Underrepresentation of English-Language Learners in Gifted Education and the Influence of Gifted Education Policy

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Abstract

English Language Learners (ELL) are the fastest growing population in United States public education and are likely underrepresented in gifted education. This study analyzed a nationally representative sample of the largest school districts (*n*=311) in the United States accounting for approximately 35% of the total public school enrollment of K12 education. Five pre-registered hypotheses were tested to explore the nature of ELL underrepresentation in gifted education. Eighty-six percent of the schools had ELL relative difference in composition index (RDCI) scores in the large underrepresentation category (< -60), and the pattern of underrepresentation was consistent in all four census regions of the U.S. Underrepresentation in schools with state policy mandates to identify gifted students was no different that ELL underrepresentation in non-mandated policy states. Variables of gifted program inclusiveness (r = .07) and prevalence of ELL student populations (r = .05) were not associated with variation in ELL underrepresentation.

Key Words: gifted, English language learner (ELL), policy, underrepresentation

Underrepresentation of English-Language Learners in Gifted Education and the Influence of Gifted Education Policy

English language learners (ELL) are the fastest-growing population of learners in the United States (U.S. Department of Education National Center for Education Statistics Common Core of Data, (DOE) 2017). However, despite the growing numbers of ELLs, they remain marginalized and underrepresented in a variety of educational settings and programs in comparison to traditional majority populations of learners (Callahan, 2005; Mun et al., 2016). As a result, these linguistically diverse students may face struggles for access and opportunity, as well as barriers to achievement in schools (Poza, 2016). This marginalization has been shown to be consistently associated with negative consequences on the academic success of ELLs, as it has resulted in disparities in Advanced Placement course participation, ACT and SAT scores, as well as college readiness and degree attainment (Kettler & Hurst, 2017; Poza, 2016). Even though the United States Department of Education (n.d.) asserts that children should have an equitable education regardless of cultural group or economic strata, the consistent marginalization of ELLs in general education and advanced academics illuminates a problem and a challenge which deserves thorough exploration.

Marginalized Populations in Gifted Education

A persistent concern of gifted education in the United States is the marginalization of culturally and linguistically diverse students. With the steady increase in the number of students who are ELLs, there is a need to examine which factors influence the prevalence of ELLs who are identified for gifted and talented programs and services. According to the DOE (2017), in the fall of 2017 there were more than 5,000,000 ELLs in public schools, which equated to roughly 10.1% of the entire public school student population. In the fall of 2000, only 8.1% of students in the U.S. public school student population, or 3.8 million students, were ELLs (DOE, 2017). While the number of ELLs in the United States has been steadily increasing, some data indicate that they remain less likely than their native English-speaking peers to be recommended for placement in gifted education programs (Bernal, 2002; Lohman, Korb, & Lakin, 2008; Peters, Gentry, Whiting, & McBee, 2019). Even though it is expected that ELLs would be equally represented in gifted programming, these students are often underserved in gifted programs and overrepresented in special education programs (Donovan & Cross, 2002; Patton, 1998; Vasquez, 2007). More than 20 years ago when ELLs constituted a smaller proportion of the student population, Plummer (1995) estimated that they were underrepresented in gifted programs by 30% to 70% and over-represented in special education programs by 40% to 50%. While these estimates are dated, they suggest a need to systematically estimate the current metrics of disproportional representation for the ELL population in gifted education.

In 2012, only 1.8% of students who participated in gifted education programs in the United States were ELL, indicting underrepresentation (DOE, 2017). According to more recent U.S. data from 49 states and the District of Columbia, ELLs were similarly under-enrolled in gifted and talented (GT) programming, especially in states that have a large share of all of the ELLs in schools nationwide such as California, Nevada, and New Mexico (DOE, 2017).

Underrepresentation may be attributed to implicit bias (Nel, 1992; Nesper, 1987) against non-English speakers in gifted education even though theoretically, there is no theory to support exceptional ability disproportionally distributed based on native language. Another potential explanation for ELL underrepresentation is curtailed and inhibited oral participation in class (Morita, 2004). In other words, even in cases where bilingual children have greater cognitive flexibility and problem-solving skills than monolingual children, ELLs often do not get a chance to show what they can do due to their lack of English language skills (Harris et al., 2013; Lakin & Lohman, 2011; Lohman et al., 2008). According to the National Association for Gifted Children (NAGC), there is a need to better identify and serve culturally and linguistically diverse gifted students (NAGC, 2011). The NAGC (2011) also advocates for increased diversity in the United States for gifted education programs to reflect the changing demographics of the national population. This includes the equitable identification and support of gifted students, especially for those students who represent cultural and linguistic diversity.

Long-standing inequity in educational experience for ELLs previously led some program administrators to search for the best procedure of identifying and supporting gifted students so that those who do not speak English natively are not marginalized in their gifted and talented programs (Ford & Harris, 1999; Frasier, Garcia & Passow, 1995); however, little has changed for the proportional representation of ELL students in gifted education. More recent research has led to advances in gifted identification options (Harradine, Coleman, & Winn, 2014; McBee, Shaunessy, & Matthews, 2012), but the prevalence of ELLs in gifted services remains relatively low. Enrollment trends suggest that diverse students will continue to enter schools in the United States, therefore it is increasingly recommended for schools to have approaches, guidelines, and programs in place to best identify and educate gifted and talented students, regardless of cultural or linguistic differences.

Although educational practitioners have access to various research-based gifted identification measures for students, discrimination theory (Farkas, 2003; Mickelson, 2003) suggests that one reason why ELLs are not identified at the same rate as non-ELLs is inappropriate identification procedures (California Association for the Gifted, n.d.). Gifted identification procedures have the potential of marginalizing students who are from different cultures, linguistic backgrounds, or low socioeconomic status (Coronado & Lewis, 2017). Furthermore, tests, educators, administrators, and parents can show bias during the identification process which can put ELLs at risk (Coronado & Lewis, 2017). Moreover, teachers and administrators may have lower expectations for diverse students, all of which stem from negative stereotypes, assumptions, and other beliefs about these students (Ford & Grantham, 2003). Thus, teachers may overlook the academic potential of ELLs due to false beliefs that English language abilities are a characteristic of giftedness, or cultural biases on what giftedness should look like in children without considering their cultural background (Coronado & Lewis, 2017). The current collective pictures of giftedness in the United States have been shown to favor certain student types, ethnicities, socioeconomic groups, and even genders. Furthermore, research has indicated that culturally and linguistically diverse students, in particular, have merely been recognized for their weaknesses and language barriers, rather than on their cognitive strengths (Barkan & Bernal, 1991).

Language barriers can also affect the parents of ELL students, as these parents may not understand or even refuse gifted services for their students based on miscommunication or lack of sufficient information in the target language (Castellano & Diaz, 2002). If the parent of the ELL is uninformed or misunderstands the importance of gifted and talented programs, they may not see any benefit to the program which could lead to a barrier between parents and schools (Gallagher & Coleman, 1994). Based on this miscommunication, gifted identification could be undermined if the gifted qualities of students are overshadowed by their deficits, such as language limitations (Ford & Grantham, 2003). Conventional markers for giftedness can be especially inequitable for ELLs, as their language and culture may mask their exceptional promise (Castellano, 1998). ELL students often have limited support systems, opportunities, and financial access in comparison to non-ELL students; therefore, ELLs may not be able to qualify according to traditional GT assessments or thrive in GT programs even if they do qualify (Coronado & Lewis, 2017).

The Coronado and Lewis (2017) study examined the disproportionality of ELL representation in gifted and talented programs in Texas. The study, although it only focused on one state, illuminated the condition of ELLs in gifted education which could be similar to other states in the United States as well. ELL students were under-represented in gifted education programs in Texas despite (a) relatively strong gifted education policy mandating identification and services, (b) the use of assessments in the student’s native language or the use of non-verbal assessments, (c) and considerable local flexibility to establish qualification procedures (NAGC & The Council of State Directors of Programs for the Gifted, 2015). Though Texas as a whole met the target percentage of 5-7% total GT identification, ELL students were under-represented in all 20 of the educational regions in Texas with levels of disproportionality ranging from moderate to severe (Coronado & Lewis, 2017). Moderate to severe underrepresentation of ELL students in gifted education in Texas could signal an alarming trend nationally considering the Texas policies for gifted and talented identification are generally favorable for linguistically diverse students.

Relative Differences in Composition

One way to study underrepresentation or over-representation is to measure the group’s relative difference in composition in the general population compared to a target population (e.g those with discipline referrals, those in special education, those in gifted education). The Relative Difference in Composition Index (RDCI) has been applied in equity research in gifted education, special education, and school discipline research to describe disproportionate participation among race/ethnic groups in schools or school systems (Bollmer et al., 2014; Gibb & Skiba, 2008; Gregory & Weinstein, 2008). The RDCI is a ratio that measures the relative difference between the proportion of students with a particular characteristic and a specific condition or placement in the school context. The RDCI equation used in this study was advocated by the U.S. Department of Education, Institute of Educational Sciences (Nishioka et al., 2017). This index is derived by taking the proportion of a target group in the GT program (x) and subtracting the proportion of that same target group in the total population (y). Then that difference is divided by the proportion of the target group in the population (y). Finally, that value is multiplied by 100 (Nishioka et al, 2017, p. 13).

$$RDCI = \frac{x - y}{y} * 100$$

For example, a district where 15% of the total population is ELL, and 3% of the GT population is ELL, RDCI would be calculated as follows:

$$RDCI = \frac{3 - 15}{15} * 100 = -80$$

RDCI values are relatively easy to interpret. A value of zero is perfect representation, or zero difference in composition. Negative RDCI values represent underrepresentation, and positive values represent over-representation. The absolute value of the RDCI indicates the magnitude of the underrepresentation or overrepresentation. In the above example, an RDCI of -80 indicates underrepresentation. An RDCI of -20 would also have represented underrepresentation though less severe than -80. An RDCI of 5 would indicate a slight overrepresentation as all RDCI values above zero indicate overrepresentation.

Previous research in gifted education using an RDCI measurement (Ford & King, 2014; Stephens, 2020; Wright, Ford, & Young, 2017) applied a formula different from the one published by the U.S. Department of Education in 2017. While the purpose of the research in those studies was also underrepresentation of groups in gifted education, the calculations of RDCI were different. Thus, while the concept of using RDCI is not new to gifted education research, there may be some variation in how RDCI has been calculated across studies.

Gifted Education Policy

Gifted education policy research over the previous three decades has been minimal (Plucker, 2018). There are generally three levels of policy pertaining to gifted education: (a) national policy, (b) state policy, and (c) local school district policy (Gallagher, 2013). Our primary interest in this study is gifted education policy at the state-level. A few studies have examined state-level policy as it relates to funding gifted programs and services (e.g. Baker 2001; Baker & Friedman-Nimz, 2003; Baker & McIntire, 2003; Kettler, Russell, & Puryear, 2015). Those studies examined local funding and staffing discrepancies that occured even with relatively strong gifted education state mandates. Fewer studies have investigated the impact of state level policies on identification and services, but Purcell, (1995) found that programs tend to expand in states with mandates. Similarly, gifted education programs in states without mandates may decline with shrinking budgets (Purcell, 1992; 1993).

More recently, McBee et al. (2012) studied the effects of district-level policies on the underrepresentation of typically marginalized groups. The study examined school districts in Florida, a state that allows schools to establish district-level policies under a Plan B law. Plan B is an alternative, equity-focused identification policy. These Plan B local district policies established alternative procedures with the intent of increased identification of marginalized student groups. Average treatment effects for the local Plan B policies were estimated with a propensity score matching design. They found that estimated treatment effects were significant for both Black students and economically disadvantaged students (the only two marginalized groups studied). The odds ratio (1.95) indicated that economically disadvantaged students were almost twice as likely to be identified for the gifted education program in Plan B policy schools. The odds ratio (1.69) for Black students indicated a two-thirds increase in the likelihood of identification for gifted education in the Plan B policy schools. Local policy emphasizing equity improved representation of those target groups in schools using the Plan B model.

The NAGC published the State of the States report (2015) which provided descriptive data on state policies related to gifted education, and their website (www.nagc.org) provides brief information about each state's policies. Based on the NAGC report, 12 states and the District of Columbia do not have policies mandating identification of gifted and talented students. Even in the absence of state policy mandates for identification, some school districts choose to identify gifted students and provide gifted and talented programs and services (Purcell, 1992). Though equity and access have been widely studied in gifted education (e.g. Lamb, Boedeker, & Kettler, 2019; Peters & Engerrand, 2016; Peters et al., 2019), there is little clarity of whether gifted education state policy leads to more equitable access. One way to examine the impact of policy related to ELL students in gifted education is to compare the underrepresentation of ELL students in schools located in states with gifted education policy to schools operating gifted education in states without gifted education policy.

Purpose of this Study

This study calculated the relative difference in composition index (RDCI) of English Language Learners (ELL) participating in gifted education in a nationwide, representative sample of the largest school districts in the United States using data from the National Center for Educational Statistics and the Office of Civil Rights Education Data. Using RDCI as a valid metric to estimate proportional representation of populations in gifted education, we tested the hypotheses that ELL students are under-represented in gifted education in the United States. Additionally, the study investigated additional hypotheses related to the underrepresentation of ELL students including (a) potential regional difference, (b) influence of state gifted education policy and ELL participation in gifted education, (c) the inclusive or exclusive nature of the gifted education program, and (d) the impact of the overall prevalence of ELL students in a district and their representation in the gifted education program.

Five specific hypotheses were pre-registered though Open Science Framework prior to data collection and analyses.

H_1: English Language Learners are under-represented in gifted education programs in the United States compared to their prevalence in the overall student population.

H_2: There are differences in ELL underrepresentation across the four census established regions of the United States (West, Midwest, Northeast, and South).

H_3: Schools in states with gifted education policy requirements for gifted education will have a more proportional representation of ELL students in gifted education programs.

H_4: Schools with greater participation in gifted education (more inclusive), will have a more proportional representation of ELL students in gifted education programs.

H_5: Schools with proportionally larger ELL student populations will have a more proportional representation of ELL students in gifted education programs.

Method

This was an observational, descriptive study utilizing secondary data. Units of analyses were school districts (n = 310), and the data collected from those school districts were harvested from public records available through the National Center for Educational Statistics and the Office of Civil Rights Education Data (OCR Data). Using the software G*Power 3.1.9.7, we conducted a power analysis to determine an appropriate sample size based on analytic parameters of (a) alpha level at .05 and power at .95 and (b) estimated medium effect sizes d = 0.5, f = .25, and r = .3. The analyses indicated a minimum sample size of 280 would be sufficient, and the actual sample of 310 exceeded that minimum.

Sample

The data collection process sought a nationally representative sample. Inclusion criteria were (a) must have a gifted and talented education program as reported by OCR Data, and (b) include at least 2,500 students (Gibb & Skiba, 2008). Using enrollment size (total students), the 300 largest school districts in the United States were included in the sample. Since the study was focused on underrepresentation in gifted education, having a gifted and talented education program was necessary for inclusion. Therefore, school districts which according to the OCR data did not report any gifted and talented students were eliminated. After the 300 largest districts with gifted and talented programs were identified, we wanted to make sure every state was represented in the sample. Thirty-nine of the 50 states were represented by at least one school district in the initial sample of 300. For the states not included initially (n = 11), we identified and included the largest school district with a gifted education program in each of those states. The distribution of included school districts by state and region (defined by the U.S. Census) is displayed in Table 1. The only state not represented was Vermont. Gifted education is not mandated in Vermont education policy, and there was no school district with more than 2,500 students that had a gifted education program. The District of Columbia was not included because the district does not identify gifted and talented students. The sample of 310 school districts was 1.7% of the total number of school districts in the United States, but they represent an enrollment of 17,627,513 students which was 35% of the estimated 50,300,000 public school students in the United States (DOE, 2017).

Variables

Each school district in the sample was assigned a grouping variable based on its location using the four census regions of the United States Census (West, Midwest, Northeast, and South). Each school district was also assigned to one of two groups based on the state's policy for identifying gifted and talented students (GT identification-mandated or GT identification-not mandated). A variable of interest for the analysis was the degree to which each district's gifted and talented program was exclusive or inclusive in the identification of gifted students. This was represented by each district's percent of the total population that was identified as gifted and talented. Smaller percentages of identified gifted students indicated exclusive approaches to identification, and larger percentages of identified gifted students indicated more inclusive approaches to identification. Another variable used in the study was the general prevalence of ELL students in the total district population. The prevalence of ELL students was represented by the percent of the total district population that was classified as ELL. Higher percentages of ELL students indicated a greater prevalence of ELLs in the district as a whole.

For each school district included in the study, we calculated the Relative Difference in Composition Index (RDCI) as a metric to represent the difference between ELL student proportional representation in the total population of the district compared to ELL student proportional representation in the gifted education program of the district.

With the RDCI metric, a value of zero indicates exact representation in gifted education.

Results

The school districts in this sample were representative of large public school districts in the United States. Enrollment ranged from 3,240 students to 984,500 students with a median district size of 37,248.5 students. The race/ethnicity composition of students in the sample was somewhat representative of the total public school population in the U.S (see Figure 1). The overall population in the U.S public schools includes slightly more White students and slightly fewer Black and Hispanic students. Descriptive data for the analyzed variables in the study are presented in Table 2. The proportion of students in the sample who participated in the free and reduced lunch program ranged from zero to 100% with a mean of 52.9% (*SD*=21.2).

Underrepresentation of ELL Students in Gifted Education

Hypothesis-1 predicted that ELL students would be under-represented in gifted and talented education programs. To test this hypothesis, we calculated the Relative Difference in Composition Index (RDCI) for each school district in the study. The RDCI values ranged from the low end of RDCI = -100 to RDCI = 204.76 on the high end. To achieve an RDCI of -100, the school district reported zero ELL students in the gifted and talented program, and 27 (8.71%) school districts had an RDCI of -100. The mean RDCI value for the entire sample was -77.28 (*SD*=32.21).

To interpret this distribution of RDCI scores, we created a categorical designation based on the 80% rule or 20% allowance concept that originated in measures of disparate impact in employment law (Barrett, 1998) and has occasionally been applied in studies of gifted education equity analyses (e.g., Lamb et al., 2019; Wright et al., 2017). The categories and distribution data are presented in Table 3. Using a one-sample chi-square test we analyzed the observed distribution of schools (*n*=310) into the five categories. To test the null hypothesis that ELL students are equitably represented in gifted education. We chose a conservative predicted distribution expecting schools to be evenly distributed across all five categories (20% in each category). This estimate is conservative in that were it true, still only 40% of the schools would have equitable representation of ELL students in gifted education. The $X^2 = 834.99$ df=4, $p < .001$ indicated a poor fit against the expected even distribution. ELL students in this sample of schools were under-represented with 298 of the 310 schools (96.1%) falling in either small, medium, or large underrepresentation categories, and 265 of the schools (85.5%) were in the large underrepresentation category. Thus, we rejected the null hypothesis that ELL students are equitably identified for gifted education programs.

Regional Differences in ELL Underrepresentation

The second hypothesis extended the analyses of ELL underrepresentation to consider whether the underrepresentation is consistent across the U.S. We hypothesized that there would be regional differences in ELL underrepresentation in the U.S. as policies and practices in gifted education may follow regional patterns in the absence of stabilizing federal policy. To test the null hypothesis that there are no regional differences, each school in the sample was assigned to one of four regional groups based on the U.S. Census-designated regions (see Table 1). With different group sizes, we used Levene's test to verify the assumption of equal variance, $F(3, 306) = 1.24$, $p = .295$. The one-way analysis of variance indicated there were no regional differences across the four regions of the U.S., $F(3, 306) = 1.31$, $p = .27$. Thus, we did not reject the null hypotheses that there are no regional differences in underrepresentation across the U.S. ELL students appear to be similarly underrepresented in gifted education programs in the West, Midwest, Northeast, and Southern regions of the U.S.

Gifted Education Policy

The third hypothesis tested the potential effect of state policy mandating identification of gifted students on the underrepresentation of ELL students in gifted education. Even in states where policy does not require schools to identify gifted and talented students, some or even many schools do voluntarily identify gifted and talented students in the absence of policy requirements. Schools in the sample were assigned to two groups. The policy group of schools (n=245) were in states requiring the identification of gifted students, the no-policy group of schools (n=65) were in states that do not require identification of gifted students. Based on the McBee et al. (2012) study where district-level identification policy increased representative identification, our hypothesis predicted that schools in states with gifted education policy requirements for identifying gifted students would have a more proportional representation of ELL students in gifted education programs. Levene's Test was used to verify the equality of variance assumption, F=.001, p = .974, and an independent samples t-test was used to compare the mean RDCI scores of the policy group of schools against the no-policy group of schools with equality of variance verified. The policy schools had a mean RDCI score of -76.82 (SD=32.94) and the no-policy schools had a mean RDCI score of -79.03 (SD=29.49). The observed mean difference was 2.21 with a 95% confidence interval of the mean difference from -6.64 to 11.07, $t(308)$ = .49, p = .623. Thus, we did not reject the null hypothesis that there was no difference between the policy group and the no-policy group. ELL students in schools in states with policy requiring identification were similarly under-represented as they are in schools without state policy mandating gifted student identification. In the two-group comparison, gifted education state-level policy for identifying gifted students appeared to have no impact on equitable identification of ELL students.

To explore a little deeper, we looked specifically at the three states that had the greatest number of schools in the sample: Texas, California, and Florida. Texas and California also had among the highest proportion of LEP students per school averaging more than 21% LEP students in each school. When we compared Texas (GT policy) to California (no GT policy) we found a mean difference in RDCI of 14.95 [95% CI: 7.42, 22.48], $t(98) = 3.94$, $p < .01$, $d = .80$. Just looking at those two states Texas schools on average have a better RDCI than California schools. In that direct comparison, we might conclude that state-level GT policy has a positive impact on the representation of ELL students in gifted education. However, we also made a direct comparison between Texas and Florida, two states with GT policy mandates to identify. This comparison revealed a mean difference in RDCI of 28.40 [95% CI: 22.72, 33.56]. $t(82) = 7.45$, $p < .01$, $d = 1.98$. Thus, there was a pronounced difference in RDCI among two states with GT policy mandates to identify, suggesting that state-level policy alone does not account for the difference in ELL representation in gifted education.

Inclusive Versus Exclusive Gifted Education Programs

We tested the theory that inclusive approaches to gifted education would result in more equitable representation of ELL students in gifted education. Inclusive approaches are complex and may manifest in many ways, but in this study, we used the variable of the overall percent of the school population identified as gifted as an indicator of how inclusively the school approached gifted identification. Schools identifying a higher percentage of the overall population demonstrate more inclusive attitudes and procedures in the identification process. The hypothesis stated that schools with greater participation in gifted education (more inclusive), will have a more proportional representation of ELL students in gifted education programs. We tested the null hypothesis that no relationship exists between the proportion of the total school population identified as gifted and two variables (a) RDCI and (b) proportion of the gifted population that was ELL.

The Pearson correlation matrix (see Table 5) indicated no relation existed between the inclusive nature of gifted identification and the RDCI of each school (r = .065, p = .253, n = 310). Thus, we did not reject the null hypothesis. RDCI does not seem to be affected by inclusive versus exclusive approaches to gifted identification in a school. In an exploratory test, we also considered the relationship between the inclusive nature of gifted identification in a school (total % identified GT) and the proportion of the gifted population that was classified as ELL. There was a positive relationship between these variables (r = .148, p = .009, n = 310). Thus, a small effect was found where schools that identify a greater proportion of the total population as gifted (inclusive), also tend to have a greater proportion of ELL students in their gifted program. Why was there a small positive effect for the inclusiveness of GT identification on the proportion of the GT program that was ELL but no effect of inclusiveness on the RDCI? The fifth hypothesis considering the prevalence of ELL learners cleared that up somewhat.

Prevalence of English Language Learners

For our fifth hypothesis, we examined a demographic, contextual theory that schools with proportionally larger ELL student populations would have a more equitable representation of ELL students in gifted education programs. Similar to the previous hypothesis, this one examined a relationship between continuous variables: the proportion of the population that was ELL and RDCI. We analyzed Pearson correlation coefficients (see Table 5) to test the null hypothesis that no relationship exists between the prevalence of the ELL population in the school and the school's RDCI. The data from our sample would not support rejecting the null (r = .053, p = .349, n = 310). Though the proportion of ELL students in the schools in the sample ranged from 0.1% to 59.1%, there was no relationship between that variance and the RDCI metric of underrepresentation of ELL students in gifted education. We also considered an exploratory test of the relationship between the prevalence of the ELL population in a school and the prevalence of ELL students in the gifted program ($r = .499$, $p < .001$, $n = 310$). Thus, the data in this sample indicate that schools with proportionally larger ELL populations also have proportionally more students identified for GT programs. However, the difference between the prevalence of ELL students in the school population and the GT population remained large, and there was little or no impact on the RDCI.

The final exploratory analysis considered how variables predict a school district's RDCI relative to ELL student representation in gifted education. We used a multiple regression model to regress RDCI on four predictor variables (a) percent of the school population that is ELL, (b) percent of the school population that is economically disadvantaged, (c) the inclusive nature of the gifted program (percent of population identified GT), and (d) the proportion of the GT population that is ELL. The four predictor variables accounted for 40% of the variance in RDCI for this sample of schools, $F(4, 303) = 50.18$, $p < .001$. The estimated influence of each variable in the model is presented in Table 6. The two variables that most predict RDCI were (a) the proportion of the gifted population that is ELL and (b) the prevalence of ELL students in the total population. It seems somewhat obvious that the proportion of the gifted population that is ELL predicts RDCI—that variable is in the RDCI equation. However, the prevalence of ELL students appears to be a suppressor in this model. A suppressor variable is recognized as one having a large standardized beta but no correlation to the outcome variable (Courville & Thompson, 2001; Ziglari, 2017). Prevalence of ELL students in the total population improved the prediction of the criteria in the model not because it was related to RDCI (It is not related to

RDCI.) but because it is related to the proportion of the GT population that is ELL. The regression model further supports the lack of a relationship between the inclusiveness of GT identification (defined by higher percent identified) and the school's RDCI score. It is potentially noteworthy that the overall socio-economic profile of the school showed no relationship (r = .07, β = .063, and r_s^2 = .012) to the RDCI score. ELL students are similarly underrepresented in schools with little economic disadvantage and schools with significant economic disadvantage.

Discussion

While underrepresentation of racial and ethnic groups in gifted education has been a well-documented phenomenon in gifted education (Peters, et al., 2019), linguistically diverse students may experience even more pronounced underrepresentation in gifted education. Advocacy for the inclusion of bilingual and ELL students in gifted education has persisted for three decades (Barkan & Bernal, 1991). Bermúdez and Rakow (1993) reported that even in districts with large Hispanic populations, very few schools were identifying gifted ELL students. Similarly, Irby and Lara-Alecio (1996) found ELL students under-represented and articulated a list of attributes of gifted ELL students to support pro-active efforts to identify these students. More recently, Esquierdo and Arreguín-Anderson (2012) reported enrollment trends and argued that bilingual students remain largely invisible in gifted education programs.

This study confirmed what Gubbins et al. (2018) found; ELL students are generally underrepresented in gifted education programs. Using a representative nation-wide sample, we applied the U.S. Department of Education's formula to calculate RDCI and developed a five-category designation to interpret those RDCI values. These categories used in conjunction with RDCI can be used to determine not only underrepresentation but also the magnitude of that underrepresentation for any population of interest. ELL students were consistently underrepresented in gifted education in U.S. schools, and the underrepresentation was consistent across all four census-designated regions of the U.S. This data-based finding is consistent with three decades of expressed concern for the underrepresentation of ELL or bilingual students in gifted education.

The effects of gifted education policy are infrequently studied, and analyses of the effects of identification policies are infrequent even in the small group of policy studies (McBee et al., 2012; Plucker, 2018). Identification policies vary from state to state (National Association for Gifted Children & The Council of State Directors of Programs for the Gifted, 2015) with some states describing very specific identification procedures (e.g. Ohio) and other states providing open-ended guidelines allowing local schools to determine the particular measures and recommendation protocols (e.g. Texas). This study conceptually replicated the results of the Peters, et al. (2019) study that found little relationship between state policy mandates to identify and equitable identification. While the Peters et al. study computed a representation index and we computed the RDCI, both studies of national samples found similar levels of inequity in the identification of ELL students in states with and without mandates. It might seem easy to conclude that gifted education policy does not affect identification outcomes, but we caution against that conclusion. The impact of policy for gifted identification is likely more nuanced than the design of this study could detect. For instance, even in those states that do not have policy mandates for gifted student identification, schools may be following very similar procedures for the identification of gifted students. For instance, even in states without policy mandates, there may be a state coordinator for gifted education services (e.g. Missouri) and state professional organizations that support gifted education even in the absence of policy (e.g. California).

The results of this study are meaningful because the data indicate that the underrepresentation of ELL students in gifted education is impervious to state-level gifted identification policy mandates. Existing state policies might be beneficial, but the data would indicate that they are not sufficient for equitable practices identifying ELL or bilingual students for gifted education. Possible solutions might include a stronger equity-focused policy where policy does exist. The McBee et al. (2012) study of the influence of local district policy stands out as an example of how equitable identification might be improved with local policies that directly influence identification practices. It is important to note that even in the McBee et al. (2012) study, Black students and economically disadvantaged students were still proportionally underrepresented, but the underrepresentation was less pronounced in the Plan B schools. Perhaps the McBee et al. (2012) study points to possible solutions that may require intentional modification of state identification policy in order to produce more equitable identification.

How inclusive a gifted education program is might be estimated by the proportion of the total school population served by the program. In this sample of schools, the range of the proportional size of the gifted program spanned from a minimum of less than 1% to 48% identified gifted. The median proportion was 7.6 % identified gifted. Twenty percent of the schools had less than 4% identified, and twenty percent had more than 12% identified. The data provide little context for the reported value other than the inference that identifying a larger proportion of students is inherently more inclusive than identifying a smaller proportion. Thus, we acknowledge the limitations associated with designations of inclusiveness to the identification procedures of schools based on this variable. Peters and Engerrand (2016) suggested the *manner* in which students are identified or not identified may be more related to underrepresentation than the specific assessments used. Similarly, two-step processes of identification tend to lead to greater underrepresentation than universal screening processes which consider every student for gifted education (McBee, Peters, & Miller, 2016). We found that there was no relationship between the proportional size (inclusiveness) of the gifted program and the underrepresentation of ELL students. We did find a small, positive relationship between the inclusiveness of the gifted program and the proportion of the gifted program that was ELL, but that relationship did not systematically improve the RDCI of the schools with greater proportions of ELL students in the gifted program generally because they also had greater proportions of ELL students in the total school population. Future studies might consider more conceptually rich definitions of inclusive identification procedures that more carefully consider the manner in which students are identified.

The data in our sample indicated no relationship between greater prevalence of ELL students and better representation of ELL students in the gifted education program. ELL students are the fastest-growing student group in U.S. schools, yet identifying them for gifted education programs remains a challenge (Mun et al., 2016). The size of the ELL populations in our sample varied from less than 1% to almost 60% of the student population in a school district. While we hypothesized that greater prevalence of ELL students in a school district would be related to more inclusive approaches to ELL students in gifted education, the data did not support that relationship. Rigid gifted identification practices may remain dominant even when the school context includes widespread cultural and linguistic diversity (Borland, 2009; Callahan, 2005).

Cultural differences have been found to impact the expression of giftedness (Esquivel & Houtz, 1999). According to Harris et al. (2013), ELL students' giftedness may be manifested in different ways than non-ELL students; therefore, identification procedures may need to broaden conceptions of giftedness. Typical school-based perceptions of giftedness do not seek nontraditional approaches to identification that consider culture, linguistics, and ethnicity, as important conduits of talent in ELL students (Frasier & Passow, 1994; Johnsen, 1999; Montgomery, 2001). Before the underrepresentation of ELL gifted learners can be changed, gatekeepers of gifted education need to more fully recognize the characteristics of these unique learners as well as how their differences are reflected in inequities in GT procedures for identification, assessment, and delivery of services.

Summary and Future Directions

This study examined five pre-preregistered hypotheses related to the underrepresentation of ELL students in gifted education programs. The evidence strongly indicated underrepresentation of ELL students in gifted education, and the process suggested an easy to use heuristic for local schools to measure and interpret equitable and inequitable representation in gifted education. While policy research regarding equitable identification remains sparse, this study adds some evidence regarding the general ineffectiveness of policy to promote equity in identification without specific equity-focused processes and/or accountability provisions. Gifted education programs continue to harbor narrow conceptions of talent and potential. A more inclusive approach to talent recognition and development might consider developing linguistic fluency in more than one language as a strength or an indicator of talent (see Kettler, Shui, & Johnsen, 2006). Expanding conceptions of giftedness toward talent development opens the conversation to ask which talents specifically, and multilingualism is a viable answer that could potentially expand bilingual or multi-lingual approaches to gifted education.

The body of research validating the underrepresentation of ELL students in gifted education is well-established. However, good questions remain. While some research and advocacy efforts include both linguistic diversity with ethnic and racial diversity, it is not clear whether changes of policy and practice impact linguistically diverse students similarly to English-L1 students from underrepresented race/ethnicity groups. Along those lines, additional policy research is warranted on ways that identification policies influence equity-focused practices in school districts. However, policy is not the only viable solution. We need to initiate design-based studies with school systems willing to consider alternative approaches to identification that are equity-focused. The path to inequity is nuanced and likely too are the solutions.

Limitations

One of the limitations of ELL research is the temporary and fluid nature of the ELL designation. For instance, some studies (Hakuta, Butler, & Witt, 2000) indicate that it takes approximately five years of English learning interventions for students to master English as a primary language of schooling/learning. For high ability students, the timeline may be shorter. In some cases, students are removed from ELL programs after demonstrating English mastery; thus, they are no longer classified as ELL. When we conduct database research (as in this study), the data category of *percent of students ELL* may only reflect the students still in ELL programs, not the students who have placed out of those programs.

Additionally, grouping schools into groups based on policy mandates may sound clear and efficient, but policy in reality may be more complex than that. For instance, Missouri policy says schools *may* identify gifted students; thus, we classify Missouri as a non-mandate state. However, if a school district in Missouri chooses to identify, they are required to follow the state policies for identification. Thus, the schools identifying gifted students in Missouri in effect are not operating much differently than schools in policy-mandate states beyond the initial decision to identify gifted and talented students in the absence of a mandate. Future studies may need to consider policy nuances that are more discreet than mandate or no-mandate.

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Table 1

School Districts (n = 310) in the Sample by State, Region, and GT Policy Mandate

State	**Region of the U.S.**	**Districts in Sample**	**GT Identification Mandated**
AK Alaska	West	1	Yes
AL Alabama	South	6	Yes
AR Arkansas	South	1	Yes
AZ Arizona	West	9	Yes
CA California	West	44	No
CO Colorado	West	11	Yes
CT Connecticut	Northeast	1	No
DC Washington DC	South	0	No
DE Delaware	South	1	Yes
FL Florida	South	28	Yes
GA Georgia	South	18	Yes
HI Hawaii	West	1	Yes
IA Iowa	Midwest	1	Yes
ID Idaho	West	2	Yes
IL Illinois	Midwest	5	Yes
IN Indiana	Midwest	2	Yes
KS Kansas	Midwest	3	Yes
KY Kentucky	South	2	Yes
LA Louisiana	South	7	Yes
MA Massachusetts	Northeast	2	No
MD Maryland	South	9	Yes
ME Maine	Northeast	1	Yes
MI Michigan	Midwest	1	No
MN Minnesota	Midwest	4	Yes
MO Missouri	Midwest	1	No
MS Mississippi	South	2	Yes
MT Montana	West	1	Yes
NC North Carolina	South	14	Yes
ND North Dakota	Midwest	1	No
NE Nebraska	Midwest	3	Yes
NH New Hampshire	Northeast	1	No
NJ New Jersey	Northeast	4	Yes
NM New Mexico	West	2	Yes

NV Nevada	West	2	Yes
NY New York	Northeast	4	No
OH Ohio	Midwest	3	Yes
OK Oklahoma	South	4	Yes
OR Oregon	West	2	Yes
PA Pennsylvania	Northeast	1	Yes
RI Rhode Island	Northeast	1	Yes
SC South Carolina	South	9	Yes
SD South Dakota	Midwest	1	No
TN Tennessee	South	7	Yes
TX Texas	South	56	Yes
UT Utah	West	7	No
VA Virginia	South	13	Yes
VT Vermont	Northeast	0	No
WA Washington	West	7	Yes
WI Wisconsin	Midwest	2	Yes
WV West Virginia	South	1	Yes
WY Wyoming	West	1	No

Table 2

Describe Data for Variables Analyzed in the School Districts (n = 310)

Variable	**Minimum**	**Maximum**	**Mean**	**SD**
RDCI*	-100.00	204.76	-77.28	32.21
Percent of Student Population ELL	.10	59.10	12.99	10.70
Percent of Student Population Identified GT	<.01	48.00	8.69	6.17
Proportion of GT Population ELL	0	36.90	3.13	5.12

*Relative Difference in Composition Index

Table 3

Frequency of Schools in Each RDCI Category

RDCI	**> 20**	**20 to -20**	**-20.1 to -40**	**-40.1 to -60**	**< -60**
Category	**Over Representation**	**Representative**	**Small Under Representation**	**Medium Under Representation**	**Large Under Representation**
Schools in Present Study *n* = 310	*n* = 5 1.6%	*n* = 7 2.3%	*n* = 10 3.2%	*n* = 23 7.4%	*n* = 265 85.5%

Table 4

Comparing Regional Differences in ELL Underrepresentation (n=310)

	West (n=87)	**Midwest (n=28)**	**Northeast (n=14)**	**South (n=174)**
RDCI	-80.4 (25.7)	-81.1 (19.8)	-86.5 (24.0)	-74.4 (36.7)
% ELL Students	16.3 (11.1)	11.9 (7.3)	12.6 (7.4)	11.6 (10.9)
% FRLP Students	50.3 (21.6)	50.3 (22.8)	58.1 (28.4)	54.2 (20.1)
% Identified GT	8.1 (5.1)	7.8 (8.4)	5.2 (5.3)	9.4 (6.2)
% of Identified GT ELL	3.6 (5.8)	2.4 (3.8)	1.2 (2.1)	3.2 (5.1)

Standard deviations in parentheses.

Table 5

Correlation Matrix of Observed Variables Related to Underrepresentation (n=310)

	(1)	(2)	(3)	(4)
(1) RDCI	-			
(2) % ELL	.053	-		
(3) % FRLP	.070	.446**	-	
(4) % of Total GT	.065	.045	-.101	-
(5) Percent of GT ELL	.499**	.673**	.291**	148**

** p < 0.01 (2-tailed)

Table 6

Estimating Strength of Variables to Predict RDCI Relative to ELL Students (n=310)

	t	*p*	β	Squared Structure Coefficient r_s^2	Zero-Order Correlation
Prevalence of ELL Students in a School Population	8.51	<.001	-.551	.008	.056
Prevalence of Economic Disadvantage in a School	1.26	.208	.063	.012	.070
Percent of the Population Identified as GT	0.64	.521	-.029	.010	.064
Percent of the Identified GT Population that is ELL	13.98	<.001	.857	.623	.498

Multiple regression model accounted for 40% of variance. R = .631, R^2 = .398

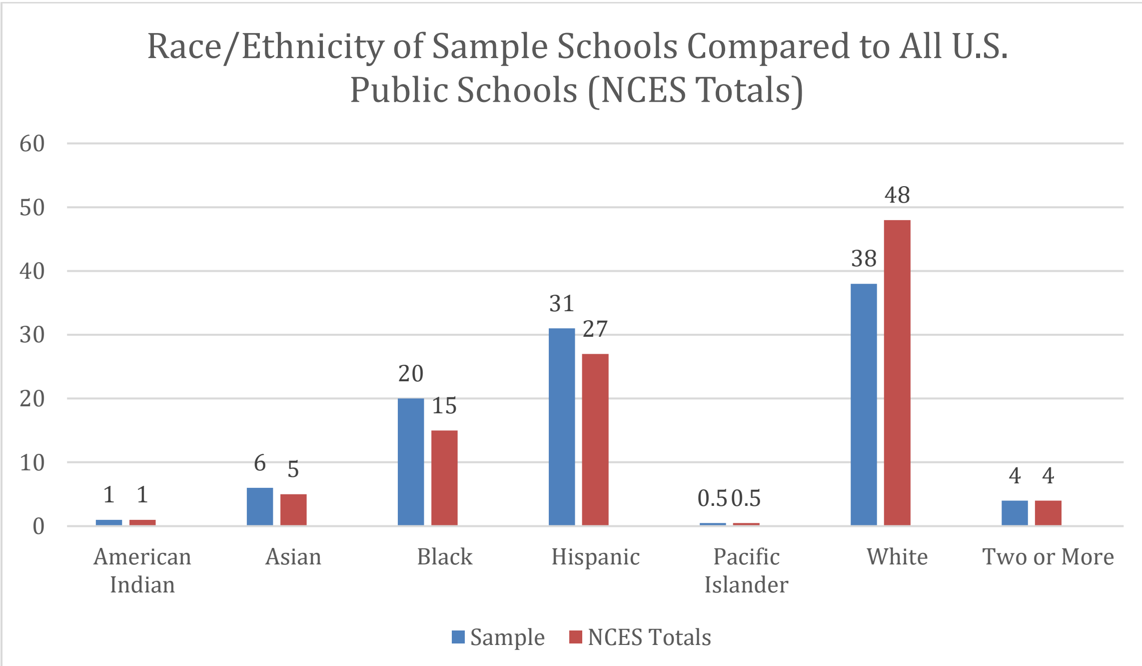

Figure 1. Representative Ethnicity of the Sample. In this graph, the sample bar represents the mean ethnicity of all the school districts in the sample and the NCES totals bar represents the proportional representation of students in all the U.S. public schools.