Representation of Black Students in Rural Gifted Education: Taking Steps Toward Equity

Vonna L. Hemmler
University of Virginia
Amy Price Azano
Virginia Tech
Svetlana Dmitrieva and Carolyn M. Callahan
University of Virginia

Citation: Hemmler, V. L., Azano, A. P., Dmitrieva, S., & Callahan, C. M. (2022). Representation of Black students in rural gifted education: Taking steps toward equity. *Journal of Research in Rural Education*, *38*(2). https://doi.org/10.26209/jrre3802

The enduring misperception that rural places are homogeneously White may contribute to the underrepresentation of Black students in rural gifted education programs. In this study, we sought to understand this relationship by examining the underrepresentation of Black students in rural gifted education programs through a theoretical framework of critical Whiteness studies, critical pedagogies of place, and spatial injustice. Using logistic regression, we analyzed data related to identification processes used in 11 high poverty rural school districts. These identification processes included local district-led identification strategies and study-led methods which were designed to increase equitable access to gifted education by administering a universal screening assessment, collecting teacher ratings for every student, and using local norms to interpret scores. Data analysis confirmed that Black students were identified for gifted services in greater numbers with the study-led methods and that district-led identification strategies often overlooked Black students for gifted identification. Results also indicated that teachers rated Black students lower on traits associated with giftedness even when the students had comparable scores on the universal screener. These findings point to promise in using more inclusive identification strategies and centering place in the interpretation of data as a step toward equity, but they also point to a significant need to disrupt Whiteness in rural gifted spaces. We discuss these implications and offer suggestions for further research to improve the rate of inclusion of Black students in gifted education programs as an issue of equity in rural schooling.

The demographic makeup of public schools in the United States has been changing so significantly that Students of Color (Tatum, 2003) are projected to outnumber White students by 2029 (National Center for Education Statistics [NCES], 2021). Educational researchers have examined this trend from multiple angles to better understand implications for schooling. Much of that research, however, has focused on urban and suburban schools (Showalter et al., 2019)—despite the fact that somewhere between a quarter and a third of U.S. public schools are considered rural (Greenough & Nelson, 2015; Robson et al., 2019; Tieken, 2020) and roughly one in five students in the United States attends a rural school (A. Johnson et al., 2020; J. Johnson et al., 2018; Lewis & Boswell, 2020; Robson et al., 2019; Showalter et al., 2019).

Like urban locations, rural communities are becoming increasingly diverse (Anthony-Stevens et al., 2017; K. Johnson & Lichter, 2019; Robson et al., 2019; Showalter et al., 2019), with approximately a quarter of rural students being Students of Color (Anthony-Stevens et al., 2017),

The research reported here was supported by the U.S. Department of Education, under the Jacob K. Javits Gifted and Talented Students Education program, through Grant GM10148.

All correspondence should be directed to Vonna L. Hemmler, School of Education and Human Development, University of Virginia, Charlottesville, VA 22903 (vlh3v@virginia.edu).

JRRE is associated with the Center on Rural Education and Communities at Penn State and is a publication of Penn State Libraries Open Publishing.

contradicting an enduring perception of rural spaces as homogeneously White, monocultural, and monolinguistic (e.g., Coady, 2021; Gillon, 2021; Greenough & Nelson, 2015; Schafft & Maselli, 2021; Tuters, 2015). Perhaps this misconception is one reason why rural education research has not yielded the same insights on issues around diversity compared to research focusing on urban schools and students (Tuters, 2015; see also Logan & Burdick-Will, 2017).

"The invisibility of rural education" (Showalter et al., 2019, p. 34) extends to gifted education, even though it is projected that somewhere between half and three quarters of a million rural students overall are gifted (Lewis & Boswell, 2020; see also Lavalley, 2018). Not seeing rural spaces for their diversity results in the lack of attention to equity issues related to diversity and in the underrepresentation of Students of Color—or specifically Black students as the focus of this study—in gifted programs in rural schools (e.g., Goings & Ford, 2018; Grissom & Redding, 2016; Howley et al., 2009; Siegle et al., 2016; Yaluma & Tyner, 2018). This underrepresentation serves to "recycle [Whiteness's] hegemonic stronghold" (Le & Matias, 2019, p. 17) and fails to acknowledge and interrogate the experiences of gifted Black students in rural schools.

Our study decenters Whiteness in rural spaces (Carter Andrews et al., 2021; Edgeworth, 2015; see also Goings & Ford, 2018) and proves that there are rural Black students with gifted ability or potential being missed in the identification process. We describe and analyze the effects of identification of Black students within a process designed to broaden identification generally in rural gifted education programs, validating calls to continue research related to the underrepresentation of Black students in rural gifted education (Ford, 2014; see also Collins et al., 2020; Goings & Ford, 2018). Our findings illuminate the increasing diversity present in rural gifted educational spaces and the challenges and advantages it affords (Bryant, 2010; Robson et al., 2019). Our goal is to ensure that rural Black students with gifted ability are not overlooked for inclusion in gifted programs (e.g., Azano & Callahan, 2021a; Azano et al., 2017; Peters et al., 2019).

Rationale and Research Questions

Both theoretical and empirical work have confronted the underrepresentation of Black students in gifted education (e.g., Dai, 2013; Edgeworth, 2015; Ford, 2013). Black students represent 19% of the U.S. student population (U.S. Department of Education, 2016) but account for only 10% of students in gifted education programs (Ford, 2013). The underrepresentation of Black students, and Students of Color more generally, in gifted education has been widely acknowledged, resulting in the publication of an equity-based bill of rights for gifted Students of Color (see Ford et al., 2018). This underrepresentation extends to rural schools as well (Davis et al., 2020a, 2020b) due to educational, social, and cultural factors such as geographic remoteness, cultural mismatch between educators and students, low teacher expectations, and low educational attainment of parents.

Given this underrepresentation, some observers have argued that the best response to persistent racial inequities is to disband gifted education altogether (see, for example, Shapiro, 2019). However, we maintain that doing away with gifted education does not address racial inequity but rather obfuscates its underlying cause. Instead, we advocate equitable reform by being "proactive, deliberate, and diligent" (Ford, 2014, p. 152) in the continued search for ways to identify and serve gifted students, including rural Students of Color, through inclusive rather than exclusive practices. Interrogating the underrepresentation of Black students in rural gifted education programs (see Davis et al., 2020a) addresses these challenges with the aim that rural schools and teachers will have the necessary resources to embrace existing (and increasing) diversity in systematic, antiracist ways (Lavalley, 2018).

It is imperative to continue to refine gifted education by deconstructing the current centrality of Whiteness in it (see, for example, Ewalt, 2019). Our inception point for doing so in this study is the initial step of gifted education: identification. We chose to examine the identification process based on several considerations: (a) the acknowledgment that identification processes are the gateway to gifted education, (b) the increasingly accepted view that identification procedures are often too rigid and devoid of contextual factors in their consideration of what counts as giftedness and who is gifted (Lewis & Boswell, 2020; Siegle et al., 2016), and (c) the understanding that the first step to equity in gifted education is giving every student the opportunity to be identified (Dai, 2013).

We explored the way one set of instruments and a process designed to be more inclusive of rural students from areas classified as low-income impacted the identification of Black students. The "study-led" process we designed is presented in contrast to the "district-led" process used prior to our intervention. Study-led identification processes were designed to provide equitable access to *all* rural students in the sample and included a universal screening assessment and teacher rating scales. Following the implementation of a project with the initial explicated goals of identifying rural students for gifted education, we conducted post hoc analyses of data to answer the following questions.

1. Were Black and White students equally likely to be identified for gifted services by study-led and district-led identification processes?

2. How did identified Black and White students compare on the criteria applied in the study-led identification process?

3. Were there any differences in teacher ratings of Black and White students in the study-led identification process?

Frameworks

Because our research questions problematize historical notions of rural gifted education, the frameworks we used to view our data similarly push conventional boundaries and allow for a critical examination of the rural gifted space (see Anthony-Stevens et al., 2017; Howley et al., 2009). We employed critical Whiteness studies and critical pedagogies of place (Gruenewald, 2003) to conceptualize both rurality and giftedness and to counteract the spatial injustice (e.g., Soja, 2010) that has resulted for Black students from limited research on rural gifted education. Critical Whiteness studies directly confront hegemonic Whiteness as a product that is maintained in education; by acknowledging it as such, and in our case, challenging the association of giftedness with Whiteness, we can begin to problematize the "permanence of race and racism" in the education system (Matias et al., 2014, p. 291). Critical pedagogies of place connect the classroom with its surrounding environment (e.g., inside and outside school) and "insist that students and teachers actually experience and interrogate the places outside of school ... as part of the school curriculum" for the purposes of identifying and recovering spaces, and ways of thinking in those spaces, that have "injure[d] and exploit[ed]" individuals (Gruenewald, 2003, p. 9).

Taking a critical perspective in our approach is vital to examining the presence (or absence) of Black students in a historically White space. Ongoing perceptions of both rural and gifted environments as White have combined to center Whiteness in this space and to make opportunities for gifted services exclusionary for gifted Black students. Edgeworth's (2015) proclamation that "Black bodies in White rural spaces experience disturbing practices of unbelonging" (p. 362) thus aptly applies to rural gifted education, and our critical approach allows us to interrogate race as a central tenet in this exclusion and develop ways to reverse this trend (see also Lawrence, 2009; Logan & Burdick-Will, 2017; Whiting, 2009). As such, we aim to answer the ongoing call for more inquiry in all areas of gifted rural education, but particularly as it pertains to gifted rural Black students (e.g., A. Johnson et al., 2020; J. Johnson et al., 2018; Lavalley, 2018; Logan & Burdick-Will, 2017; Peters et al., 2019; Robson et al., 2019; Showalter et al., 2019). We use critical Whiteness studies to "problematize the normality of hegemonic whiteness" (Matias et al., 2014, p. 291) in the gifted space and critical pedagogies of place to "advance equity, justice, and liberation" for this population of students (Butler & Sinclair, 2020, p. 66). Overall, we seek to "disrupt systems of power and oppression" that have excluded Black students from the gifted education space (Butler & Sinclair, 2020, p. 64).

Rurality and Giftedness

The current study draws upon data from a larger study in which we sought to increase the number of rural students identified for gifted education from participating schools classified as high poverty (i.e., with more than 50% of students eligible for free/reduced price lunch). Using federally defined locale codes (Geverdt, 2019), we limited our study to districts designated as rural fringe, rural distant, and rural remote (see Longhurst, 2021, for a description of locale codes and their implications).

Executing a different and more inclusive identification process required consideration of a broader understanding of what giftedness could look like for rural students, how rural students might demonstrate giftedness in particular contexts, and how various instruments could capture and/or measure giftedness. While our intention was to identify more rural students for gifted education though an equitable process, we did not necessarily target racially diverse or historically minoritized students in the larger study. That said, we did develop and evaluate a process to seek *all* qualified students in the identification process (see also Azano et al., 2020; Azano & Callahan, 2021b, Callahan & Azano, 2021b).

Challenging Spatial Injustice Through Critical Pedagogies of Place

Rural spaces have always been diverse but largely by way of a historically racist past whereby People of Color were in rural locations primarily as a result of "slavery, conquest, and racial subjugation" (Lichter, 2012, p. 4). A critical pedagogy of place demands that we embrace these contentious pasts (and presents) and resist perpetuating monolithic notions of rurality (Anthony-Stevens et al., 2017; Edgeworth, 2015; Lichter, 2012). Instead, challenging foregone constructions of rurality allows for change by normalizing the presence of people who have been marginalized in historically White rural spaces and allowing instead for the understanding of rurality as a dynamic and place-dependent social construct (Azano & Callahan, 2021a; Butler & Sinclair, 2020) that is more a "state of mind ... reflected in cultural norms" (Lewis & Boswell, 2020, p. 185) than a location on a map.

Such a critical understanding of rurality evokes the concept of *place* and the role it can play in coloring the interactions between an individual and the environment,

particularly as it relates to schooling. Place involves making meaning out of and within the spaces people inhabit, so understanding the concept of place entails recognizing that factors such as backgrounds, experiences, resources, and positionalities can impact every person's endeavor to (re) make meaning on a daily basis in their environments (Butler & Sinclair, 2020).

Place, like rurality and giftedness, is a social construct (Azano & Callahan, 2021a). Therefore, individuals who exist in or who are relegated to places with "less"—whether it is in number (e.g., opportunities) or value (e.g., perspectives)—experience what Soja (2010) and others have termed *spatial injustice* (see also Tieken & Auldridge-Reveles, 2019). Spatial injustice refers to "the external creation of unjust geographies through boundary making" (Soja, 2010, p. 8) that can lead to "unevenness in access to necessary resources and services," particularly in schools, which—intentionally or not—often perpetuate inequality (Tieken & Auldridge-Reveles, 2019, p. 918). In an educational setting, it is not hard to see how students at under-resourced schools in neighborhoods classified as high poverty (both of which often occur in rural settings) might experience a disproportionate amount of spatial injustice, and how that spatial injustice can be further confounded depending on how one's race affords or prohibits access to certain educational spaces (Tieken, 2021; see also Green, 2015). As Edgeworth (2015) has noted, this realization can make the rural gifted classroom inaccessible for students who have not historically been welcomed or present there (see also Lawrence, 2009; Whiting, 2009).

Understanding place in an educational setting requires not only the consideration of how students of certain populations have been welcomed into or excluded from certain spaces, but also of how systems of power can shape the educational experiences of students once they are in a particular school space. A space such as a classroom can be a location of hegemonic reproduction or one of resistance, depending on how it is used and perceived by the actors in it (Azano & Callahan, 2021a; Butler & Sinclair, 2020; Tieken, 2021; Tieken & Auldridge-Reveles, 2019). Thus, notions of place and their inherent connections to social justice reform can inform theoretical and methodological stances that enable researchers to "unmask deep social, economic, and environmental inequities" in the way rural spaces function (Butler & Sinclair, 2020, p. 68; Edgeworth, 2015) and work to afford spatial justice (Soja, 2010) to those who have long been prohibited it, such as gifted Black students.

Understanding the Literature Related to Rural Gifted Education

Rural gifted education scholars have documented the unique ways rural contexts have influenced gifted education positively (e.g., small class sizes, leadership opportunities, sense of community) and negatively (e.g., limited peers, poverty, lack of gifted education teachers), including challenges in identifying students and providing them gifted programming (see Jung et al., 2022). In their systematic review of rural gifted education, Jung and colleagues (2022) distinguished broad themes, including identification, and cited the challenges related to the "underidentification and the underserving" (p. 3) of rural students. Inequitable funding structures create a disparity in opportunities, particularly for rural students in areas experiencing poverty. Limited funding influences a school's ability to hire gifted specialists or implement universal screeners that would ensure equitable access to gifted programming.

Rurality, Poverty, Race, and Gifted Identification

While several studies have focused on "strategies to reverse the underrepresentation of culturally diverse and economically disadvantaged rural gifted students" (Jung et al., 2022, p. 28), we still have much to learn about increasing representation among historically minoritized groups such as gifted Black students. Current understandings have been gleaned from extant research on the relationships among poverty, race, and gifted identification, both in schooling in general and more specifically within rural schools. Demographically, half of all rural individuals living in poverty are in areas categorized as high poverty (Lichter & Parisi, 2008) and are thus more likely to attend a school labeled as high poverty (Kettler et al., 2016; Lavalley, 2018).

These data elucidate how both rurality and poverty can intersect to affect students' development, achievement, performance, and prospects for life during and after formal schooling (e.g., A. Johnson et al., 2020; Lavalley, 2018; Lewis & Boswell, 2020; reardon et al., 2019; Showalter et al., 2019). Perhaps expectedly, then, poverty has been shown to complicate the identification of rural students for gifted education (Lewis & Boswell, 2020). However, scant research has examined the intersection of all these constructs, and as a result, little is known about rural gifted Students of Color who experience poverty (Goings & Ford, 2018; see also Stambaugh & Wood, 2015).

Methods of Gifted Identification

One potential strategy for improving the representation of Black students in rural gifted education is to employ and adapt methods that have been empirically verified to work in other contexts. These approaches include using multiple, alternative strategies for gathering data for identification (e.g., Callahan & Azano, 2019), such as universal screening with standardized assessments and teacher rating scales, and comparing the results against local instead of national norms.

According to Cross (2013), "defensible gifted education" employs multiple instruments and strategies of identification to "chang[e] our views of who gifted students are" (p. 6), and it provides evaluators with more than one data point for consideration of students' gifted potential or ability (see also Callahan & Azano, 2019). Moreover, evaluators are more likely to reflect and assign value to a greater variety of opportunities to learn and manifestations of giftedness, as historical means of identification that rely on one test often fail to identify diverse students (Gentry et al., 2008; Siegle et al., 2016). In addition, using multiple methods, instruments, and/or interpretations of data is likely to reduce the pitfalls of instrument bias of a single measure (Azano & Callahan, 2021a). Researchers who have examined the use of alternative means of identification have found not only that such approaches identified a greater number of students for gifted education in rural schools, but also that those identified students performed similarly to or better than students who were identified for gifted education through more historically prevalent means (e.g., Azano & Callahan, 2021a; Azano et al., 2017; Callahan & Azano, 2021a; Cross, 2013).

Three specific strategies for more inclusive identification of gifted students that have been documented as potentially effective are universal screening (or screening of all students, not just those referred by parents or teachers), use of data collected about all students from teacher rating scales, and application of local norms.

Gentry and colleagues (2008) and Card and Giuliano (2016) documented increased minority student representation in gifted education when universal screening is part of the identification process. The usefulness, validity, and fairness of teacher rating scales as an identification tool, even though widely used in the United States, have been debated (Azano & Callahan, 2021b; Brodersen & Callahan, 2021). The premise underlying their use is that they offer unique information about the presence of or potential for giftedness in a student because of teacher familiarity with the day-to-day behaviors of students (Brodersen & Callahan, 2021), but the literature is equivocal about potential bias in their use. These concerns emanate from scale designs; how they are used by teachers, particularly in rural areas or in instances where teachers may not be trained in how to use them (Brodersen & Callahan, 2021; Grissom & Redding, 2016; Lawrence, 2009); and how inherent teacher bias might influence scores (Siegle & Powell, 2004; Whiting, 2009), particularly for Black students in gifted education (e.g., Callahan & Azano, 2019; Collins et al., 2020; Grissom & Redding, 2016). For instance, Siegle and Powell (2004) found that students who showed interest in reading, completed their schoolwork, or had more generalized knowledge bases received higher ratings on teacher scales than students who did not show interest in reading; did not complete schoolwork; or had more focused, singular knowledge bases. In their review of the literature, Abell and Lennex (1999) discovered that teachers untrained in identifying giftedness often chose "teacher-pleasers" for gifted education (p. 11). Grissom and Redding (2016) found that teachers under-referred Black students for gifted education even when their performance was comparable to that of White students. Yet other research has shown that teachers can be among the first to recognize gifted characteristics in students (Lewis & Boswell, 2020).

Identification processes are likely to yield a larger pool of students to be considered for services when students' scores are compared to local instead of national norms (Azano et al., 2020; Lewis & Boswell, 2020; Peters et al., 2019). The purpose of using local norms is to evaluate talent within a local context and compare students with similar backgrounds and experiences (Callahan & Azano, 2021a; Rasheed, 2020). Local norms are more likely to allow educators to identify students who may not be sufficiently challenged in their current school contexts, and thus may not have had the opportunity to develop skills at the highest level (Azano et al., 2020; Peters et al., 2019). The use of local norms is also more in tune with the federal definition of giftedness, which states that gifted children perform exceptionally when compared to "others of their age, experience, or environment" (Ross, 1993, p. 3), and is logical given the understanding that policy, particularly that impacting rural education, is constructed and enacted at the local level (Peters et al., 2019; Showalter et al., 2019). Because use of local norms has resulted in an increase in the number of students identified as gifted, this mechanism has the potential to mitigate underrepresentation and thus begin to confront the inequity that has plagued the field (e.g., Azano & Callahan, 2021a; Azano et al., 2017; Dai, 2013; Peters & Engerrand, 2016; Peters et al., 2019; Rasheed, 2020).

In the current study, we used universal screening with standardized tests and teacher rating scales and applied local norms to identify gifted students (Callahan & Azano, 2019; Card & Giuliano, 2016). We critically examined how these multiple strategies in the process of gifted identification can be brought to bear in a rural setting to increase the

identification of Black students for gifted education there. As mentioned above, Peters and colleagues (2019) have pointed out that such an examination has not yet been systematically conducted (see also A. Johnson et al., 2020; Logan & Burdick-Will, 2017; Rasheed, 2020). Goings and Ford (2018) and Lewis and Boswell (2020) have called for this research to be conducted from a critical perspective, as we have done here, to centralize a population that to this point has been othered in educational research (see also Tieken, 2020; Tuters, 2015).

Methods

Data for the present study come from the examination of the identification process in a larger intervention developed to increase the number of rural students identified for gifted programming and to provide evidence-based advanced language arts curriculum for elementary school students in rural schools designated as high poverty (see Azano & Callahan, 2021b).

Sampling for the larger intervention was purposive and done at the district rather than school level to avoid possible diffusion of treatment because in some districts there was only one gifted education specialist or general education teacher providing gifted services for all schools in the district. All of the state's districts designated as rural (fringe, distant, or remote) by NCES and where at least 50% of the student population received free/reduced price lunch were invited to participate in the study. The 11 school districts included in this study were located in Virginia. Azano and Callahan (2021b) presented detailed information on sample selection and characteristics of each district in the sample. Districts were assigned to either treatment or control conditions, and each district cohort participated in the study for two years when students were in the third and fourth grades. Students in the treatment condition districts received instruction in the four language arts units of the place-based curriculum developed by the researchers while students in the control group received instruction typically provided for gifted learners in their districts.

The identification of students for gifted education in this study was two-fold, allowing for a comparison of students identified by the usual district-led practices and those identified through the study-led processes, which were used to expand that pool for the larger study. First, each school district identified students for participation in the gifted program for their district using their existing assessments and procedures (outlined below). Then we introduced the study-led process (also described below) to identify an additional pool of students eligible for services (Callahan & Azano, 2021a). Our study-led identification process was implemented in both treatment and control districts.

Sample and Data Collection for Research Questions 1 and 2

Data analyzed to answer our first two research questions were from students identified as gifted either through district-led or study-led identification processes. There was considerable variation in how districts identified students for gifted services; however, five participating districts screened students universally in either first or second grade. In many districts, students had to meet multiple assessment criteria on aptitude and achievement tests to be eligible for gifted services. None of the districts relied on local norms when considering students for inclusion. Rather, national norms with cutoff scores (sometimes above the 96th percentile) or a matrix in which those test scores played a major role formed the basis for identification decision-making. Table 1 summarizes the district-led processes in identifying students for gifted services.

Table 1
Processes Used by School Districts for Gifted Identification

School district	Teacher nomination for pool	Parent nomination for pool	Universal screening	Cutoff scores (all are based on national norms unless otherwise noted)	Matrices	Professional staff review	Categories for gifted identification
Treatment							
1	Yes	Yes	Yes	Yes, 85th percentile on NNAT[a] to be considered for the talent pool. As a second step, students in the talent pool are administered the InView test. There is no minimum score required on InView.	Yes. There is a minimum eligibility score on the matrix based on InView, work sample, parent and teacher checklists and a student interview.	Only for scores 1 to 2 points below the eligibility cutoff score on the matrix.	General intellectual aptitude
2	Yes	Yes	Yes	Yes, NNAT is used as a universal screener to be considered for the talent pool. To be eligible for the gifted program, students need to score at or above 85th percentile on CogAT.	Yes, must meet the cutoff score on eligibility matrix.	Yes	General intellectual aptitude
3	Yes	Yes	Yes	Yes, 115 on NNAT is required for further consideration. To be eligible for the gifted program, students need to score at or above 85th percentile on one of the following tests: KTEA,[b] Woodcock Johnson (reading and math), or CogAT (reading).	Yes, must meet the cutoff score on eligibility matrix.	Yes	General intellectual aptitude Visual and performing arts
4	Yes	Yes	Yes	Yes, 86th percentile on NNAT. Then eligible students enter a multi-stage identification process. A minimum score should be obtained on each of the following: GES,[c] the Woodcock-Johnson and WASI.[d]	No	School psychologist makes the final decision.	General intellectual aptitude
5	Yes, referral necessary for next step-based on test scores, grades, work products.	Yes	No	Screening of Gifted Abilities 80%–100%, GES at or greater than 96th percentile, WASI 127 or above.	Yes, a score is assigned to performance on each measure. Students must meet the minimum eligibility score.	Yes	General intellectual aptitude

Table 1 Continued

School district	Teacher nomination for pool	Parent nomination for pool	Universal screening	Cutoff scores (all are based on national norms unless otherwise noted)	Matrices	Professional staff review	Categories for gifted identification
6	Yes	N/A	Yes	90th percentile on the Formative Assessment System for Teachers (FAST) for further consideration, 90th percentile on CogAT for further consideration. From here students must score within confidence interval that includes 120 on Wechsler Nonverbal Scale of Ability and 120 on Woodcock-Johnson.	Yes, Scores from each measure have certain weight in contributing to the final score on the matrix.	Committee may make exception to cutoff scores but must provide justification.	General intellectual aptitude Specific academic aptitude: math and English
Control							
7	Yes	Yes	No	93rd percentile in more than one discipline or area. A variety of standardized tests are used including WISC IV, WIAT III, K-BIT,[g] CTONI-2.[h]	No	Placement Committee reviews all the applications and makes the final decision.	General intellectual aptitude Specific academic aptitude: math and English Visual and performing arts
8	Yes, teacher referrals play an important role since that is how most students are identified for gifted services.	Yes	Documents say yes, but in an interview it was confirmed that not all students are screened.	SAGES[j] and other test scores, such as Virginia SOL[i] or PALS.[m]	No	Gifted Committee reviews all collected data and makes "holistic" assessment of student eligibility.	General intellectual aptitude Specific academic aptitude
9	Yes	Yes, students need referral from administrator, teacher, parent, counselor, or themselves for further testing.	No	CogAT and Virginia SOL	Yes	Matrix data reviewed by committee; no minimum number.	No data

Table 1 Continued

School district	Teacher nomination for pool	Parent nomination for pool	Universal screening	Cutoff scores (all are based on national norms unless otherwise noted)	Matrices	Professional staff review	Categories for gifted identification
10	Yes, teacher or parent nomination required for further screening.	Yes, teacher or parent nomination required for further screening.	No	A student needs to perform at or above 93rd percentile on aptitude instrument in one or more disciplines. They use SAGES[j] and OLSAT.[k]	Yes, matrix has a scoring system	Committee decision based on meeting criteria including cut-off scores.	General intellectual aptitude
11	Yes, teachers refer based on classroom academics and MAP[l] testing at 96th percentile or above.	No	No	Must score at 96th percentile or above on OLSAT or SAGES.	Yes	No	General intellectual aptitude Specific academic aptitude: math and English

[a] NNAT – Naglieri Nonverbal Ability Test
[b] KTEA – Kaufman Test of Educational Achievement
[c] GES – Gifted Evaluation Scale
[d] WASI – Wechsler Abbreviated Scale Intelligence
[e] WISC – Wechsler Intelligence Scale for Children
[f] WIAT – Wechsler Individual Achievement Test
[g] K-BIT – Kaufman Brief Intelligence Test
[h] CTONI – Comprehensive Test of Nonverbal Intelligence
[i] Virginia SOL – Virginia Standards of Learning tests, assessments required by the Virginia Department of Education
[j] SAGES – Screening Assessment for Gifted Elementary and Middle School Students
[k] OLSAT – Otis-Lennon School Ability Test
[l] MAP – Measures of Academic Progress Test
[m] PALS – Phonological Awareness Literacy Screening

First, all second-grade students in treatment and control districts completed the Verbal Battery of the Level 9 Cognitive Abilities Test (CogAT). All second-grade teachers in all districts participated in place-based, rural-focused professional development, which pertained to how giftedness may manifest in rural students from areas identified as low-income, prior to completing three scales (reading, motivation, and creativity) from the Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS; Renzulli et al., 2013). However, the teachers did not receive professional development directly related to using those rating scales to evaluate Students of Color. When presenting these data to school districts and making recommendations about who they might include in their gifted programs, we used both local (school district) and national norms on the CogAT and standard z-scores based on classroom and school norms for the SRBCSS. Final decisions about students' placements in the gifted programs were made during district collaborative meetings based on recommendations from the research team.

From this larger dataset we created a subsample of students whose race was either White or Black. Biracial and multiracial students who identified as Black and another race were included in the Black category. It should be noted that although all the districts in the study reported students' races, not all districts reported students' ethnicities. Consequently, we did not have consistent data on Latinx/Hispanic students across all the districts and could not consider this important group of students in our sample. We discuss this topic further in the limitations of the study.

We reduced our sample to exclude districts that had very low (2% and below) percentages of Black students in their general school population. Our resulting sample was comprised of 230 students from six districts and included 146 (63%) study-identified students. The percentage of Black students in these school districts ranged from 2.8% to 43.7%, while the percentage of Black students identified for gifted services was in the range of 0.0% to 28.4%. Table 2 presents the number and percentage of Black and White students identified through district- and study-led identification processes for each district in the sample of districts in which more than 2% of their population identified as Black.

Sample and Data Collection for Research Question 3

The sample for the third research question was comprised of 2,004 teacher ratings of second-grade Black and White students from 45 elementary schools in the 11 districts, collected as part of the universal screening for the larger study described above. The resulting sample consisted of 302 (15.1%) ratings of Black students and 1,702 (84.9%) ratings of White students. The percentage of Black students rated in each district varied from 0% to 46% (see Table 3).[1] In total, four districts in the sample could be considered as having a high percentage of Black students (greater than 35%). The sample was well-balanced in terms of sex representation,[2] with ratings of girls constituting 49.6% and ratings of boys constituting 50.4%.

Measures Used in Study Processes of Identification

The SRBCSS (Renzulli et al., 2013) have been widely used for gifted program identification since the 1970s. Because the focus of the intervention from our larger project was on advanced language arts curriculum, including creative productivity, we used the three subscales of reading, motivation, and creativity in our study. The reading, motivation, and creativity scales consist of six, eleven, and nine items, respectively, and are 6-point Likert-type instruments. Each item represents a statement describing a student's behavior or characteristic (e.g., "The student demonstrates intense involvement in certain topics or problems"). Teachers are asked to evaluate each statement based on how frequently they observe a behavior in a student. Because reading, motivation, and creativity represent distinct dimensions, the score for each subscale is treated separately. Field tests conducted by scale developers confirmed high internal consistency of the three subscales. The alpha reliability coefficient was 0.96 for reading, 0.90 for motivation, and 0.84 for creativity (Renzulli et al., 2013).

The CogAT is a group-administered aptitude test commonly used to identify students for gifted services (Lohman & Gambrell, 2012). To capture students' reading and writing potential, we administered only the Verbal Battery of the Level 9 CogAT (CogAT-V), which consisted of three subsections: Verbal Analogies, Sentence Completion, and Verbal Classification.[3] The split-half reliability of the Level 9 CogAT-V was reported at .93. Concurrent validity evidence comes from correlational analysis with the Woodcock-Johnson III test (r = .68) and the Wechsler Intelligence Scale for Children (r = .79).

Data Analysis

We calculated the likelihood of a Black student being identified for gifted services either by the existing district-

[1] Although a district may have had more than 2% students categorized as Black, a given district may have had 0% Black students in second grade.

[2] Schools provided information related to sex (not gender) of students.

[3] We chose to use the Level 9 test, rather than the Level 8 test, which is designed for second-grade students, based on recommendations for gifted screening offered by David Lohman, one of the CogAT authors.

Table 2
District-Level Details and Percentage of Students Identified for Gifted Services by Race in Districts with Black Student Enrollment Greater Than 2%

District	Black students in population (%)	Black students in school district (%)	Black students identified by district and study processes (*N* and %)	Black students identified by study process only (*N*)	White students identified by district and study processes (*N* and %)	White students identified by study only (*N*)
1	30.8%	40.0%	6 (19.4%)	6	25 (80.6%)	22
2	5.7%	3.0%	0 (0.0%)	0	23 (100%)	21
3	28.6%	36.5%	23 (28.4%)	20	58 (71.6%)	35
4	3.2%	2.8%	5 (7.5 %)	2	62 (92.5%)	20
5	33.9%	35.7%	1 (7.1%)	1	13 (92.9%)	12
6	33.9%	43.7%	1 (7.1%)	1	13 (92.9%)	6

Table 3
Representation of Teacher Ratings by Student Race in Participating Districts

District	Black	White
1	35 (38.5%)	56 (61.5%)
2	113 (39.6%)	172 (60.4%)
3	24 (6.9%)	324 (93.1%)
4	70 (43.7%)	90 (56.3%)
5	43 (46.2%)	50 (53.8%)
6	3 (3.1%)	93 (96.7%)
7	5 (2.8%)	175 (97.2%)
8	0 (0%)	105 (100%)
9	1 (0.7%)	134 (99.3%)
10	5 (2.0%)	245 (98.0%)
11	3 (1.1%)	258 (98.9%)
Total	302 (15.1%)	1,702 (84.9%)

led identification processes or the study-led methods. To do this, we ran a logistic regression model with method of identification as a dependent variable.

$$Logit\ (Y_i) = \ln(\pi/(1-\pi)) = \beta_0 + \beta_1(race) + \beta_2(sex) \quad (1)$$

The dependent variable (Y_i) was a dichotomous variable coded as 0 if a student was identified for gifted services by the districts and 1 if a student was identified for gifted services through the study-led criteria. Race was our main predictor of interest and was coded as 1 for Black students. We also chose to control for student sex in the model due to possible sex-related bias in identification practices described in the literature. To account for district-level clustering, we ran the model with dummy indicators for each district. Clustering by district rather than school or classroom was most appropriate because identification policies and practices were implemented at the district level. Multilevel modeling or the cluster-robust estimator of variance were not applied due to a small number of clusters in the sample (Cameron & Miller, 2015). Our sample size satisfied a general recommendation to have at least 10 observations per parameter and no less than 100 observations total for maximum likelihood estimation underlying logistic regression (Long & Freese, 2014).

Second, we set out to compare identified Black and White students on measures of identification used by the

larger study. We compared the two groups of students in the six districts in our study with greater than 2% of the population identified as Black on their scores on the Level 9 CogAT-V and the ratings of students by teachers on the reading, motivation, and creativity subscales of the SRBCSS.

We ran a series of OLS regression models with race as the main categorical predictor of interest, a covariate of sex, and an interaction term between sex and race variables:

$$Y_i(CogAT_i) = \beta_0 + \beta_1(race) + \beta_3\,(sex) + \beta_4(race\ X\ sex) + \beta_2 Z_i + \varepsilon_i \quad (2)$$

$$Y_i(Motivation_i) = \beta_0 + \beta_1(race) + \beta_3\,(sex) + \beta_4(race\ X\ sex) + \beta_2 Z_i + \varepsilon_i \quad (3)$$

$$Y_i(Creativity_i) = \beta_0 + \beta_1(race) + \beta_3\,(sex) + \beta_4(race\ X\ sex) + \beta_2 Z_i + \varepsilon_i \quad (4)$$

$$Y_i(Reading_i) = \beta_0 + \beta_1(race) + \beta_3\,(sex) + \beta_4(race\ X\ sex) + \beta_2 Z_i + \varepsilon_i \quad (5)$$

We accounted for clustering in all four models by including an unobserved variable that varied from district to district and was coded as a series of five indicator variables representing districts (one district was omitted as a reference category). Thorough residual diagnostics were conducted for each of the regression models. We checked for the normality assumption using a kernel density plot, P-P and Q-Q plots, and the Shapiro-Wilk W test for normality. The homogeneity of variance assumption was analyzed with the residuals vs. fitted values plots and the White test. Since either one or both assumptions were violated in all the cases, we relied on Huber-White robust standard errors to make adjustments in the estimates.

Finally, we compared teacher ratings of Black and White students on the three SRBCSS subscales in the full dataset of all second-grade students tested for gifted services. We used multilevel modeling to account for student clustering within schools. First, we estimated a variance-components model M_0 for each of the three outcome variables of interest–reading, motivation, and creativity. Since the modeling was identical for all three outcomes, we used a single letter Y_{ij} to denote each outcome.

$$\text{Level 1: } Y_{ij} = \beta_{0j} + e_{ij} \quad (6)$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + u_{0j}$$

Across all three cases, within-school variance between individual students' ratings was much higher than the between-school variance–that is, most variance in our models was present at the student level. As indicated by ICC, 8% of the variance in the reading and motivation scores and 11% of the variance in the creativity score was at the group level.

The variance-components model was expanded to include two predictors of interest, race and sex, and a covariate of performance on the CogAT to control for student aptitude:

$$\text{Level 1: } Y_{ij} = \beta_{0j} + \beta_{1j}(race_{ij}) + \beta_{2j}(sex_{ij}) + \beta_{3j}(CogAT\_centered_{ij}) + e_{ij}$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + \gamma_{01}(proportion\ of\ Black) + \gamma_{02}(proportion\ of\ boys) + \gamma_{03}(mean\ school\ CogAT) + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$
$$\beta_{2j} = \gamma_{20}$$
$$\beta_{3j} = \gamma_{30} \quad (7)$$

The CogAT variable was centered around school means. Cluster means for sex, race, and CogAT were added to the model as level 2 variables to separate the between- and within-school effects (Rabe-Hesketh & Skrondal, 2012). Thus, the coefficients for race and sex variables at level 2 should be interpreted as the test of statistical significance in the within- and between-school effect (i.e., contextual effect), while the coefficient for CogAT as a level 2 variable is the average aptitude difference between schools. Level 1 coefficients are interpreted as differences between Black and White students attending the same school.

All analyses were carried out using STATA 16.

Results

Descriptive Results

As Table 4 illustrates, identified White students were rated higher than Black students on the three SRBCSS scales of reading, creativity, and motivation, with the largest difference of 3.45 points being on the motivation scale. Descriptive statistics also indicate that identified White students had higher mean percentiles on the CogAT. At the same time, the difference in the test score percentiles based on local norms was the smallest and constituted one percentile.

Looking at our larger sample of all second-grade students tested for gifted services, we observed a different pattern of mean differences between the two groups. Table 5 shows that Black and White students received similar ratings on the reading and creativity subscales. White students were rated somewhat higher on the motivation subscale, but the difference between the two groups was 1.71, which is smaller compared to the same difference for

Table 4
Descriptive Statistics for Study Identification Measures by Race

	Black			White		
	M	SD	*N*	M	SD	*N*
Reading	30.92	4.38	36	32.28	4.39	193
Creativity	42.00	8.97	36	45.37	7.93	194
Motivation	53.75	7.92	36	57.20	9.12	194
$CogAT_{raw}$	40.82	4.45	34	44.01	6.33	187
$CogAT_{nation}$	82.00	9.17	34	85.61	11.67	187
$CogAT_{local}$	90.61	9.73	34	91.64	10.26	187

Table 5
Descriptive Statistics for Study Identification Measures by Race in the Full Sample

	Black			White		
	M	SD	*N*	M	SD	*N*
Reading	22.05	7.84	302	21.98	8.53	1,702
Creativity	32.03	10.87	302	32.98	11.13	1,702
Motivation	37.85	14.08	302	39.56	14.94	1,702
$CogAT_{raw}$	25.05	9.87	302	28.36	10.79	1,702
$CogAT_{local}$	45.90	26.86	302	50.07	29.28	1,702

identified groups of students. The means for CogAT scores were higher for White students.

At the school level, however, our descriptive analysis yielded noticeable variability in ratings, including instances of potential bias when Black students performed at the same level as White students on the CogAT (arguably a more objective measure) but were nevertheless rated lower on reading, motivation, and creativity. Figure 1 shows differences in teacher ratings of Black and White students in schools where Black students made up more than 2% of the population. Notably, in school 1008, Black and White students scored at the same level on the CogAT. Yet in this school, teachers rated Black students consistently lower on all the three subscales of reading, motivation, and creativity. In some schools (e.g., schools 1401, 1402, 0804, and 0805) where the advantage of White students on the CogAT was only slight, the gap in the teacher ratings between the two races was much higher. In other words, teachers saw these groups of students as different from each other, with the advantage given to White students, compared to the difference suggested by the test. At the same time, in some schools (e.g., 1101), average teacher ratings by race corresponded to the average score pattern observed on the CogAT.

District Identification vs. Study Identification of Black and White Students (Research Question 1)

A two-predictor logistic model was fitted to the data to test the likelihood of Black students being identified for gifted services through the district- or study-led identification measures. The analyses based on Equation 1 showed:

$$Logit\,(Y_i) = 2.20 + 1.19 * Race - 0.28 * Sex$$

According to the model, the log of the odds of a student being identified for gifted services through the study criteria was positively related to being Black ($p < .05$). The coefficient for sex was not statistically significant. Converting the coefficient to the odds ratio, we can conclude that the odds of a Black student being identified by the study rather than by the district were 329% of the odds of a White student. In other words, Black students were more than three times more likely to be overlooked by their districts for gifted identification as compared to their White peers. Table 6 shows the results from the logistic regression model. Both log odds coefficients and odds ratios are reported.

Figure 1
Teacher Ratings and CogAT Performance of Black and White Students by School

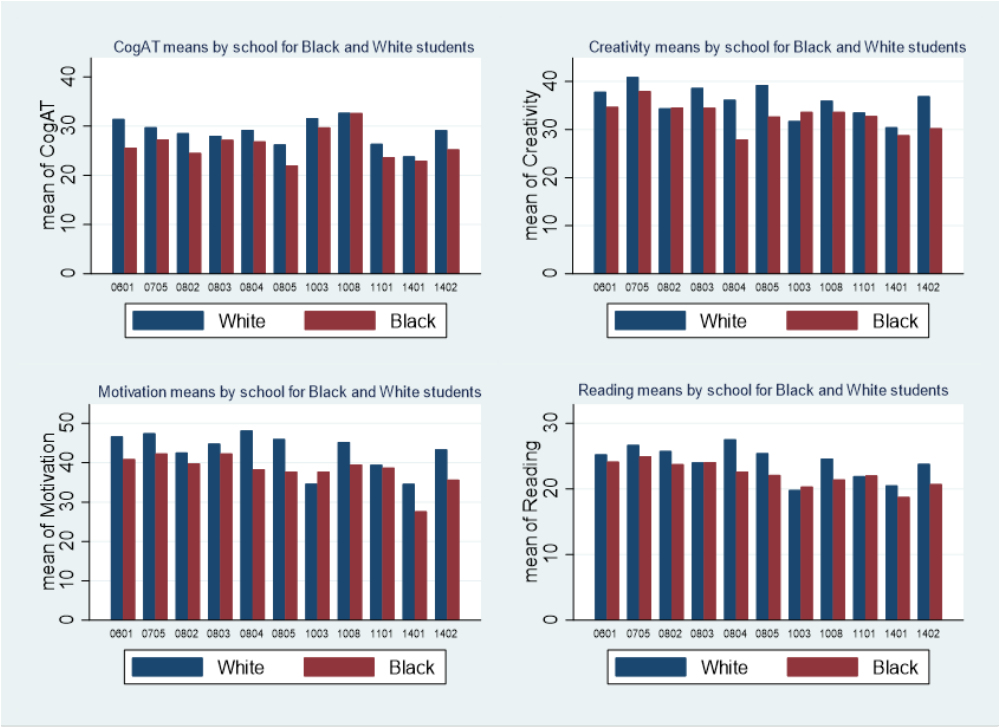

Table 6
Logistic Regression of Method of Identification on Race and Sex

Predictor	β	SE (β)	Wald's χ^2	Df	P	Odds ratio
Constant	2.20***	0.63	12.14	1	.00	9.04
Black (1 = Black)	1.19*	0.51	5.52	1	.02	3.29
Sex (1 = boys)	- 0.28	0.32	0.74	1	.39	0.76
			χ^2	Df	P	
Overall model evaluation						
Likelihood ratio test			63.21	7	.00	
Wald test			6.77	2	.03	
Pearson χ^2 goodness-of-fit test			7.71	12	.81	

*$p < .05$, **$p < .01$, ***$p < .001$

Overall model evaluation was carried out using the likelihood ratio test, Wald test statistics, and Pearson's goodness-of-fit statistics. Both the likelihood ratio test $\chi^2(7) = 63.21$, $p < .001$ and the Wald test $\chi^2(2) = 6.77$, $p < .05$ yielded statistically significant results, suggesting that the two-predictor model was more effective compared to a baseline intercept-only model. Pearson's goodness-of-fit test suggests that that the null hypothesis of a good model fit to data can be retained.

Comparison of Black and White Students on Study Measures (Research Question 2)

Table 7 reports the results of the four OLS regression models comparing Black and White students on identification measures. Controlling for sex, Black students had lower CogAT raw scores as compared to White students, scoring on average 2.79 points lower ($t(212) = 2.30$, $p < .05$). However, when we translated CogAT raw scores to

Table 7
Regression Coefficients for Identification Measures in the Sample of Identified Students

	$CogAT_{raw}$	$CogAT_{local}$	Motivation	Creativity	Reading
Race β_1	-2.79*	-0.44	-3.54*	-4.12*	-1.41
	(1.21)	(2.10)	(1.72)	(2.04)	(0.88)
Sex β_2	-0.58	-1.24	0.83	2.49*	0.11
	(0.88)	(1.48)	(1.26)	(1.08)	(0.60)
Race * Sex β_3	2.07	-1.48	0.93	3.70	0.50
	(2.18)	(5.11)	(3.23)	(2.77)	(1.83)
Constant	45.12***	91.99	58.67***	45.07***	32.29***
	(1.10)	(1.52)	(1.33)	(1.31)	(0.82)
N	221	221	230	230	229
R^2	.14	0.03	.09	.10	.08
p value	.00	.01	.01	.03	.00

*$p < .05$, **$p < .01$, ***$p < .001$

locally normed percentiles, we did not find the scores for identified Black and White students to be statistically different. Comparing how Black and White students were rated by their teachers on the SRBCSS, we found no statistically significant difference in the teachers' evaluation of students' reading performance. However, teachers rated Black students consistently below White students on the motivation and creativity subscales. On average, Black students were rated 3.54 points lower ($t(221) = 2.05$, $p < .05$) than White students on the motivation subscale and 4.12 points lower ($t(221) = 2.04$, $p < .05$) than White students on the creativity subscale. The sex coefficient was statistically significant for teacher ratings of creativity, with boys being rated 3.7 points ($t(221) = 2.49$, $p < .05$) above girls. The interaction term was not significant in any of the models.

Differences in Teacher Ratings of Black and White Students (Research Question 3)

For the three outcome variables of reading, motivation, and creativity, the random intercept model M_1 was a better fit for the data as indicated by lower AIC and BIC, as compared to the variance-components model M_0 and statistically significant results of the likelihood ratio test for reading ($\chi^2(6) = 1090.95$, $p < .001$), motivation ($\chi^2(6) = 1021.67$, $p < .001$), and creativity ($\chi^2(6) = 588.67$, $p < .001$). Adding the three predictors of race, sex, and students' performance on the CogAT to the variance-components model explained an additional 35% of the variance in reading, an additional 34% of the variance in motivation, and an additional 23% of the variance in creativity at the student level. At the school level, predictors accounted for an additional 22% of variance in reading, an additional 6% of variance in motivation, and an additional 4% of variance in creativity. A more complex model with randomly varying slopes was tested for each of the outcomes. However, it did not yield better model-fit statistics as compared to the random-intercept model. Hence, the random-intercept model was the model of choice for each outcome variable.

The difference between Black and White students within the same school was statistically significant for motivation ($\beta_{1j} = -2.31$, $p < .01$) and creativity ratings ($\beta_{1j} = -1.63$, $p < .01$), with Black students receiving lower ratings. However, the difference in the teacher reading ratings was not statistically significant ($\beta_{1j} = -0.62$, $p > .05$). The coefficient for sex was statistically significant on the teacher creativity scales, with boys, on average, being rated 2.35 ($p < .001$) points higher than girls within the same school. Performance on the CogAT was statistically significant at $p < .001$ across all three outcomes, with a one-point increase in CogAT scores contributing to a 0.45 increase in the teachers' rating of reading, a 0.78-point increase in the rating on motivation, and a 0.47-point increase in the rating of creativity. Tables 8–10 provide details of the multilevel modeling results for the three outcomes.

Discussion

Our study indirectly confirms what has long been known in the literature: Black students are underrepresented in gifted education. Black students in the schools we studied were over three times more likely to be excluded from gifted identification than their White peers with the districts' methods of identification. Our findings also advance the scholarly conversation surrounding equity in gifted education by offering a potential strategy, at least initially, for addressing this underrepresentation. When we employed alternative means of identification, namely implementing

Table 8
Multilevel Modeling Results for Teacher Ratings of Motivation of All Second-Grade Students

Variable	M_0: variance components model		M_1: random intercept model	
	Estimate	SE	Estimate	SE
Fixed effects				
Intercept γ_{00}	39.27		31.25**	9.63
Black β_{1j}			-2.31**	0.86
Sex β_{2j}			-0.53	0.53
CogAT β_{3j}			0.78***	0.03
Cluster proportion Black γ_{01}			9.25***	4.36
Cluster proportion Male γ_{02}			-14.43	7.84
Cluster mean CogAT γ_{03}			0.53	0.29
Random effects				
Variance: intercept u_{0j}	17.02		15.89	4.49
Variance: residual e_{ij}	205.42		135.33	4.33
ICC	0.08		0.11	
Model fit				
χ^2 (6)			1021.67***	
Log likelihood	-8211.53		-7799.4	
AIC	16429.05		15616.73	
BIC	16445.86		15667.16	
Number of observations	2004		2004	
Number of groups: schools	45		45	

*$p < .05$, **$p < .01$, ***$p < .001$

Table 9
Multilevel Modeling Results for Teacher Ratings of Creativity of All Second-Grade Students

Variable	M_0: variance components model		M_1: random intercept model	
	Estimate	SE	Estimate	SE
		Fixed effects		
Intercept γ_{00}	32.95***		28.47**	8.66
Black β_{1j}			-1.63*	0.68
Sex β_{2j}			2.35***	0.42
CogAT β_{3j}			0.47***	0.02
Cluster proportion Black γ_{01}			6.61	3.94
Cluster proportion Male γ_{02}			-12.12	7.01
Cluster mean CogAT γ_{03}			0.32	0.26
		Random effects		
Variance: intercept u_{0j}	14.17	3.87	13.59	3.58
Variance: residual e_{ij}	111.74	3.57	86.05	2.75
ICC	0.11		0.14	
		Model fit		
χ^2 (6)			588.67***	
Log likelihood	-7608.80		-7351.05	
AIC	15223.6		14.720.11	
BIC	15240.41		14770.53	
Number of observations	2004		2004	
Number of groups: schools	45		45	

*$p < .05$, **$p < .01$, ***$p < .001$

Table 10
Multilevel Modeling Results for Teacher Ratings of Reading of All Second-Grade Students

Variable	M_0: variance components model		M_1: random intercept model	
	Estimate	SE	Estimate	SE
		Fixed effects		
Intercept γ_{00}	21.93***		16.06**	5.10
Black β_{1j}			-0.62	0.48
Sex β_{2j}			-0.54	0.30
CogAT β_{3j}			0.45***	0.01
Cluster proportion Black γ_{01}			6.93**	2.30
Cluster proportion Male γ_{02}			-8.87*	4.16
Cluster mean CogAT γ_{03}			0.35*	0.15
		Random effects		
Variance: intercept u_{0j}	5.54	1.67	4.30	1.28
Variance: residual e_{ij}	66.14	2.12	42.70	1.37
ICC	0.08		0.10	
		Model Fit		
χ^2 (6)			1090.95***	
Log likelihood	-7076.13		-6640.81	
AIC	14158.26		13299.63	
BIC	14175.07		13350.05	
Number of observations	2004		2004	
Number of groups: schools	45		45	

*$p < .05$, **$p < .01$, ***$p < .001$

universal screening and comparing CogAT scores to local instead of national norms, we found no statistically significant differences between the scores of Black and White students. In other words, comparing students with similar experiences and opportunities to learn resulted in a greater number of qualified Black students being identified for gifted education and thus effectively being granted access to a space from which they have long been excluded. Thus, these strategies provide a direct and tangible solution to the racial injustice rural students experience in not being identified for gifted education (Butler & Sinclair, 2020). Our findings in this regard offer support for using alternative means of identification and contribute to the emerging body of literature arguing the advantages of using universal screening and local norms as ways to make access to gifted education more inclusive and equitable.

Regarding the use of teacher rating scales, our findings for the second and third research questions were informative but inconclusive and speak directly to the complexities underlying the education of gifted rural Black students (Lawrence, 2009). When looking at how teachers used the SRBCSS to evaluate students on the three categories of reading, motivation, and creativity, we found that teachers rated Black students lower than their White peers on creativity and motivation but not on reading, and that teachers rated boys higher than girls on creativity. In the professional development we offered, emphasis was on how the characteristics of giftedness might be expressed in contexts identified as low-income and/or rural, but the training did not include reference to race and sex. These findings suggest that those who use teacher rating scales should be aware of potential biases when selecting students to receive gifted services, particularly on the measures of creativity and motivation as compared to reading, for which there is more regular data collection by schools. They also suggest that specific attention must be given to ways that characteristics are evaluated in all subpopulations given the lived experience of those diverse students.

We also found that an increase in CogAT scores for both Black and White students, and for both male and female students, corresponded with increases in teacher ratings on all three of the categories we examined. These findings could indicate several things, one of which is that the professional development we provided teachers on the SRBCSS did not reduce potential teacher bias regarding race and sex because of its explicit focus on rurality and poverty. In our previous work (Azano et al., 2020), we successfully partnered with rural schools to modify the beliefs and behaviors of teachers and increase the total number of rural students identified for gifted education. However, evidence here suggests that projects hoping to target rural Students of Color might need to employ professional development directly focused not only on race, sex, and the affective domains of creativity and motivation, but also on how biases can affect a teacher's use of rating scales. Another possibility concerns the difference in teacher ratings of students' creativity and motivation but not of their reading ability. Plausible explanations of this finding could be that reading ability is routinely assessed by standardized assessments, whereas teachers may be more subjective in their evaluation of creativity and motivation.

Implications

Our methods and findings point to several steps that can be taken to begin addressing the underrepresentation of Black students in gifted education, particularly in rural settings. To see truly meaningful changes, the issue must be addressed on the global and local levels.

A global approach to the accurate and equitable representation of Black students in gifted education—and to the rectification of the spatial injustice Black students too often experience in this domain—rests on a willingness to reconsider what ruralities can mean and what giftedness can look like in those settings. Our findings combat the enduring myth that rural spaces are White spaces, and it is logical to deduce that with diverse students comes diverse ways of expressing giftedness (Callahan & Azano, 2019). Using multiple identification measures, universal screening, and local norms to capture these manifestations resulted in a greater number of rural Black students being identified for gifted education when they were otherwise missed by their districts' identification procedures. But before employing our methods, we had to adhere to and communicate a mindset allowing for broader understandings of rurality and giftedness, and the intersection of the two constructs. Such a mindset must be collectively adopted so federal mandates can ensure that resources are accurately and appropriately distributed (Azano et al., 2020; Butler & Sinclair, 2020). By doing so, research can continue to be conducted to the benefit of *all* rural students, including Students of Color (Hébert, 2001), and it can be translated into effective, contextually specific policy, pedagogy, and professional development (Ford, 2014; Green, 2015; Rasheed, 2020; Tieken, 2021). This research also suggests that focusing on specific academic aptitudes (in this case, language arts) may yield a more diverse population than focusing on a more general conception of giftedness that implies a unitary intelligence indicator of giftedness and may, consequently, require high levels of performance across multiple domains to be considered gifted.

The distinct understanding that these changes must be tailored to the rural context in which they are to be implemented undergirds the local, place-based approaches that can be taken to afford exceptional rural Black students a rightful opportunity at gifted education (Callahan & Azano, 2021a; Lavalley, 2018; Lewis & Boswell, 2020).

An acknowledgment of the diversity present in rural spaces means that teachers in rural schools must be prepared to embrace and leverage this diversity in their classrooms, even if doing so means confronting previously held beliefs about diverse students and/or rural education (Anthony-Stevens et al., 2017; Callahan & Azano, 2021a; J. Johnson et al., 2018). It similarly means that teachers must be prepared to expand and tailor their conception of giftedness to their particular teaching environment, which may mean grappling with a preexisting set of beliefs about what giftedness and gifted education should be or look like—beliefs that, if not confronted, can interfere with attempts to identify a broad range of capable students (e.g., Azano & Callahan, 2021b; Azano et al., 2020; Callahan & Azano, 2021a; Grissom & Redding, 2016; Siegle & Powell, 2004). Starting this preparation as early as the pre-service years in teacher education programs may lay a solid foundation for future teachers not only to "see complexity in rurality" (Anthony-Stevens et al., 2017, p. 283) but also to unpack biases and deficit paradigms while simultaneously focusing on the more technical aspects of teaching (Anthony-Stevens & Langford, 2020; Anthony-Stevens et al., 2017; Azano & Stewart, 2015; Collins et al., 2020; Ford, 2014). During in-service teaching, offering high-quality, ongoing professional development can foster conversation and community among teachers (Azano & Callahan, 2021a; Callahan & Azano, 2021a), and such training has been shown to be effective but also challenging to enact in rural schools (e.g., Azano et al., 2017, 2020; Callahan & Azano, 2019, Lewis & Boswell, 2020; Siegle et al., 2016). Only when educators are open to starting from reimagined notions of rurality, race, and giftedness can more concrete issues of equity in gifted education like the underrepresentation of Black students be confronted to actionable results (Callahan & Azano, 2021a).

Our success through localizing place-based reforms to gifted education underscores the appropriateness of the methods applied in our study—using multiple measures and evaluating giftedness against local instead of national norms. The fact that our processes enabled us to identify a greater number of capable Black students for gifted education implies that our methods are worth implementing if the goal is to improve representation of Black students who have not historically been present in gifted education. However, as mentioned above, we also believe our findings support the literature in implying that teachers need professional development to use rating scales as measures of identification, particularly if the target population is an underrepresented population that may display gifted potential in nontraditional ways (see Pereira & de Oliveira, 2015) and if the rating scales were not designed with (implicit) cultural or teacher biases in mind (e.g., Brice & Brice, 2004). As with giftedness, teachers may also need training to broaden their definitions of the concepts measured by the scales. In our study in particular, teachers rated students differently on motivation and creativity, indicating that they may have a narrow understanding of what these constructs can mean or look like when demonstrated by different types of students. Adequate training in using the scales could mitigate these forces and inform teachers how to both harness their biases and responsibly use teacher rating scales to an equitable end.

As promising as our methods appear to be, there are also considerations to be made when employing them, including evaluating whether their costs—financial and otherwise—outweigh their benefits. Using multiple identification methods, universal screening tools included, can be expensive and time-consuming, but advocates for increased representation in gifted education maintain that a commitment to equity justifies their cost—an argument borne out in our findings (Azano & Callahan, 2021a; Callahan & Azano, 2021a). The influx of students into gifted education that can result from their use may also require accompanying staff, space, and resources to serve these students effectively (Mcclain & Pfeiffer, 2012; Peters et al., 2019). This is not to mention combating the false perception that identifying a greater number of Black students would result in lower rates of identification for other students more historically present in gifted education. Professional development to prepare teachers to offer services to a broader population of students could alleviate these concerns and support staff as they embrace diversity in gifted education. Community outreach would need to clearly communicate the benefits of these expenditures for students and their families. However, if the ultimate goal is to address and reverse the underrepresentation of Black students in gifted education, involved actors will view such expenditures as necessary means to that just end (Peters et al., 2019).

Limitations and Future Research

Our study has several limitations. The first is that we did not set out to address racial equity or bias in the original study and, as a result, did not address specific ways teacher beliefs may have biased the ratings of Students of Color during the training for using the teacher rating scales. We also did not have access to the full array of racial and ethnic data, including for the Latinx/Hispanic population, because of school district variability in recording such data. At the same time, we cannot emphasize enough how important it is to investigate the experiences of all groups of rural Students of Color underrepresented in gifted education programs. Students of Color identified as members of various racial/ethnic groups may experience and confront spatial injustices in unique ways, as determined by a host of socio-cultural and historical factors, including slavery,

patterns of immigration, and federal and local policies. Our hope is that this study, with its focus on the identification of Black students within the gifted rural context, will help guide future research on the underrepresentation of Latinx, Indigenous, and other groups of Students of Color in gifted education programs in rural schools.

Because we did not explicitly confront bias in ratings of racial/ethnic populations in the teacher training sessions we offered to participants, our findings could be reflective of that omission, and our conclusions might have been different if we had included race more centrally in our study design. We realized from our conclusions that researchers, ourselves included, need to be more intentional in talking about race in specific rural contexts. Future researchers would be wise to do so; such studies could either confirm or contrast our own, and they could also challenge rural assumptions of and decenter Whiteness in gifted education even more overtly (Tieken, 2020).

We join other scholars of critical rural education in pushing back against the perception that the rural United States is a homogeneous monolith. Thus, we acknowledge that the findings of our study and the methods we used to glean them may not point to the same conclusions in other rural contexts. While we had Appalachian, farming, and rural maritime communities in our sample, we appreciate Corbett's (2016) assertion that "if you have seen one rural community, you have seen ... well, one rural community" (p. 278). Thus, we would urge others in the field to apply our methods to other rural contexts to see how responsive they are to the needs and goals of their communities.

Thirdly, we used district-level free/reduced price lunch data rather than individual data. This component was an important part of our research design because school-level opportunities influence the extent to which gifted students can participate in school-based gifted programming. However, because we did not collect individual data related to free/reduced price lunch, we were unable to examine the relationship between poverty and race directly. The schools in the study were all identified as high poverty, but we did not have access to this information on individual students. A study that examines socioeconomic status in conjunction with rurality and race in individual students would benefit the literature on this topic.

Finally, our methods only included use of the CogAT-V and three scales of the SRBCSS because of the focus on language arts in the intervention study. While this approach is clearly reflective of the principle of gifted education in the match between assessment and programming for identified talent, and it allowed us to identify more students academically rather than by general ability, it does not reflect findings relative to the other subsets of the CogAT, other standardized assessments or content areas, other scales on the SRBCSS, or other rating scales.

Conclusion

Our findings further disrupt notions of one monolithic, White rural America. The literature is rife with evidence that Black students are not only underrepresented in gifted education, and in rural gifted education in particular, but also that this underrepresentation tragically disadvantages this group of students and their communities on numerous metrics and reinforces myths of homogeneity in rural places and in rural gifted education programs. It is now time to put this research into action through a reconceptualized notion of what rurality and giftedness mean and look like, as doing so provides space in the gifted sphere for students who deserve to be there but historically have not been (Edgeworth, 2015). For rural gifted education to actually see a positive change in the way it includes Black students, steps must be taken that go beyond pointing out this inequity and rewrite existing narratives about gifted rural students (Azano & Callahan, 2021a). Our methods of evaluating *all* potentially gifted students on multiple measures against local norms provide one effective way of doing so. As Edgeworth (2015) noted, "It is ultimately about creating a different kind of schooling and new possibilities in (rural) education" (p. 363). Many steps will need to be taken to achieve that goal, but increasing the number of Black students eligible for gifted education and effectively decentering the Whiteness that has defined the issues of equity rural education has faced for years is a desirable and necessary start.

References

Abell, D. J., & Lennex, L. (1999, November 15). *Gifted education: Don't overlook the disadvantaged* [Conference presentation]. Annual Meeting of the Mid-South Educational Research Association, Point Clear, AL, United States. https://eric.ed.gov/?id=ED436918

Anthony-Stevens, V., & Langford, S. (2020). "What do you need a course like that for?" Conceptualizing diverse ruralities in rural teacher education. *Journal of Teacher Education*, *71*(3), 332–344. https://doi.org/10.1177/0022487119861582

Anthony-Stevens, V., Gehlken, E., Jones, C., Day, S., & Gussenhoven, S. (2017). "I am assumed to be someone who doesn't have to deal with diversity": Countering the denial of diversity in rural teacher education. *Multicultural Education Review*, *9*(4), 270–288. https://doi.org/10.1080/2005615X.2017.1383813

Azano, A. P., & Callahan, C. M. (2021a). Innovations in providing quality gifted programming in rural schools using place-conscious practices. In S. White & J. Downey (Eds.), *Rural education across the world: Models of innovative practice and impact* (pp. 91–106). Springer. https://doi.org/10.1007/978-981-33-6116-4_5

Azano, A. P., & Callahan, C. M. (Eds.). (2021b). *Gifted education in rural schools: Developing place-based interventions.* Routledge. https://doi.org/10.4324/9781003017004

Azano, A. P., & Stewart, T. T. (2015). Exploring place and practicing justice: Preparing pre-service teachers for success in rural schools. *Journal of Research in Rural Education*, *30*(9), 1–12. https://doi.org/10.18113/P8JRRE3009

Azano, A. P., Callahan, C., Bass, E. L., & Rasheed, M. (2020). Supporting gifted education in rural schools. *Rural Educator*, *41*(2), 47–54. https://doi.org/10.35608/ruraled.v41i2.851

Azano, A. P., Callahan, C. M., Brodersen, A. V., & Caughey, M. (2017). Responding to the challenges of gifted education in rural communities. *Global Education Review*, *4*(1), 62–77. https://eric.ed.gov/?id=EJ1137998

Brodersen, A. V., & Callahan, C. M. (2021). Using teacher rating scales: Professional development. In A. P. Azano & C. M. Callahan (Eds.), *Gifted education in rural schools: Developing place-based interventions* (pp. 50–58). Routledge. https://doi.org/10.4324/9781003017004-8

Brice, A. E., & Brice, R. (2004). Identifying Hispanic gifted children: A screening. *Rural Special Education Quarterly*, *23*(1), 8–15. https://doi.org/10.1177/875687050402300103

Bryant, J. A. (2010). Dismantling rural stereotypes. *Educational Leadership*, *68*(3), 54–58. https://www.ascd.org/el/articles/dismantling-rural-stereotypes

Butler, A., & Sinclair, K. A. (2020). Place matters: A critical review of place inquiry and spatial methods in education research. *Review of Research in Education*, *44*(1), 64–96. https://doi.org/10.3102/0091732X20903303

Callahan, C. M., & Azano, A. P. (2019). Place-based gifted education in rural schools. In S. Smith (Ed.), *Handbook of giftedness and talent development in the Asia-Pacific* (pp. 294–303). Springer. https://doi.org/10.1007/978-981-13-3021-6_25-1

Callahan, C. M., & Azano, A. P. (2021a). Overcoming structural challenges related to identification and curricula for gifted students in high poverty rural schools. In R. J. Sternberg & D. Ambrose (Eds.), *Conceptions of giftedness and talent* (pp. 51–64). Palgrave. https://doi.org/10.1007/978-3-030-56869-6_4

Callahan, C. M., & Azano, A. P. (2021b). Developing a place-based identification process. In A. P. Azano & C. M. Callahan (Eds.), *Gifted education in rural schools: Developing place-based interventions* (pp. 41–49). Routledge. https://doi.org/10.4324/9781003017004-7

Cameron, A. C., & Miller, D. L. (2015). A practitioner's guide to cluster-robust inference. *Journal of Human Resources*, *50*(2), 317–372. https://doi.org/10.3368/jhr.50.2.317

Card, D., & Giuliano, L. (2016). Universal screening increases the representation of low-income and minority students in gifted education. *Proceedings of the National Academy of Sciences of the United States of America*, *113*(48), 13678–13683. https://doi.org/10.1073/pnas.1605043113

Carter Andrews, D. J., Ye, H., Marciano, J., Richmond, G., & Salazar, M. (2021). Decentering Whiteness in teacher education: Addressing the questions of who, with whom, and how. *Journal of Teacher Education*, *72*(2), 134–137. https://doi.org/10.1177/0022487120987966

Coady, M. (2021). English learners in rural schools. In A. P. Azano, K. Eppley, & C. Biddle (Eds.), *The Bloomsbury handbook of rural education in the United States* (pp. 247–255). Bloomsbury. https://doi.org/10.5040/9781350172036.0034

Collins, K. H., Joseph, N. M., & Ford, D. Y. (2020). Missing in action: Gifted Black girls in science, technology, engineering, and mathematics. *Gifted Child Today*, *43*(1), 55–63. https://doi.org/10.1177/1076217519880593

Corbett, M. (2016). Rural futures: Development, aspirations, mobilities, place, and education. *Peabody Journal of Education*, *91*(2), 270–282. https://doi.org/10.1080/0161956X.2016.1151750

Cross, J. R. (2013). Gifted education as a vehicle for enhancing social equality. *Roeper Review*, *35*(2), 115–123. https://doi.org/10.1080/02783193.2013.766962

Dai, D. Y. (2013). Excellence at the cost of social justice? Negotiating and balancing priorities in gifted education. *Roeper Review*, *35*(2), 93–101. https://doi.org/10.1080/02783193.2013.766961

Davis, J. L., Ford, D. Y., Moore, J. L., III, & Floyd, E. F. (2020a). Black and gifted in rural America: Barriers and facilitators to accessing gifted and talented education programs. *Theory & Practice in Rural Education*, *10*(2), 85–100. https://doi.org/10.3776/tpre.2002.v10n2p85-100

Davis, J. L., Ford, D. Y., Moore, J. L., III, & Floyd, E. F. (2020b). Black, gifted and living in the "country": Searching for equity and excellence in rural gifted education programs. In C. R. Chambers & L. Crumb (Eds.), *African American rural education: College transitions and postsecondary experiences* (pp. 39–52). Emerald. https://doi.org/10.1108/S2051-231720200000007017

Edgeworth, K. (2015). Black bodies, White rural spaces: Disturbing practices of unbelonging for "refugee" students. *Critical Studies in Education*, *56*(3), 351–365. https://doi.org/10.1080/17508487.2014.956133

Ewalt, J. N. (2019). *Learning to decenter Whiteness: A world history teacher's struggle* (Publication No. 27546344) [Doctoral dissertation, University of Georgia]. ProQuest Dissertations & Theses A&I.

Ford, D. Y. (2013). *Recruiting and retaining culturally different students in gifted education.* Prufrock Press.

Ford, D. Y. (2014). Segregation and the underrepresentation of Blacks and Hispanics in gifted education: Social inequality and deficit paradigms. *Roeper Review*, *36*(3), 143–154. https://doi.org/10.1080/02783193.2014.919563

Ford, D. Y., Dickson, K. T., Davis, J. L., Scott, M. T., & Grantham, T. C. (2018). A culturally responsive equity-based bill of rights for gifted students of color. *Gifted Child Today*, *41*(3), 125–129. https://doi.org/10.1177/1076217518769698

Gentry, M., Hu, S., & Thomas, A. T. (2008). Ethnically diverse students. In J. A. Plucker & C. M. Callahan (Eds.), *Critical issues and practices in gifted education* (pp. 195–212). Prufrock Press.

Geverdt, D. E. (2019). *Education Demographic and Geographic Estimates Program (EDGE): Locale boundaries file documentation, 2017* (NCES 2018-115). U.S. Department of Education, National Center for Education Statistics. https://nces.ed.gov/programs/edge/docs/EDGE_NCES_LOCALE.pdf

Gillon, K. E. (2021). Whiteness in rural education. In A. P. Azano, K. Eppley, & C. Biddle (Eds.), *The Bloomsbury handbook of rural education in the United States* (pp. 276–285). Bloomsbury. https://doi.org/10.5040/9781350172036.0037

Goings, R. B., & Ford, D. Y. (2018). Investigating the intersection of poverty and race in gifted education journals: A 15-year analysis. *Gifted Child Quarterly*, *62*(1), 25–36. https://doi.org/10.1177/0016986217737618

Green, T. L. (2015). Places of inequality, places of possibility: Mapping "opportunity in geography" across urban school-communities. *The Urban Review*, *47*(2), 717–741. https://doi.org/10.1007/s11256-015-0331-z

Greenough, R., & Nelson, S. R. (2015). Recognizing the variety of rural schools. *Peabody Journal of Education*, *90*(2), 322–332. https://doi.org/10.1080/0161956X.2015.1022393

Grissom, J. A., & Redding, C. (2016). Discretion and disproportionality: Explaining the underrepresentation of high-achieving students of color in gifted programs. *AERA Open*, *2*(1), 1–25. https://doi.org/10.1177/2332858415622175

Gruenewald, D. A. (2003). The best of both worlds: A critical pedagogy of place. *Educational Researcher*, *32*(4), 3–12. https://doi.org/10.3102/0013189X032004003

Hébert, T. P. (2001). Jermaine: A critical case study of a gifted Black child living in rural poverty. *Gifted Child Quarterly*, *45*(2), 85–103. https://doi.org/10.1177/001698620104500203

Howley, A., Rhodes, M., & Beall, J. (2009). Challenges facing rural schools: Implications for gifted students. *Journal for the Education of the Gifted*, *32*(4), 515–536. https://doi.org/10.1177/016235320903200404

Johnson, A., Kuhfeld, M., & Soland, J. (2020). *The forgotten 20 percent: Achievement and growth in rural schools across the nation* (EdWorkingPaper No. 20-236). Annenberg Institute, Brown University. https://doi.org/10.26300/y8r2-cx61

Johnson, J., Ohlson, M. A., & Shope, S. (2018). Demographic changes in rural America and the implications for special education programming: A descriptive and comparative analysis. *Rural Special Education Quarterly*, *37*(3), 140–149. https://doi.org/10.1177/8756870518771381

Johnson, K. M., & Lichter, D. T. (2019). *Rural repopulation in a rapidly urbanizing America* (National Issue Brief No. 139). Carsey School of Public Policy, University of New Hampshire. https://doi.org/10.34051/p/2020.347

Jung, J. Y., Townend, G., Hay, P. K., & Smith, S. R. (2022). The state of knowledge in rural gifted education: A systematic literature review. *Journal of Advanced Academics*. Advance online publication. https://doi.org/10.1177/1932202X221076385

Kettler, T., Puryear, J. S., & Mullet, D. R. (2016). Defining rural in gifted education research: Methodological challenges and paths forward. *Journal of Advanced Academics*, *27*(4), 245–265. https://doi.org/10.1177/1932202X16656896

Lavalley, M. (2018). *Out of the loop: Rural schools are largely left out of research and policy discussions, exacerbating poverty, inequity, and isolation*. Center for Public Education, National School Boards Association. https://eric.ed.gov/?id=ED608842

Lawrence, B. K. (2009). Rural gifted education: A comprehensive literature review. *Journal for the Education of the Gifted*, *32*(4), 461–494. https://doi.org/10.1177/016235320903200402

Le, P. T., & Matias, C. E. (2019). Towards a truer multicultural science education: How whiteness impacts science education. *Cultural Studies of Science Education*, *14*(1), 15–31. https://doi.org/10.1007/s11422-017-9854-9

Lewis, K. D., & Boswell, C. (2020). Perceived challenges for rural gifted education. *Gifted Child Today*, *43*(3), 184–198. https://doi.org/10.1177/1076217520915742

Lichter, D. T. (2012). Immigration and the new racial diversity in rural America. *Rural Sociology*, *77*(1), 3–35. https://doi.org/10.1111/j.1549-0831.2012.00070.x

Lichter, D. T., & Parisi, D. (2008). *Concentrated rural poverty and the geography of exclusion*. Rural Realities and Carsey School of Public Policy, University of New Hampshire. https://doi.org/10.34051/p/2020.55

Logan, J. R., & Burdick-Will, J. (2017). School segregation and disparities in urban, suburban, and rural areas. *The ANNALS of the American Academy of Political and Social Science*, *674*(1), 199–216. https://doi.org/10.1177/0002716217733936

Lohman, D. F., & Gambrell, J. L. (2012). Using nonverbal tests to help identify academically talented children. *Journal of Psychoeducational Assessment*, *30*(1), 25–44. https://doi.org/10.1177/0734282911428194

Long, J. S., & Freese, J. (2014). *Regression models for categorical dependent variables using Stata* (3rd ed.). Stata Press.

Longhurst, J. (2021). Developing, utilizing, and critiquing definitions of "rural" in rural education research. In A. P. Azano, K. Eppley, & C. Biddle (Eds.), *The Bloomsbury handbook of rural education in the United States* (pp. 9–18). Bloomsbury. https://doi.org/10.5040/9781350172036.0008

Matias, C. E., Viesca, K. M., Garrison-Wade, D. F., Tandon, M., & Galindo, R. (2014). "What is critical Whiteness doing in OUR nice field like critical race theory?" Applying CRT and CWS to understand the White imaginations of White teacher candidates. *Equity & Excellence in Education*, *47*(3), 289–304. https://doi.org/10.1080/10665684.2014.933692

Mcclain, M.-C., & Pfeiffer, S. (2012). Identification of gifted students in the United States today: A look at state definitions, policies, and practices. *Journal of Applied School Psychology*, *28*(1), 59–88. https://doi.org/10.1080/15377903.2012.643757

National Center for Education Statistics. (2021). *Racial/ethnic enrollment in public schools.* Retrieved March 1, 2021, from https://nces.ed.gov/programs/coe/indicator/cge

Pereira, N., & de Oliveira, L. C. (2015). Meeting the linguistic needs of high-potential English language learners: What teachers need to know. *Teaching Exceptional Children*, *47*(4), 208–215. https://doi.org/10.1177/0040059915569362

Peters, S. J., & Engerrand, K. G. (2016). Equity and excellence: Proactive efforts in the identification of underrepresented students for gifted and talented services. *Gifted Child Quarterly*, *60*(3), 159–171. https://doi.org/10.1177/0016986216643165

Peters, S. J., Rambo-Hernandez, K., Makel, M. C., Matthews, M. S., & Plucker, J. A. (2019). Effect of local norms on racial and ethnic representation in gifted education. *AERA Open*, *5*(2), 1–18. https://doi.org/10.1177/2332858419848446

Rabe-Hesketh, S., & Skrondal, A. (2012). *Multilevel and longitudinal modeling using Stata, Volume 1: Continuous responses* (3rd ed.). StataCorp.

Rasheed, M. (2020). Context and content in rural gifted education: A literature review. *Journal of Advanced Academics*, *31*(1), 61–84. https://doi.org/10.1177/193220X19879174

reardon, s. f., Weathers, E. S., Fahle, E. M., Jang, H., & Kalogrides, D. (2019). *Is separate still unequal? New evidence on school segregation and racial academic achievement gaps* (CEPA Working Paper No.19-06). Stanford Center for Education Policy Analysis. http://cepa.stanford.edu/wp19-06

Renzulli, J. S., Smith, L. H., White, A. J., Callahan, C. M., Hartman, R. K., Westberg, K. W., Gavin, M. K., Reis, S. M., Siegle, D., & Sytsma Reed, R. E. (2013). *Scales for rating the behavioral characteristics of superior students*. Prufrock Press. https://doi.org/10.4324/9781003237808

Robson, K., Burgoyne-Allen, P., Squire, J., & Schulz, J. (2019). *Wide-open spaces: Schooling in rural America today*. Bellwether Education Partners.

Ross, P. O. (1993). *National excellence: A case for developing America's talent*. U. S. Department of Education, Office

of Educational Research and Improvement. https://eric.ed.gov/?id=ED359743

Schafft, K. A., & Maselli, A. (2021). Shifting population dynamics and implications for rural schools. In A. P. Azano, K. Eppley, & C. Biddle (Eds.), *The Bloomsbury handbook of rural education in the United States* (pp. 52–61). Bloomsbury. https://doi.org/10.5040/9781350172036.0012

Shapiro, E. (2019, August 27). Desegregation plan: Eliminate all gifted programs in New York. *The New York Times*. https://www.nytimes.com/2019/08/26/nyregion/gifted-programs-nyc-desegregation.html

Showalter, D., Hartman, S., Johnson, J., & Klein, B. (2019). *Why rural matters 2018–2019: The time is now*. The Rural School and Community Trust. https://eric.ed.gov/?id=ED604580

Siegle, D., & Powell, T. (2004). Exploring teacher biases when nominating students for gifted programs. *Gifted Child Quarterly*, *48*(1), 21–29. https://doi.org/10.1177/001698620404800103

Siegle, D., Gubbins, E. J., O'Rourke, P., Dulong Langley, S. Mun, R. U., Luria, S. R., Little, C. A., McCoach, D. B., Knupp, T., Callahan, C. M., & Plucker, J. A. (2016). Barriers to underserved students' participation in gifted programs and possible solutions. *Journal for the Education of the Gifted*, *39*(2), 103–131. https://doi.org/10.1177/0162353216640930

Soja, E. W. (2010). *Seeking spatial justice*. University of Minnesota Press. https://doi.org/10.5749/minnesota/9780816666676.001.0001

Stambaugh, T., & Wood, S. M. (2015). *Serving gifted students in rural settings.* Prufrock Press.

Tatum, B. D. (2003). *"Why are all the Black kids sitting together in the cafeteria?" and other conversations about race.* Basic Books.

Tieken, M. C. (2020, November 19). *Towards a geography of justice: Rural equity and the promise of public education* (Rural Education Speaker Series) [Video recording]. Rural Education Research & Implementation Center, Wisconsin Center for Education Research. https://vimeo.com/wcerts/review/483229854/729c0b4cf5

Tieken, M. C. (2021). Rural poverty and rural schools. In A. P. Azano, K. Eppley, & C. Biddle (Eds.), *The Bloomsbury handbook of rural education in the United States* (pp. 62–71). Bloomsbury. https://doi.org/10.5040/9781350172036.0013

Tieken, M. C., & Auldridge-Reveles, T. (2019). Rethinking the school closure research: School closure as spatial justice. *Review of Educational Research*, *89*(6), 917–953. https://doi.org/10.3102/0034654319877151

Tuters, S. (2015). Conceptualising diversity in a rural school. *International Journal of Inclusive Education*, *19*(7), 685–696. https://doi.org/10.1080/13603116.2014.964573

U.S. Department of Education. (2016). *Civil rights data collection—2000–2016*. Office for Civil Rights. https://www2.ed.gov/about/offices/list/ocr/data.html

Whiting, G. (2009). Gifted Black males: Understanding and decreasing barriers to achievement and identity. *Roeper Review*, *31*(4), 224–233. https://doi.org/10.1080/02783190903177598

Yaluma, C. B., & Tyner, A. (2018). *Is there a gifted gap? Gifted education in high-poverty schools*. Thomas B. Fordham Institute. https://doi.org/10.5040/9781350172036.0013