autism, and other health impairments. Due to data restrictions, inferences extend only as far as the direct finding of underrepresentation, in gifted education, of students who are twice-exceptional.

Implications

While most work in the field points to assessments and identification processes as the causes of disproportionality, the present study offers something different. Scholars and social justice advocates in gifted education have charged that deficit thinking operates as a gatekeeper for gifted programs, but this research finds the roots of the problem reach much deeper than previously realized, demanding a response that goes beyond simply multicultural training and continuing education. Deficit thinking is grounded in historical misperceptions of and errant beliefs about race, but this study posits that deficit thinking actually transcends race—suggesting that such bias can also affect CLD students. Future research should, therefore, focus on the culture-bound nature of the theory of intelligence (i.e., fluid intelligence) on which gifted education is based. A mixed-method study surveying the prevalence of this theory of intelligence and its influence on curriculum in training programs, as well as a qualitative analysis of the leadership in such programs, would, for example, better reveal how, when, and why constructions of "giftedness" emerged and, even more, how they have been maintained. Thereby showing that a continuation of current gifted practices is, indeed, putting the word "GATE" in gatekeeping.

Table 1
Racial Disproportionality in Gifted Enrollment by State

State	Rae Index Score (0-1)
New Hampshire	0.0132
Rhode Island	0.0151
West Virginia	0.0176
Maine	0.0241
Massachusetts	0.0329
Montana	0.0454
Utah	0.0475
North Dakota	0.0575
Wyoming	0.0757
Michigan	0.0764
Arkansas	0.0810
Kentucky	0.0820
New York	0.0831
Minnesota	0.0896
Iowa	0.0902
Missouri	0.0913
Wisconsin	0.0929
Pennsylvania	0.0939
Indiana	0.1052
Illinois	0.1062
Oklahoma	0.1111
Idaho	0.1121
Ohio	0.1155
Alaska	0.1167
New Jersey	0.1204
Kansas	0.1210
Oregon	0.1296
Nebraska	0.1313
Tennessee	0.1372
Connecticut	0.1431
Hawaii	0.1529
Colorado	0.1543
Virginia	0.1554
Maryland	0.1564
Washington	0.1567
Florida	0.1569
Texas	0.1601
California	0.1628
South Dakota	0.1671
Louisiana	0.1699
Nevada	0.1770

Alabama	0.1917
Arizona	0.1964
South Carolina	0.2022
Mississippi	0.2065
New Mexico	0.2069
Delaware	0.2079
Georgia	0.2459
North Carolina	0.2516

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Chapter 4: A General Conclusion

Overview

While disproportionalities in the educational system, and specifically those associated with special education and discipline, have been examined extensively within the literature, the same cannot be said of disproportionalities in gifted education. The small amount of work that has attended to disproportionalities in gifted identification and enrollment has typically relied on descriptive statistics, with biased identification procedures deemed largely responsible for disproportionate enrollment rates (Callahan, 2005; Card & Giuliano, 2016; Ford, 2010; Ford, Grantham, & Whiting, 2008; Naglieri & Ford, 2003; Yaluma & Tyner, 2018). Still, there has been no previous research to indicate that findings of disproportionality in gifted enrollment extend, at the same rate, to the greater population.

As such, this study applied inferential statistics to examine whether disproportionalities could be found among diverse groups of students in gifted education, at both the local and national levels. These findings facilitate a more comprehensive understanding of the causes of disproportional distributions within gifted programs, and these results should spur a challenge to existing gifted education policies and practices that restrict access to underrepresented student populations. This chapter will, first, summarize the two research manuscripts within this dissertation, including key findings, research limitations, discussion points, and general recommendations. Following this, the chapter will explore thematic links between these studies, while also explaining their collective contribution to the literature on disproportionality in gifted education and enrollment. Finally, the chapter will set forth an anticipated research agenda that builds from this work.

Summary of the Research Manuscripts

The first study in this dissertation, "The Relationship of Gifted Program Enrollment to Race/Ethnicity, Gender, and SES," applied both descriptive and inferential statistical methods. Studies addressing disproportionalities in gifted education often use descriptive statistics (e.g., percentages and prevalence rates) to identify proportional differences. While descriptive statistics are convenient and useful for organizing and identifying differences within gifted identification and enrollment data, such statistical applications neglect a deeper analysis of the existence and characteristics of such disproportionalities, thus supporting the case to apply inferential statistics. A one-sample *z* test of proportions found statistically significant disproportionalities among all variables. In terms of race/ethnicity, Asian and White students had higher observed proportions than expected; thus, these groups were overrepresented. With respect to gender, females had lower observed proportions than expected, meaning they were underrepresented. Finally, regarding SES, students living in poverty had lower observed proportions than expected, meaning they, too, were underrepresented.

These findings were based on a representative sample drawn from first grade students in a school district comprised of urban and rural schools. While caution is warranted when generalizing results from a single sample, these findings are consistent with the disproportionality literature in gifted education (Carman, Walther, & Bartsch, 2018; Ford, 2010; Ford et al., 2008; Grissom & Redding, 2015; Naglieri & Ford, 2003; Yaluma & Tyner, 2018). Further research should continue to use inferential statistics, while employing multiple samples to strengthen external

validity. Although the disproportionality literature has emphasized assessment as the gatekeeper to gifted education (Callahan, 2005; Card & Giuliano, 2016; Elhoweris, Mutua, Alsheikh, & Holloway, 2005; Ford; Ford et al.; Frasier, Passow, & Garcia, 1995; Maddocks, 2018; Naglieri & Ford; Yaluma & Tyner), the present study took a different approach. Assessment surely contributes to disproportionality, but deeper problems exist below the surface and take on a more complex form. In fact, as the present study concluded, fluid intelligence (G*f*), which is the foundation on which the construct of giftedness is built and by which it is measured (McBee, Peters, & Miller, 2006), is culture-bound (Sternberg, 2018).

The second study, "Disproportionalities in Gifted and Talented Education Enrollment Rates: An Analysis of the U.S. Civil Rights Data Collection Series," also applied descriptive and inferential statistics. Here, disproportionalities were explored among the following variables: (a) race/ethnicity, (b) English Language Learner (ELL) status, and (c) disability as contemplated by the Individuals with Disabilities Education Act (IDEA). A one-sample *z* test of proportions found statistically significant proportional differences among all variables from a national sample of gifted program enrollment data in the United States. Rae Index calculations quantified the racial disproportionality found within individual states. States were then rank-ordered from smallest to largest in terms of least proportional differences to most proportional differences with respect to race/ethnicity. Rankings revealed that the largest racial disproportionalities occurred mostly, but not entirely in the southeast region of the United States.

Consistency was evident among variables and with respect to the literature.

For example, historically overrepresented racial populations (e.g., Asian and White) and historically underrepresented racial populations (e.g., Black, Hispanic, Indigenous, multi-racial, and Pacific Islander) all rendered statistically significant disproportionalities. Additionally, significant results among ELL and IDEA populations were evident, with data related to all three variables confirming previous findings within the gifted education literature (Elhoweris et al., 2005; Ford et al., 2008; Frasier et al., 1995; Grissom & Redding, 2015; Maddocks, 2018). Both descriptive and inferential results indicated that (a) inequities are present among diverse student populations, nationally, (b) racial inequities exist in all fifty states, and (c) the most and least significant disproportionalities exist within the eastern United States.

That said, while the above described data were robust and the findings compelling, any research design confronts limitations (Heppner, Wampold, & Kivlighan, 2008). Both research manuscripts employed cross-sectional observational designs, a technique allowing for the observation of data and the evaluation of relationships at a specific point. This method was appropriate considering the aims of these studies, but it also meant gifted program enrollment data was collected and analyzed from only one school year, at the cross-section of gifted program enrollment for the entire student population and without contemplation of sample activity before or after the researcher's snapshot. For example, this design did not account for those who perhaps qualified for gifted education but did not go on to enroll in the program, or those who were later denied services.

Another limitation involves defining the nature of the relationship between variables. Cross-sectional studies often determine prevalence (Mann, 2003). Both manuscripts addressed vulnerable populations within gifted education; and, while prevalence data are useful, they limit what a researcher can determine regarding the nature of relationships and associations between variables. For example, inferences regarding causation of variables are possible, such as the effect of race/ethnicity on gifted program enrollment, but such findings are still only inferences—relationships in need of rigorous subsequent examination to distinguish association from causation (Mann).

Limitations also exist for researchers relying on archival data. One problem associated with secondary data sets, as applied to the present studies, involves the nature of racial variables presented within archives. Racial multinomial variables from the data sets relied on for these studies were converted into the following binomial categories: "historically overrepresented" and "historically underrepresented." Variable conversion diminishes granularity among relationships between specific racial categories and rates of gifted enrollment. Specifically, for the first manuscript, low sample numbers of students in specific racial groups caused the variable conversion; and, to stay consistent with the prior variable conversion, the second manuscript had to also evaluate race in binomial terms.

Additionally, it could be argued that for the second manuscript, a limitation exists in terms of statistical validity. Rae Index can be sensitive for interpreting results that begin with already smaller proportion sizes and can often make scores appear more proportional than they actually are. However, for this study, and with the

conversion of racial categories into a binomial variable, proportion sizes were large enough to be free from scrutiny of value misinterpretation. Finally, the first manuscript was limited by concerns for external validity and the interpretation of results. Specifically, only one sample was used from a small geographical location, thus complicating efforts to generalize findings regarding gifted program enrollment among the general population.

Thematic Links and Contributions to the Literature

Both research manuscripts utilized extant data and a cross-sectional research design, and both works deployed research questions to analyze disproportionalities in gifted education enrollment across diverse student subgroups. The race/ethnicity variable was common between the studies, and descriptive and inferential statistics were applied to the analysis of variables from both manuscripts. Results were consistent across the studies, despite differences in the samples; and in neither study did a specific student population generate proportional results in terms of gifted program enrollment. Finally, both studies looked to fluid intelligence (G*f)* as a logical explanation of the results specific to the shared race/ethnicity variable.

Because only a small amount of academic literature focuses on disproportionalities in gifted education, the present studies significantly contribute to the literature in this area. In the same way, with only a few studies relying on inferential statistics to examine gifted disproportionality, the above described work fills a gap that has remained open and under-considered for too long. Finally, studies in this field rarely discuss the means by which a culture-bound theory of intelligence initiates and reinforces gifted education inequities. Thus, a frank discussion of the

influence of this culture-bound theory should encourage greater scrutiny of disproportionalities in gifted student enrollment, inviting a more probing and comprehensive investigation than can be currently undertaken given the traditionally limited focus on assessment and identification procedures.

Research Agenda

I understand the value of archival data, and I intend to use it in the future. In the world of public education, copious amounts of data are at the fingertips of researchers, and I have learned that applying various types of statistical analysis can reveal different perspectives on the stories existing within those data. As a practitioner, I value the human experience, and as a researcher I have come to appreciate how quantitative data can help extract the stories that need to be told.

As a former professional educator, I have the advantage of knowing the types of data that public educational systems tend to collect. I regularly interacted with these data while working as a school counseling practitioner, using such information to guide my planning and services while also relying on it to raise awareness and encourage microsystemic change. After years of service, I learned that sustainable change must happen on a larger level; and so, by becoming well-versed in research, I have realized how scholarly attention at the macrosystemic level can benefit a larger population of students and families. With a doctorate in counseling, I have the privilege of using my social position in academia to advocate and write for the following audiences: (a) professional school counselors, (b) students and their families, (c) public educational systems, and (d) counselor educators.

The principles that will drive my research agenda for the next decade pertain to the preferred type of data to be analyzed and the worldview applied to approaching research. First, I will continue to use archival materials as a data source. In my experience, analyzing preexisting data can be efficient and effective. Second, the worldview I bring to my research has been shaped by my passion for advocacy and my own lived experiences. My research tends to have an underlying emphasis on and encouragement of social justice. Additionally, because of both lived and observed life experiences, I am curious about the human story, believing that research can help raise awareness. With these motivations driving my work, allow me to explain how I will build on the research described in this dissertation.

As demonstrated above, the topic of disproportionality in gifted education is complex and multi-layered. Research by Sternberg (2018) presents a starting point for my next phase, particularly in this work's four general models for understanding conceptualizations of intelligence and measurement. These four models of understanding generally reflect a belief system about the nature of intelligence. For example, the first model posits the nature of intelligence is the same across cultural groups and can be measured the same way. The second model represents that intelligence occurs differently across group but manifests the same, therefore the measurements are still the same. The third model says that intelligence is the same across groups, but manifestations are different therefore measures should be different. The fourth and final model represents that aspects and measures of intelligence are driven by the cultural group under analysis. Employing survey research, and relying on these models, would help assess prevalence rates regarding the belief systems of

those in a position to make policy decisions about gifted education. The sample would attend to the following variables: (a) higher education training programs, (b) national gifted associations, (c) state department of education personnel, and (d) gifted education administrators. Prevalence data reflecting belief systems in specific variables could reflect differing degrees of relationships associated with belief systems across variables. Results could inform the development of staff training efforts targeting multicultural factors in gifted education, thus better aligning belief systems to produce more equitable practices. Following this, further study could explore relationships between states' definitions of *giftedness*, and especially what those definitions indicate about the underlying belief systems of stakeholders, and the respective rates of disproportionate enrollment within these states. A regression could detect the level of correlation between belief system and gifted enrollment rates of students from diverse groups.

To explore whether a culture-bound theory of intelligence is unique to gifted programs in the United States, it would be important to compare gifted programs in the United States to other countries with gifted programs. Exploring relationships between gifted program constructs and enrollment rates in various countries might give us more information on the conceptualization of giftedness across geographic regions. Shifting gears in terms of approach, while still focusing on the culture-bound theory of intelligence, I would be interested in looking at how individual states and school districts define *giftedness* and *gifted* in the context of gifted programs. Is there a predictive relationship between linguistic markers in gifted definitions and the disproportionality size by district and by state? A linguistic analysis of assessments

could be telling. While Sternberg (2018) argued that "culture-free" tests do not exist, the CogAT and NNAT claim to be as close to "culture-free" as possible. I would be curious to see whether culturally biased language is present in gifted assessments, especially by scrutinizing assessment techniques with linguistic analysis software.

Various types of qualitative studies also seem promising. Research focusing on how CLD students experience the gifted identification process could inform policy changes. A qualitative study could also explore how test administrators of gifted assessments experience students who are CLD. The themes from these data could expand research on deficit thinking while also improving multicultural competencies in gifted training programs. I would also be curious to understand the decision-making process of families who do or do not enroll their children in gifted programs. The thoughts, feelings, and beliefs informing a family's decision could explore a piece of the disproportionality puzzle evading quantifiable methodology.

Finally, both qualitative and quantitate approaches that explore the experiences of school counselors working with gifted students and their families could produce results that help shape counselor education training programs and continuing education opportunities focused on education and advocacy for practicing school counselors.

While this may sound pessimistic, inequity in gifted education is a daunting and overwhelming topic. I am often unsure of any argument or angle of research that might change philosophical beliefs regarding ability and intelligence. That said, I can continue using my platform as a researcher to raise awareness and, perhaps, bring about change. I started this study fixed on the research target as it had been defined

by others: namely, assessment. After conducting this work, however, I now conceive of disproportionality in a different, deeper way, raising broader questions about the significance of gifted education and reminding me that the root of research is *search.*

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Appendices

Appendix A: IRB Document 1

Human Research Protection Program
Institutional Review Board
Office of Research Integrity
B308 Kerr Administration Building, Corvallis, Oregon 97331-2140
(541) 737-8008
IRB@oregonstate.edu | http://research.oregonstate.edu/irb

DETERMINATION

Date of Notification	11/07/2016		
Study ID	7743		
Study Title	The Relationship of Gifted Magnet Program Enrollment and SES		
Person Submitting Form	Allison List, MS		
Principal Investigator	Cass Dykeman		
Study Team Members	Allison List, MS		
Funding Source	None	Proposal #	N/A
PI on Grant or Contract	N/A	Cayuse #	N/A

DETERMINATION: RESEARCH, BUT NO HUMAN SUBJECTS

The has been determined that your project, as submitted, does meet the definition of research but **does not** involve human subjects under the regulations set forth by the Department of Health and Human Services 45 CFR 46.

Additional review is not required for this study.

Please do not include HRPP contact information on any of your study materials.

Note that amendments to this project may impact this determination.

The federal definitions and guidance used to make this determination may be found at the following links: Human Subject

Appendix B: IRB Document 2

Oregon State University
Research Office

Human Research Protection Program
& Institutional Review Board
B308 Kerr Administration Bldg, Corvallis OR 97331
(541) 737-8008
IRB@oregonstate.edu
http://research.oregonstate.edu/irb

Date of Notification	09/18/2018	Study Number	8808
Notification Type	Oversight Determination		
Principal Investigator	Cass Dykeman		
Study Team Members	Allison List		
Study Title	Disproportionalities in Gifted and Talented Education (GATE) Enrollment Rates: An Secondary Analysis of the Public Federal Civil Rights Data Collection Series.		
Funding Source	None	Cayuse Number	N/A

DETERMINATION: RESEARCH, BUT NO HUMAN SUBJECTS

It has been determined that your project, as submitted, does meet the definition of research but **does not** involve human subjects under the regulations set forth by the Department of Health and Human Services 45 CFR 46.

Additional review is not required for this study.

Please do not include HRPP contact information on any of your study materials.

Note that amendments to this project may impact this determination. Please submit a *new* request if there are changes (e.g., funding, data sources, access to individual identifiers, interaction with research subjects, etc.).

The federal definitions and guidance used to make this determination may be found at the following link: Human Subject