Characteristics of Public School Principals:

Analysis of the National Teacher and Principal Survey

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6313-700: Quantitative Research

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November 12, 2022

Abstract

Gender and racial diversity in the principalship, or the lack thereof, has been a topic for research for several years. While the concerns about general disparity are widely discussed, it is equally important to consider where underrepresented groups are typically hired, such as urban schools with high-poverty levels. Discrepancies in hiring have implications for promotion into superintendent and other educational leadership positions, as well as for overall financial compensation, where minority groups such as females and races other than White are forced to take lower-level jobs or jobs at the same level for less pay than their White male counterparts. Existing data from the 2017-18 United States National Teacher and Principal Survey were used to perform Chi-Square Tests for Association to evaluate how the gender and race of public school principals are distributed across various factors. We found there is a statistically significant association between race and community type, race and school poverty levels, age and school level, gender and community type, gender and school level, and gender and school poverty level. Findings suggest Black and Hispanic teachers are more likely to be overrepresented in city schools that have high poverty levels, while females are more likely to be overrepresented in city primary schools with high poverty levels.

Keywords: gender disparity, racial/ethnic disparity, the principalship

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In the United States, women comprised approximately 75% of the elementary and secondary school workforce in 2020 (U.S. Department of Labor, 2022). During the same period, racial minority workers made up approximately 28% of the elementary and secondary school workforce (U.S. Department of Labor, 2022). Despite making up significant percentages of the overall elementary and secondary school workforce, women and minority workers make up a smaller-than-expected percentage of leadership positions (Taie & Goldring, 2019). This inequality is especially concerning when public elementary and secondary enrollment numbers are showing ever decreasing numbers of White and Black students and increasing numbers of Hispanic students (National Center for Education Statistics, 2022).

Reducing the disparity between gender and race in the principalship not only requires the detection and acknowledgement of such gaps, but also systematic and definitive efforts by hiring committees and policymakers to close gaps. The purpose of this research paper is to determine if gender and racial gaps exist in the principalship. The literature reviewed offers a background for this study and confirms the ongoing disparity in educational leadership. This research paper highlights the need for further discussion, research, and recommendations on actionable practices that can be implemented to narrow the gender and racial gap in the principalship.

Research Problem, Purpose, and Questions

Research Problem

Lack of diversity in gender and minority status educational leadership positions has been a topic of concern for several years (Chase & Martin, 2019; Johnson, 2021). When looking at promotion to principal positions, Bailes and Guthery (2020) found Black male principals and

women of all races wait longer than their White male counterparts for promotions, even when holding factors such as education, experience, and degree attainment constant. Specifically in Texas, and though they typically average one more year of teaching experience than their male counterparts, women often have to wait longer to get promoted to assistant principal roles and are less likely to advance to a high school principalship without serving as an assistant principal for a longer period of time than males (Bailes & Guthery, 2020).

While the teacher and principal workforce has been diversified substantially, the vast majority of public school principals are still White (Taie & Goldring, 2019). Considering many public school student populations are, at some level, racially diverse, it becomes increasingly important to hire staff who more accurately reflect the population of a given student body (Ingersoll et al., 2019). With minority groups, non-White males, and females of all races experiencing promotions at a rate disproportionately lower than their White male counterparts, we see a serious lack of non-White and female representation in educational leadership positions overall (Bailes & Guthery, 2020).

Overrepresentation of White principals is concerning across all community types, including cities, suburbs, towns, and rural areas (Taie & Goldring, 2019). White principals make up almost 61% of positions in cities, close to 79% in suburbs, almost 88% in towns, and an astounding 90% in rural areas (Taie & Goldring, 2019). Female principals more than double the number of male principals in schools which have fewer than 750 students, typically relegating these women to elementary principalships (Taie & Goldring, 2019).

Research Purpose

The purpose of this study is to explore how principal diversity such as race, age, and sex differ by community type, school level, and school poverty level at public schools.

Research Questions

1. How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by community type (city, suburban, town, rural)? (Taie & Goldring, 2019, p. 7, table 1)
2. How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by school level (primary, middle, high, combined)? (Taie & Goldring, 2019, p. 7, table 1)
3. How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)? (Taie & Goldring, 2019, p. 7, table 1)
4. How does the age of public school principals (less than 45 years, 45-54 years, 55 years or more) differ by community type (city, suburban, town, rural)? (Taie & Goldring, 2019, p. 9, table 2)
5. How does the age of public school principals (less than 45 years, 45-54 years, 55 years or more) differ by school level (primary, middle, high, combined)? (Taie & Goldring, 2019, p. 9, table 2)
6. How does the age of public school principals (less than 45 years, 45-54 years, 55 years or more) differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)? (Taie & Goldring, 2019, p. 9, table 2)
7. How does the sex of public school principals (male, female) differ by community type (city, suburban, town, rural)? (Taie & Goldring, 2019, p. 9, table 2)

8. How does the sex of public school principals (male, female) differ by school level (primary, middle, high, combined)? (Taie & Goldring, 2019, p. 9, table 2)
9. How does the sex of public school principals (male, female) differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)? (Taie & Goldring, 2019, p. 9, table 2)

Literature Review

U.S. School Demographics

From 1988 to 2016, the number of students identifying as White has fallen dramatically, while the number of students identifying as Hispanic has risen (Grissom et al., 2021). At the same time these racial shifts have happened, the number of students at public schools qualifying for free or reduced-price lunches, which is often indicative of student poverty levels, has risen (Grissom et al., 2021). Along with these ethnic shifts, U.S. public schools have found themselves teaching larger numbers of English learners (Grissom et al., 2021). In response to these trends and changing student composition, the No Child Left Behind Act gave attention to increasing academic achievement in students of color, low-income students, and English learner students (No Child Left Behind [NCLB], 2002). The act forced school districts to begin looking closer at diversity in school leadership (Grissom et al., 2021).

On average, school demographics show frustrating trends that are, unfortunately, not all that surprising. Principals of color are more likely to serve at schools with larger numbers of low-income students (as measured by free or reduced lunch) chronic funding issues, and behavioral problems (Grissom et al, 2021). Minority principals, both Black and Hispanic, are more likely to lead in high-poverty urban schools than Whites (Bailes & Guthey, 2020). Female principals, while increasing in sheer numbers, are more likely to lead elementary schools than

middle or high schools, have more low-income students, and lead at schools with more students of color than their male counterparts (Grissom et al, 2021). This is significant to note because high school principals are more likely to be promoted to superintendent positions and tend to be paid higher salaries than elementary school principals (Maranto et al., 2018). It is important to note even in situations in which women are in high school principalships and superintendency positions, they tend to be in communities with less power, such as in rural areas and small districts, making their roles less valuable compared to large and urban districts (Walker, 2013).

Many studies about principal diversity and the schools they serve focus on traditional public schools, rather than principals from other types, such as private and charter schools (Buckman & Sloan, 2019). Researchers argue private and charter schools differ from public schools in their compensation, structures, student demographics, and student achievement (Buckman & Sloan, 2019; Grisson et al., 2021).

Principal Demographics

The National Teacher and Principal Survey (NTPS) from 2017-18 showed principal demographic information gathered from the United States and the District of Columbia (Taie & Goldring, 2020). Data from the 2017-18 school year showed 78% of school principals were Non-Hispanic White (Taie & Goldring, 2022). Despite explosive growth as a demographic group, Hispanic and Black students are less likely than their White counterparts to share an ethnicity with their principal (Grissom et al., 2021). Succinctly put, Whites are overrepresented in the principal position when compared to the diversity of the U.S. (Bailes & Guthery, 2020). Additionally, during the 2017-18 NTPS, only 54% of school principals were female, with an overwhelming 67% being elementary principals, while middle school and high school female principal positions were somewhat rare, holding only 40% and 33% of the principalship

positions respectively (Taie & Goldring, 2020). The leadership gap between men and women is astounding. Even though women hold approximately three-fourths of the teacher positions in the United States, their dominance in upper leadership positions, such as superintendent and secondary principal positions, is less than 25% and 30% respectively (Finneran, 2016). The growth of Hispanic and Black student population, coupled with slow to stagnant increases in Hispanic and Black principals has led to a fast-growing leadership gap for these students (Grissom et al., 2021). These leadership gaps are concerning because student educational outcomes and achievements are often impacted by the school principal and that impact increases the longer a principal is at a school (Bailes et al., 2020; Buckman & Sloan, 2019; Grissom et al., 2021). Principal demographics can impact both students and teachers (Buckman & Sloan, 2019). Various studies reported by Grissom et al. (2021) found Texas Latinx students consistently had higher test scores on standardized tests, higher attendance rates, and a higher likelihood of taking advanced courses when there were higher numbers of Latinx teachers, and the school was led by a Latinx principal. The authors also found the same to be true for Black students in other states (Grissom et al., 2021). It seems that while having exposure to high-quality teaching is a major predictor of student success, research has found investing in school leadership and having an effective principal is more impactful for students (Grissom et al., 2021). For example, principals of color have been shown to have a large impact on both students and teachers of color (Bailes et al, 2020; Grissom et al., 2021). Bailes and Guthery (2020) found principals of various races–Blacks, Whites, Hispanics–were more likely to hire and promote teachers of their same race. Teachers tend to gravitate to schools where the principal is of the same race as themselves (Grissom et al., 2021). In addition, teachers tend to report higher levels of job satisfaction and give higher assessments on the quality of school leaders when they are at a campus being led by

a principal of the same race as themselves (Grissom et al., 2021). These findings have deep implications for the makeup of future school districts. Studies such as the one conducted by Grissom et al. (2021) suggest district and state educational leaders should look closely at the principal pipeline for leaders of color to identify leaks and determine what they can do to increase diversity among principals in their schools.

Across centuries, visible leadership positions have traditionally been held by men (Keohane, 2020). Roles such as high school principalship and superintendency are considered visible leadership positions because they require multiple complex issues to be dealt with concurrently, and they are highly visible within the community (Walker, 2013). With all leadership positions, a distinction must be made between power and authority, where power is the ability to yield influence over others, and authority is often tied to one's position or title (Keohane, 2020). However, and as Walker (2013) points out, the use of authority and power as descriptors of leadership is inherently masculine. The historical exclusion of women from leadership positions has systematically reduced opportunities for women to hold visible leadership roles (Keohane, 2020). Without an abundance of formal leadership opportunities for women, the perception that important positions of leadership are predominantly associated with masculinity is preserved (Keohane, 2020). Even though efforts to develop equality in the workplace have been in place for years, principal positions are still being shaped by constricting gender norms (Maranto et al., 2018). Women are more likely to have to move districts to receive a promotion than men (Maranto et al, 2018). Teaching has generally been seen as a female profession because women have been seen as more nurturing and because they could be paid less (Maranto et al., 2018). At the beginning of the 20th century, activists worked to overcome social constructs that were detrimental to women securing leadership positions (Finneran, 2017). These

efforts were realized by 1930 when 11% of superintendents across the nation were women (Finneran, 2017). After World War II, however, the landscape of education was vastly changed by the GI Bill and the emerging world of school athletics (Maranto et al., 2018). With women purposely leaving administrative positions to allow men reentry after World War II, the overall percentage of women in superintendency dropped to a dismal 3% (Finneran, 2017). These factors shaped the gendered landscape of academic leadership and put women squarely behind by the 20th century (Maranto et al., 2018). According to research, men are not only more likely to become principals, but they are also likely to be promoted into a principal position sooner than women (Maranto et al., 2018). The principalship is arguably the best position to train a budding superintendent which creates inequalities in district-level leadership roles if women are disproportionately promoted to the principalship (Walker, 2013). Bailes and Guthery (2020) found women make up approximately half of the high school assistant principals, but they are less likely than men to be promoted into a principalship. Interestingly, more men begin their teaching careers in athletics, while women are more likely to begin theirs in curriculum and instruction (Maranto et al., 2018). This suggests women principals may be more adept at providing instructional leadership at the principal level than their male counterparts (Maranto et al, 2018). In addition, typical female leadership characteristics are more closely associated with school improvement, such as collaboration, relationships, and mentoring, than males (Bailes & Guthery, 2020). How school leadership is studied also impacts results of gender studies. Female leaders are sometimes viewed as not being strong because their approach can be less managerial in nature than traditionally masculine leadership approaches (Walker, 2013). Women and men can lead differently, but all are assessed against leadership ideals from a primarily masculine

perspective (Walker, 2013). Leadership theories and styles that are more indicative of how women approach leadership would be helpful in truly determining effectiveness (Walker, 2013).

An interesting observation is that gender trends do not seem to follow the same lines as racial trends, or at least not as closely. Male teachers are more likely to leave positions where there is a female principal, but female teachers show no such relationship and are just as likely to leave a school with a female principal as one with a male principal (Grissom et al., 2021). However, teachers of both genders tend to report higher levels of satisfaction when they share a gender with the principal (Grissom et al., 2021).

The age of principals may be overlooked and could even be deemed unimportant; however, as principal age increases, turnover increases as well (Buckman & Sloan, 2019). While not surprising, this often leads to lower overall salaries since higher salaries are often tied to higher degree attainment and experience as defined by service years completed (Buckman & Sloan, 2019). Additionally, and perhaps most importantly, turnover in principal leadership can impact student outcomes due to disruption to the school's overall climate (Snodgrass Rangel, 2018). While women are more likely to drop out of principal positions between the ages of 35 to 45, those that stay are more likely than their male counterparts to continue working beyond retirement age (Snodgrass Rangel, 2018). As we know, women occupy the majority of teaching positions; thus, as educators retire and principalships need to be refilled, the teacher shortage will ultimately affect women being available and ready for the principalship (Allred, 2017).

Significance of the Research

From its inception, educational leadership has evolved; however, principalship is a crucial role that has yet to produce necessary diversity changes. Though research has often

focused on racial and ethnic diversity within educational leadership, a true understanding and comparison of encompassing forms of diversity are imperative.

Principals should try to hire staff who mirror the diversity displayed within their student body, prompting the promotion of positive role models and rapport with others. The reality is they often hire staff who look like themselves (Bailes & Guthery, 2020). The majority of public school principals are White, indicating the principalship does not reflect overall racial and ethnical demographics within the United States (Taie & Goldring, 2019). In addition, Taie and Goldring (2019) noted differences between principal age, gender, and experience-based salary. Community types, school levels, and poverty levels also contribute to disparities among public school principal demographics (Taie & Goldring, 2019). There is a sense of hypocrisy that public school principals hold staff accountable for accepting and welcoming diversity, yet their own role is incredibly racial and gender exclusive.

Researching only a single factor of diversity would be remiss. Just as there is more than one factor that influences students or teachers, likewise, there is more than one aspect of diversity to explore among school principals. For this purpose, our study will illuminate the numerous ways in which multiple factors of diversity influence public school principal positions. By investigating principal age and gender across different community types, school levels, and poverty levels, our study will reveal the effects these variables have on public school principalships.

Description of the Data

Data was provided by the Institute for Education Sciences (IES) National Center for Education Statistics (NCES), within the U.S. Department of Education and taken from the 2017–18 National Teacher and Principal Survey (NTPS) (Taie & Goldring, 2019). According to the

"Characteristics of Public and Private Elementary and Secondary School Principals in the United States: Results From the 2017–18 National Teacher and Principal Survey," the NTPS collects data on core topics in public and private schools, "including teacher and principal preparation, classes taught, school characteristics, and demographics of the teacher and principal labor forces" (Taie & Goldring, 2019, p. 1).

There are several variables this data set considers: principal race, principal age, principal degree level attainment, principal salary by years of experience, principal experience in years, principal influence on various activities, principal professional development, school classification, community type, school level, student enrollment, and poverty levels. Principal race is broken out into four identifiers, Hispanic (regardless of race), White (non-Hispanic), Black or African American (non-Hispanic), and Other. Principal age is broken out in three ranges, less than 45 years, 45-54 years, and 55 years or older. Principal degree attainment has four levels, which are bachelor's degree or less, master's degree, education specialist or professional diploma, and doctorate or first professional degree. The variable of principal salary by years of experience is broken down into three ranges, which are less than three years, three to nine years, and 10 years or more. Principal experience in years is provided in three ranges, which are less than three years, three to nine years, and 10 years or more. Principal influence on various activities has seven identifiers: setting performance standards for students, establishing curriculum, determining the content of in-service professional development programs for teachers, evaluating teachers, hiring new full-time teachers, setting discipline policy, and deciding how their school budget will be spent. Principal professional development includes percent of principals who participated in any professional development activities; university course(s) related to your roles as principal; visits to other schools designed to improve your own

work as principal; mentoring, peer observation, and coaching of principles; participating in a principal network; workshop, conferences, or training in which you were presenter; and other workshops or conferences in which you were not a presenter. The school classification variable includes traditional public school and charter school data. Community type includes city, suburban, town, and rural. School level includes primary, middle, high, and combined. Student enrollment has ranges of less than 100, 100-199, 200-499, 500-749, 750-999, and 1,000 or more. Finally, poverty levels, or percent of K-12 students who were approved for free or reduced-price lunches, includes ranges of 0-34, 35-49, 50-74, and 75 or more. The data set does include information on private schools as well as public schools, but our interest will focus only on the data surrounding public schools.

Description of the Sample and the Sampling Technique

To gather data for the 2017-18 National Teacher and Principal Survey (NTPS), both private and public schools were sampled (Taie & Goldring, 2019). While the principals associated with each school were surveyed, the only teachers who were surveyed were those on a list provided by the school, purchased from a vendor, or gathered from school websites (Taie & Goldring, 2019).

NTPS uses a systematic, probability proportionate to size (PPS) sampling technique. Schools were oversampled based on:

- School grade level (primary, middle, high, combined);
- State;
- Poverty status (low, high);
- Enrollment (less than 100, 100–200, 200–500, 500–750, 750–1000, and more than 1,000);

- Collapsed urbanicity (city, suburban, town, rural); and
- Charter status.

Principals were selected based on selected schools. There were approximately 14,580 principals sampled for this study. Taie and Goldring (2019) surveyed roughly 10,600 traditional and charter public schools along with their principals and around 60,000 teachers. Additionally, Taie and Goldring (2019) surveyed 4,000 private school principals and 9,600 private school teachers. Both public and private schools gathered data to best support geography, grade span, and either charter status or affiliation group (Taie & Goldring, 2019).

For this study, questionnaires were mailed to principals' homes and were also available to be completed online, in-person, and over the telephone (Taie & Goldring, 2019). Data was collected over the course of a year, from September 2017 through August 2018 (Taie & Goldring, 2019). Public school principals responded at a rate of 70.2 percent, while private school principals responded at 62.6 percent (Taie & Goldring, 2019).

Method of Data Analysis

A Chi-Square Test for Association was utilized for data analysis to determine if the two nominal variables considered are independent from one another or associated (Hachem, 2022). Three assumptions must be fulfilled for a Chi-Square Test of Assumption: two nominal or ordinal categorical variables; independence of observation (i.e., each participant is only counted once); and each cell has an expected count of five or more (Hachem, 2022). The test can be used to construct various sizes of contingency tables, depending on the variable categories studied. For this study, it was determined the Chi-Square Test for Association was appropriate for all proposed research questions.

The independent variables for each of the nine questions are categorical. Data is listed in percentage, and it was noted certain cells would have an expected count of less than five. After evaluating the data, it was determined a technical modification would be necessary and each number was multiplied by 10. The modification puts the frequency at 1 out of 1,000, and since data is representative of principals across the United States, it was determined increasing the percentage would not be a cause for concern. A Chi-Square Test for Association will provide researchers with information on the association between the two variables and the power and direction of that association (i.e., as, more, or less than expected) of the association (Hachem, 2022).

The null and alternative hypotheses for the proposed research questions are:

1. How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by community type (city, suburban, town, rural)?

   H_o: Principal race/ethnicity and community type are independent.

   H_a: Principal race/ethnicity and community type are not independent.

2. How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by school level (primary, middle, high, combined)?

   H_o: Principal race/ethnicity and school level are independent.

   H_a: Principal race/ethnicity and school level are not independent.

3. How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)?

   H_o: Principal race/ethnicity and poverty level as determined by percent of students approved for free or reduced lunches are independent.

H_a: Principal race/ethnicity and poverty level as determined by percent of students approved for free or reduced lunches are not independent.

4. How does the age of public school principals (less than 45 years, 45-54 years, 55 years or more) differ by community type (city, suburban, town, rural)?

   H_o: Principal age and community type are independent.

   H_a: Principal age and community type are not independent.

5. How does the age of public school principals (less than 45 years, 45-54 years, 55 years or more) differ by school level (primary, middle, high, combined)?

   H_o: Principal age and school level are independent.

   H_a: Principal age and school level are not independent.

6. How does the age of public school principals (less than 45 years, 45-54 years, 55 years or more) differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)?

   H_o: Principal age and poverty level as determined by percent of students approved for free or reduced lunches are independent.

   H_a: Principal age and poverty level as determined by percent of students approved for free or reduced lunches are not independent.

7. How does the sex of public school principals (male, female) differ by community type (city, suburban, town, rural)?

   H_o: Principal sex and community type are independent.

   H_a: Principal sex and community type are not independent.

8. How does the sex of public school principals (male, female) differ by school level (primary, middle, high, combined)?

H_o: Principal sex and school level are independent.

H_a: Principal sex and school level are not independent.

9. How does the sex of public school principals (male, female) differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)?

H_o: Principal sex and poverty level as determined by percent of students approved for free or reduced lunches are independent.

H_a: Principal sex and poverty level as determined by percent of students approved for free or reduced lunches are not independent.

Significance and strength of association between variables will be determined using the value of Carmer's V: small effect size = 0.1, medium/moderate effect size = 0.3, and large effect size = 0.5 (Hachem, 2022). A statistical analysis of the frequency data will be provided by testing for association between the variables listed in the research questions. By using standardized adjusted residuals, expected differences between observed and expected values can be identified (Singleton & Straits, 2017). In general, if the residual is positive, the cell's frequency data is more than expected, while a negative residual indicates less than expected frequencies (Hachem, 2022).

Data Analysis and the Findings

To determine if there are statistically significant associations between the variables presented in this study, we used the Chi-Square Test of Association on all nine questions.

Question 1

How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by community type (city, suburb, town, rural)? A Chi-Square Test of

Association was conducted between the race/ethnicity (Hispanic, White, African American, other) of public school principals and community type (city, suburb, town, rural). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was a statistically significant association between the race/ethnicity of public school principals and community type, $\chi^2(9) = 343.679$, $p = 0.001$. There was a small to medium association between the race/ethnicity of public school principals and community type (Cohen, 1998), Cramer's V = 0.169.

Table 1

Distribution of Public School Principals by Race/Ethnicity and Community Type

Community Type	Race/Ethnicity			
	Hispanic	White	Black or African American	Other
City	149 82 (8.9)	608 791.5 (-16.5)	201 97.5 (12.7)	42 29 (2.8)
Suburban	102 82 (2.7)	785 791.5 (-0.6)	94 97.5 (-0.04)	19 29 (-2.2)
Town	46 82 (-4.8)	876 791.5 (7.6)	50 97.5 (-5.8)	28 29 (-0.2)
Rural	31 82 (-6.8)	897 791.5 (9.5)	45 97.5 (-6.5)	27 29 (-0.4)

Note. Adjusted residuals appear in parentheses below observed frequencies and they are significant at greater than 2 or less than -2.

There was a statistically significant association between the race/ethnicity of public school principals and community type. Therefore, we can reject the null hypothesis and accept the alternative hypothesis.

Question 2

How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by school level (primary, middle, high, combined)? A Chi-Square Test of Association was conducted between the race/ethnicity (Hispanic, White, African American, other) of public school principals and school level (primary, middle, high, combined). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was not a statistically significant association between the race/ethnicity of public school principals and school level, $\chi^2(9) = 12.025$, $p = 0.212$. There was a small association between the race/ethnicity of public school principals and school level (Cohen, 1998), Cramer's V = 0.032.

Table 2

Distribution of Public School Principals by Race/Ethnicity and School Level

School level	Race/Ethnicity			
	Hispanic	White	Black or African American	Other
Primary	96	767	108	29

Middle	88	770	103	30
High	82	780	106	24
Combined	66	808	89	37

There was not a statistically significant association between the race/ethnicity of principals and school level. Therefore, we cannot reject the null hypothesis and cannot accept the alternative hypothesis.

Question 3

How does the race/ethnicity (Hispanic, White, African American, other) of public school principals differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)? A Chi-Square Test of Association was conducted between the race/ethnicity (Hispanic, White, African American, other) of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was a statistically significant association between the race/ethnicity of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches, $\chi^2(9) = 12.025$, $p = 0.001$. There was a small to medium association between the race/ethnicity of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches (Cohen, 1998), Cramer's $V = 0.189$.

Table 3

Distribution of Public School Principals by Race/Ethnicity and Poverty Levels

Poverty level	Race/Ethnicity			
	Hispanic	White	Black or African American	Other
0 - 34	41 79 (-5.1)	898 802.9 (8.7)	38 90.7 (-6.7)	23 27.5 (-1)
35 - 49	49 79 (-4.1)	888 802.8 (7.8)	39 90.7 (-6.6)	24 27.5 (-0.8)
50 - 74	61 79.1 (-2.4)	838 803.6 (3.2)	76 90.8 (-1.9)	26 27.5 (-0.3)
75 or more	165 79 (11.6)	588 802.8 (-19.7)	210 90.7 (15.2)	37 27.5 (2.1)

Note. Adjusted residuals appear in parentheses below observed frequencies and they are significant at greater than 2 or less than -2.

There was a statistically significant association between the race/ethnicity of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches. Therefore, we can reject the null hypothesis and accept the alternative hypothesis.

Question 4

How does the age (less than 45 years, 45-54 years, 55 years or more) of public school principals differ by community type (city, suburb, town, rural)? A Chi-Square Test of Association was conducted between the age (less than 45 years, 45-54 years, 55 years or more)

of public school principals and community type (city, suburb, town, rural). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was not a statistically significant association between the age of public school principals and community type, $\chi^2(6) = 3.635$, $p = 0.726$. There was a small association between the age of public school principals and community type (Cohen, 1998), Cramer's V = 0.021.

Table 4

Distribution of Public School Principals by Age and Community Type

Community Type	Age		
	Less than 45 years	45-54 years	55 years or more
City	371	407	222
Suburb	369	421	210
Town	353	410	237
Rural	375	393	232

There was not a statistically significant association between the age of public school principals and community type. Therefore, we cannot reject the null hypothesis and cannot accept the alternative hypothesis.

Question 5

How does the age (less than 45 years, 45-54 years, 55 years or more) of public school principals differ by school level (primary, middle, high, combined)? A Chi-Square Test of Association was conducted between the age (less than 45 years, 45-54 years, 55 years or more)

of public school principals and school level (primary, middle, high, combined). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was a statistically significant association between the age of public school principals and school level, $\chi^2(6) = 20.439$, $p = 0.002$. There was a small association between the age of public school principals and school level (Cohen, 1998), Cramer's V = 0.051.

Table 5

Distribution of Public School Principals by Age and School Level

School level	Age		
	Less than 45 years	45-54 years	55 years Or more
Primary	371 368.3 (0.2)	401 412.3 (-0.8)	228 219.5 (0.7)
Middle	420 368.3 (3.9)	394 412.3 (-1.4)	186 219.5 (-3.0)
High	338 368.3 (-2.3)	429 412.3 (1.2)	233 219.5 (1.2)
Combined	344 368.3 (-1.8)	425 412.3 (0.9)	231 219.5 (1.0)

Note. Adjusted residuals appear in parentheses below observed frequencies and they are significant at greater than 2 or less than -2.

There was a statistically significant association between the age of public school principals and school level. Therefore, we can reject the null hypothesis and accept the alternative hypothesis.

Question 6

How does the age (less than 45 years, 45-54 years, 55 years or more) of public school principals differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)? A Chi-Square Test of Association was conducted between the age (less than 45 years, 45-54 years, 55 years or more) of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was not a statistically significant association between the age of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches, $\chi^2(6) = 3.397$, $p = 0.758$. There was a small association between the age of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches (Cohen, 1998), Cramer's V = 0.021.

Table 6

Distribution of Public School Principals by Age and Poverty Levels

Poverty levels	Age		
	Less than 45 years	45-54 years	55 years Or more
0-34	367	415	218

35-49	376	418	206
50-74	356	410	235
75 or more	377	398	226

There was not a statistically significant association between the age of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches. Therefore, we cannot reject the null hypothesis and cannot accept the alternative hypothesis.

Question 7

How does the sex (male, female) of public school principals differ by community type (city, suburb, town, rural)? A Chi-Square Test of Association was conducted between the sex (female, male) of public school principals and community type (city, suburb, town, rural). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was a statistically significant association between the sex of public school principals and community type, $\chi^2(3) = 42.234$, $p = 0.001$. There was a small association between the sex of public school principals and community type (Cohen, 1998), Cramer's V = 0.103.

Table 7

Distribution of Public School Principals by Sex and Community Type

Community Type	Sex	
	Female	Male

City	607	393
	531	469
	(5.6)	(-5.6)
Suburb	544	456
	531	469
	(1.0)	(-1.0)
Town	504	496
	531	469
	(-2.0)	(2.0)
Rural	469	531
	531	469
	(-4.5)	(4.5)

Note. Adjusted residuals appear in parentheses below observed frequencies and they are significant at greater than 2 or less than -2.

There was a statistically significant association between the sex of public school principals and community. Therefore, we can reject the null hypothesis and accept the alternative hypothesis.

Question 8

How does the sex (male, female) of public school principals differ by school level (primary, middle, high, combined)? A Chi-Square Test of Association was conducted between the sex (female, male) of public school principals and school level (primary, middle, high, combined). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was a statistically significant association between the sex of public school principals and school level, $\chi^2(3) = 264.276$, $p = 0.001$. There was a medium to large association between the sex of public school principals and school level (Cohen, 1998), Cramer's V = 0.257.

Table 8

Distribution of Public School Principals by Sex and School Level

School level	Sex	
	Female	Male
Primary	668 456.8 (15.5)	332 543.3 (-15.5)
Middle	399 456.8 (-4.2)	601 543.3 (4.2)
High	326 456.8 (-9.6)	674 543.3 (9.6)
Combined	434 456.8 (-1.7)	566 543.3 (1.7)

Note. Adjusted residuals appear in parentheses below observed frequencies and they are significant at greater than 2 or less than -2.

There was a statistically significant association between the sex of public school principals and school level. Therefore, we can reject the null hypothesis and accept the alternative hypothesis.

Question 9

How does the sex (male, female) of public school principals differ by poverty level as determined by percent of students approved for free or reduced lunches (0-34, 35-49, 50-74, 75 or more)? A Chi-Square Test of Association was conducted between the sex (female, male) of public school principals and poverty levels as determined by percent of students approved for

free or reduced lunches (0-34, 35-49, 50-74, 75 or more). A technical modification was run on all numbers to ensure all expected cell frequencies were greater than five. This course of action was taken since the data was provided in percentages and the total population was sufficiently large, all percentages were multiplied by 10. There was a statistically significant association between the sex of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches, $\chi^2(3) = 24.302$, $p = 0.001$. There was a small association between the sex of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches (Cohen, 1998), Cramer's V = 0.078.

Table 9

Distribution of Public School Principals by Sex and and Poverty Levels

Poverty level	Sex	
	Female	Male
0-34	506	494
	529.3	470.8
	(-1.7)	(1.7)
35-49	515	485
	529.3	470.8
	(-1.0)	(1.0)
50-74	500	500
	529.3	470.8
	(-2.1)	(2.1)
75 or more	596	404
	529.3	470.8
	(4.9)	(-4.9)

Note. Adjusted residuals appear in parentheses below observed frequencies and they are significant at greater than 2 or less than -2.

There was a statistically significant association between the sex of public school principals and poverty levels as determined by percent of students approved for free or reduced lunches. Therefore, we can reject the null hypothesis and accept the alternative hypothesis.

Implications

Practice

This research found a statistically significant association between race and community type, race and school poverty levels, age and school level, gender and community type, gender and school level, and gender and school poverty level. In practice, intentional efforts must be made to increase diversity within leadership positions across community types, ages, poverty levels, races, and genders. These findings suggest minorities, including women and non-Whites, are overrepresented in cities. Equally concerning, the findings suggest these groups are underrepresented in suburban and rural communities. Further, these findings add to existing research that suggests White males are overrepresented at the principal level when compared to the increasing diversity seen in U.S. schools. Public school district administrators should focus on hiring staff that mirrors the student population, including at the principal level. These efforts could include additional training and mentorship opportunities at the teacher level to diversify the principal applicant pipeline; offering incentives to minority applicants at specific schools, especially those in suburban and rural communities and more impoverished districts; creating inclusive onboarding efforts; and eliminating bias from the interview and hiring processes. One of the first steps administrators could take to diversify principal demographics is to take deliberate steps to eliminate bias in the hiring process. Steps could include standardizing the hiring process, creating objective hiring criteria, developing neutral and duty-specific job descriptions (remove ‘wishlist’ language), evaluating applications blindly with identifying

information removed, diversifying hiring committees, and structuring interviews with objective metrics.

Policy

The information this study provides can be used to shape policies and practices that will help diversify the characteristics of public school principals. As demographics in the U.S. continue to evolve, hiring, promoting, and retaining teachers, principals, and superintendents from historically underrepresented groups becomes more relevant each year. Policymakers should look to reduce factors that serve as barriers to recruiting and retaining racial and gender minority school leaders. Barriers can include lack of formal training, inadequate support, licensure exams that disproportionately affect teachers of color, poor working conditions, low salaries, lack of funding for high-needs schools, and school consolidation, which often results in minority or younger teachers being pushed out of jobs (Carver-Thomas, 2018). District policymakers should consider adopting partnerships with local colleges in the region, especially Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), and women's colleges, to increase the number of minority teachers in the classroom. This recruitment process will help develop a pipeline for minority administrator talent that begins in the classroom. On a state and federal level, policymakers should fund programs that provide valuable professional development, mentorship, and executive coaching to assistant principals and racial and gender minority teachers, which will help them in future leadership roles (Carver-Thomas, 2018).

Future Research

This research provides several opportunities for future research that are evident from the findings. Data collection methods should be considered to increase response rates, which would

decrease potential bias from nonresponses. Additionally, a shift from single cross-sectional design to a repeated cross-sectional design would provide valuable longitudinal information about the target population. This information could be used to evaluate changes in the relationships between variables and how policy and practice changes impact the relationships.

Other researchers could consider how sociocultural backgrounds affect not only hiring decisions but how future principals and teachers apply to different areas and school types. School districts have distinct cultures they project, whether intentional or not and these cultures are often clearly evident to potential applicants during the hiring process. Learning more about how job descriptions heavily laden with 'wishlist' or 'nice-to-have' language that goes far beyond the actual job requirements impact applicant willingness to apply could have deep implications for this field of research. Beyond sociocultural backgrounds and how educators apply for positions, future research could investigate why principals and teachers apply for certain positions. High-need communities, such as cities, offer monetary incentives to attract applicants to their schools, undoubtedly affecting the number of principals and teachers in such communities. High-poverty school districts often contend with high teacher turnover rates, which has been a topic of research for several years. These areas of research will be particularly important as we see the U.S. population continue to shift community types, especially post-COVID-19 pandemic.

Limitations

There are several limitations in this study. First, the available data, collected by the National Teacher and Principal Survey (NTPS) (Taie & Goldring, 2020), were used as the basis of the research. Available data is data generated for other purposes but has been repurposed for new research (Singleton & Straits, 2017). Even if it is clear how available data was collected and analyzed, there can still be questions of authenticity and accuracy (Singleton & Straits, 2017). In

discussion about the National Teacher and Principal Survey data collection, Taie and Goldring (2020) expressed concern about potential nonresponse bias even after weighting adjustments to the sample estimates were made. These potential areas of bias included poverty levels when 35% to less than 50% of students were eligible for reduced or free lunches; schools in the Midwest or West regions; and schools in Alaska, California, Colorado, Florida, Hawaii, Maine, Maryland, Nebraska, Nevada, New Mexico, Rhode Island, Tennessee, Texas, Utah, and Wyoming.

A second limitation is the study only considered data from the 2017-18 school year (Taie & Goldring, 2020). While cross-sectional studies, or studies that focus on a single period in time such as this survey, are the most commonly used survey design, they do not always show clear causal relationship directions nor the process of change (Singleton & Straits, 2017). Longitudinal studies, on the other hand, help researchers pinpoint changes in the target population over a period of time rather than at a single moment (Singleton & Straits, 2017). Both cross-sectional and longitudinal designs are valuable and provide researchers with important information; however, longitudinal studies can be more accurate and comprehensive (Singleton & Straits, 2017). For this research, a trend study consisting of repeated cross-sectional design would provide valuable information about how the relationship between variables changes over time (Singleton & Straits, 2017).

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