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Racial Diversity of Texas School Teachers

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RACIAL DIVERSITY OF TEXAS HIGH SCHOOL TEACHERS

by

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Racial Diversity of Texas High School Teachers

By

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ABSTRACT

There is a growing gap between the racial demographics of public-school teachers and their students. Teachers with demographic backgrounds similar to a school's student population are often successful, particularly in Title 1 schools with high proportions of minority students; however, teacher turnover is high. The students in Texas public schools are a growing minority-majority population. Changes in the student body racial composition and other school-related variables could influence teacher workforce demographics. The focus of discussion of this quantitative research study is to determine the factors that predict the racial diversity of teachers in Texas high schools. The research questions addressed were: (1) What factors predict the racial diversity of faculty in Texas high schools? (2) and What factors predict the change of racial teacher diversity in Texas high schools? Using predictor variables identified in the research, and then attained from Texas Education Association public database; was analyzed using regression modeling to check for relationships. In question one of this study, the key predictor of racial diversity for teachers is increased racial diversity of students. Question two of this study, was the change score between 2008-2009 and 2018-2019, findings show that there is inconclusive evidence that need further study, because of the quantity of variables that affect teacher movement. Results of the study, reveal the importance of revising teacher and student racial diversity polices in today's Texas public high schools, in order to meet the increasing diversity of the student body.

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CHAPTER 1

Introduction to the Study

Background of the Problem

With the increasing United States population, racial demographics are changing, and in particular, the growth of Hispanic and immigrant populations are contributing to a significant shift in the student demographics in public school classrooms. These changing demographics add pressure on the dwindling supply of public school teachers. In Texas, the response to teacher diversity was initially issued in a policy research report from the Texas Education Agency (TEA, 1994). The 1994 policy report addressed the over-representation of White teachers, the low numbers of teachers identifying as members of racial minority groups, and the increasing student population identifying as minority group members. The TEA linked teacher diversity with quality characteristics of Texas public schools when rating the schools (TEA, 1994). The TEA emphasized that teacher demographics should be as diverse as the community and students. Thus, the TEA linked teacher diversity to school quality to support diversity in the teacher workforce that reflects the student population.

The Texas Association of School Boards (TASB) addressed the same need for teacher diversity in 2017 in response to the 2015–2016 National Teacher and Principal Survey (NTPS). The findings from the NTPS showed that in Texas schools, students who

were members of racial minority groups represented 75% of the total student population. The students identifying as Hispanic are the largest racial group at 52.2%, followed by African Americans as members of a racial minority at 12.6%, (Campbell, 2017). The White student population of Texas constitutes 35.2% of all students. According to TEA's 1994 Policy Research Report, the current view of diversity is tied to teacher and school quality and teacher diversity. Therefore, teacher diversity is discussed as a school quality characteristic (TEA, 1994). The National Center for Education Statistics (NCES) findings showed that the teacher workforce was 90% White in 2017–2018 (U.S. Department of Education, 2020a), indicating a lack of diversity. Texas does not diverge significantly from the stated national average; White teachers make up 60.8% of the teacher workforce, 26.0% are Hispanic, and 12.1% are African American (Campbell, 2017).

The concerted effort by TEA and Texas public schools to increase the number of teachers identifying as members of racial minority groups has fallen short as of 2019. At the time of this study, White teachers comprised the majority of the teacher population at 58.6%, with the remaining fraction identifying with racial minority groups (Ramsay, 2014; Smith, 2020). The growth trend for teachers employed in public schools from 2014 to 2019 showed that the teacher population had risen by 15,790 teachers or 4.8% over these five years. This rise in numbers signifies an increase in new teachers, but this growth was not enough to meet the demand for teachers as the number of teachers leaving the profession exceeded the growth (Ingersoll et al., 2019). Ingersoll et al. (2019) showed teacher attrition diminishes the workforce at a rate of 18.9% overall, but teachers

belonging to minority groups are leaving at a rate of 25%, i.e., a rate higher than White teachers. Overall, the attrition reduces the number of teachers in the public education system and increases the students per teacher. While an incremental decrease in the number of White teachers has occurred along with an increase in new graduates who are diverse racially, these changes are insignificant compared to the growth of students entering the public schools (Ingersoll et al., 2019; NCES, 2020a).

Compared to the significant increase of diversity in the Texas population, Texas increased student diversity by 17.7% between 2005 and 2015. The diversity of Texas schools increased between 2006 and 2016 as students identifying as Hispanic increased by 6.1%, and numbers of White students decreased by 7.6% (TEA, 2019a). Texas schools are growing in student numbers overall; however, the population of White students is decreasing, and Hispanic American students are the largest growing group. This increase in student diversity is not mirrored by an increase in the diversity of teachers. Not only is the growth of teachers entering the workforce shrinking, the racial composition of the teaching workforce is not changing at a rate similar to the student population; i.e., White teachers are still the majority in Texas, but Hispanic American teachers are slowly growing as a percentage of the workforce (TEA, 2020).

The comparison of teacher race against chosen variables for the school years 2008–2009 and 2018–2019 for this study shows migration. The TEA's Snap-Shot and Public Education Information Data (PEIMS) contains the variable teacher race. Teachers' race identity is a valuable variable because it is the only variable found in public

depositories that can be used to track teacher migration and aggregation in Texas public high schools.

In this study, data regarding student achievement were obtained from the TEA's Public Education Information Management Systems (PEIMS) for all Texas public high schools. However, due to policy changes, college readiness and student achievement measures are not comparable between the 2008–2009 year and the more recent student information from 2018–2019. Policy changes for these distinct periods led to differing definitions for college readiness and student achievement domains. For example, in 2008–2009, the Texas state legislature put forth a bill that defined college readiness as the level of preparation a student must attain in English language arts and mathematics courses to enroll and succeed, without remediation, in an entry-level general education course for credit in that same content area for a baccalaureate degree or associate degree program. (TEA, 2008, p. 14). The changes for 2018–2019 college readiness and student achievement included STAAR accountability and career-ready or military-ready (TEA, 2019b). These changes affected the longitudinal integrity of the study design; thus, the tool for measuring college readiness was the Standardized Aptitude Test (SAT) and the American College Test (ACT) scores reported to TEA (Croft & Beard, 2021; TEA, 2019f).

The aim of the study was to examine potential predictors of, such as the achievement data by race, economically disadvantaged, and all students. The data for this study were found in Texas Education Agency SnapShot of each district information and

PEIMS demographic information. Achievement and demographic variables for the students, teachers, and schools, were used to predict the percentage of teachers who are members of racial minorities in public high schools in Texas, as well as the percentage change in the numbers of these diverse teachers in the year 2008–2009 and the year 2018–2019. More specifically, the correlations were examined among these teacher variables, the percentage of racially diverse teachers and the percentage change for their number, and Texas high school demographics, such as average teacher salary and student enrollment numbers, along with student demographic variables.

Statement of the Problem

Public education has faced many challenges related to changes in student demographics and teaching quality based on demographics (Camarota et al., 2017; Ingersoll et al., 2019; Kirby et al., 1999a). The problem is that student population is increasingly diverse in race both nationally and in Texas, while the teacher population remains primarily White (U.S. Department of Education, 2016). The current lack of diversity in the Texas school teacher population indicates a potential relationship between demographic changes and school size and student demographic changes in Texas public high schools.

Ingersoll et al. (2019) suggested that the national-level teacher shortages are related to the higher percentage (about 25%) of teachers from minority groups leaving the profession than their White counterparts. The trend shows a growing gap between “the degree of racial diversity in the nation’s student population and the degree of diversity in

the nation's elementary and secondary teaching force" (Ingersoll et al., 2019, p. 30). These researchers suggested, "this (lack of diversity) is detrimental to growth and learning of students" (p. 30). Ingersoll et al. (2019) conducted a national-level study; in contrast, a study of Texas conducted 25 years prior forecasted an increase in Texas' Hispanic population, making this race group the majority population in the state (TEA, 1994). A policy report put forth by TEA (1994) focused on the over-represented majority of White teachers (77%) and a need for teacher diversity to better reflect the projected demographics of students. The 1994 TEA Policy is consistent with Ingersoll et al.'s (2019) conclusion that a lack of diversity among teachers could have "direct academic consequences for the students" (p. 2).

Five years after TEA issued the Texas policy report and 20 years before Ingersoll et al. (2019) published their study, Kirby et al. (1999a) added to the understanding of school district roles in staffing teachers to educate local populations. The factors impinging on teacher diversity and the lack of teacher demographics that reflect the composition of the student population affect Texas school quality ratings. The impetus for this study was well-stated by Kirby et al. (1999b),

> Consider the future: Enrollment projections show that by 2025, minorities will make up two-thirds of the student body. We have also seen that minorities tend to be disproportionately economically disadvantaged and, therefore, disproportionately at risk of educational failure… In addition, attrition (especially among black teachers) will rise over the next several

> years because of retirements, increasing future demands… There are some disturbing implications of potential shortage of minority teachers, particularly in districts with large proportions of educationally disadvantaged student[s]. (p. 64)

In the context of diversity, teacher and student racial mirror each other in Texas public high schools has been studied relative to district rating, student variables, and teacher pay. The information framework spans teacher quantity, teacher race group, and the changing demographics of the student population nationally and in Texas. In addition, the TEA established a district rating based on teacher membership in a racial group and student outcome variables. By studying teachers' race as distributed across the state and relative to Texas high school district ratings and student variables over time, predictors of teacher migration might be revealed, which explain teacher movements and possible student educational outcomes.

Purpose of the Study

As Texas becomes more diverse in population demographics, Texas public high schools' population is also becoming more diverse. The aims of the study include examining the correlations between the percentage of teachers' self-identifying with minority racial groups, the percentage of students similarly identifying with minority groups, students' college readiness as measured using SAT and ACT scores, school size measured by student enrollment, average teacher salary, and students' socioeconomic status (SES), as measured by students in the free and reduced lunch program. A second

goal was to determine which variables may predict the percentage change among teachers who are members of racial minority groups in a school. The percentage change was computed using data from two points that are 10 years apart.

The purpose of this quantitative research study was to determine the factors that predict the racial diversity of teachers in Texas high schools. The purpose was to examine the factors that predict teacher racial diversity in Texas high schools and investigate the factors that might predict change in racial diversity of faculty in Texas high schools.

Research Questions

The questions guiding this research study were:

1. What factors predict the racial diversity of faculty in Texas high schools?

2. What factors predict the change of racial teacher diversity in Texas high schools?

Significance of the Research

The study goals are important because trends in teacher and student demographics in connection with Texas high school ratings affect state policy and are significant for providing quality education. The factors that could predict teacher demographic changes were explored because Texas is trending toward becoming a minority-majority population state, along with a significant influx of foreign-born students whose needs should be addressed. The research results could have practical applications for policy regarding teacher hiring practices based on demographic diversity and the relationship between teacher diversity and school accountability ratings. The need for this study is imperative for the following reasons: teachers are increasingly mobile

across the United States (Djonko-Moore, 2016), the trend of African-American teachers leaving the profession or current school is higher than White and Hispanic teachers, and Hispanic teachers are more likely to stay in current school employment than White teachers (Sullivan et al., 2017). By better understanding, the factors that could predict racial diversity of teachers, meeting challenges related to quality education for students, and equity in teacher hiring opportunities can be met.

Assumptions

The researcher assumed that all Texas public schools and districts reported their information truthfully and correctly concerning the size of their community, racial demographics of the local populations, number of students receiving free and reduced lunches, students' scores related to college readiness as measured by ACT and SAT scores, and other teacher demographics. It was assumed that all currently existing schools also existed 10 years ago and that the demographics are available for the chosen years and the school ratings were available or similar enough to make a cohesive rating.

Limitations/Delimitations

The identified limitations for this study are the lack of control over reporting categories and specific information reported to the Texas Educational Association (TEA) by public high schools in the state. Also, a lack of control exists concerning when the data are reported, changes in reporting between the start and end of the 10-year span examined in the study, and inability to obtain documented information on why teachers leave or stay in their jobs/settings. Another limitation is that high schools have different

policies concerning the time they allocate per student and teacher salaries and incentives. Thus, some variables that impact students' college readiness and teachers' inclination to remain in a school can differ among schools and districts regardless of the proportion of teachers belonging to specific minority groups.

The delimitations are factors over which the researcher has control or choice. The delimitations were the variables and population chosen to study, the research questions, objectives, and the time frame for this study. The unit of study was defined as each Texas public high school, and the variables included key demographics variables of the population. The research questions narrow the study by examining factors that predict teacher diversity by race either as a percentage in the 2018-2019 school year or as a percentage change between 2008–2009 and 2018–2019.

Definitions

Economically Disadvantaged: defined as a student reported as economically disadvantaged if he or she is eligible for free or reduced-price meals under the National School Lunch and Child Nutrition Program (TEA, 2019c).

Enrollment Data/ Race of Students: These data include enrollment numbers and student demographics, such as race, gender, SES, and student participation in special programs (TEA, 2019e).

Race Distribution: The number and percentage of students and staff identified as belonging to one of the following groups: African American, Hispanic, White, Native American, Asian American, Pacific Islander, and two or more races (TEA, 2019c).

Snapshot Report (School Profile): The day (October 25, 2018) each school and district reports total student enrollment for the school and district to the governing body (TEA, 2019c).

Total Minority Faculty: The total count of staff members identifying as part of a racial minority group is the number of full-time employees (FTE) who are non-White staff groups (African American, Hispanic, Native American, Asian American, Pacific Islander, and two or more races). The minority staff FTE count is expressed as a percentage of the total staff FTE (TEA, 2019c).

Total Students: The total number of students enrolled on SnapShot Day (October 26, 2018), in all grades, early childhood through Grade 12 (TEA, 2019c).

College readiness determined by ACT and SAT: This information is found in the TEA Accountability Research reports. The SAT and ACT examinations are designed to measure students' college readiness and academic achievement as they prepare for postsecondary college and career opportunities (Croft & Beard, 2021; TEA, 2019d, 2019f).

Scholastic Aptitude Test (SAT): A college readiness bench mark score is 1550 for the combined scores of the three test sections math, reading, and writing (College Board, 2019). The SAT is a curriculum-based college readiness test that assesses students' academic skills and knowledge in high school and their ability to apply the knowledge (TEA, 2019f).

American College Test (ACT): College readiness benchmark scores from this test are an English score of 18, mathematics score of 22, reading score of 22, and biology score of 23 (ACT, 2021). The ACT is a curriculum-based, college and career readiness test that assesses students' learning from classes, similar to an achievement test (TEA, 2019f).

Title I Schools/Districts: In Texas, at-risk schools are identified as Title I schools. Defined according to TEA Title I, Part A, schools are at risk if they fail to meet the state's academic standards on the state assessment; these criteria are not the same at-risk criteria used for the State Compensatory Education definition of at-risk students (TEA, 2020).

Summary and Organization of the Study

Chapter 1 includes an introduction to the problem, an overview of the research, and the significance of the study. Chapter II is a review of the literature describing the population shifts in the United States and Texas. The literature review is an examination of the factors that could predict teacher demographics nationally and in Texas. The discussion of Texas includes the policy changes related to various intrinsic motivations, such as supporting specific schools and underrepresented students, and extrinsic motivations, for example, teacher salaries or other financial factors and location-based needs. Chapter III contains details of the methodology for the study, data collection, data analysis, and how the results were to be reported are found in Chapters IV and V.

CHAPTER II

Literature Review

The purpose of this quantitative research is to determine the factors that predict the racial diversity of teachers and the factors that predict change in teacher diversity in Texas high schools. This literature review comprises a discussion of policy, teacher migration, and shifts in populations related to diversity. The discussion is focused on research concerning diversity in the classroom and the relationship of diversity with Texas public schools' accountability rating according to the Texas Education Agency, *Policy Report: Texas teacher diversity and recruitment* (1994). The chapter concludes with a review of other factors that influence teacher diversity and learning outcomes, such as race, academic achievement, socioeconomic, and the characteristics of Texas public schools.

National Level Racial Trends

The following section is the exploration of the literature concerning racial trends nationally and in Texas. The findings by the NCES (2020a) reported that “teachers of a given race were more often found in schools where their race matched a majority of the student body” (p. 1). The reasons this distribution occurs are explored in the following sections related to teacher and student migration trends.

Present Condition in the United States

The impetus for a diversified teaching population originates from awareness of the current diversity of the racial populations in the United States. The recent racial demographics in the United States population of 308,746,000 (Cilluffo & Cohn, 2019; U.S. Census Bureau, 2010) are White 223,553,000 (72.4%), Black or African American 38,929,000 (12.6%); Native American and Alaska Native 2,932,000 (9%), Asian American 14,674,000 (5.7%), Native Hawaiian and Other Pacific Islanders 540,000 (0.2%), and other groups 19,107,000 (6.2%). The 2010 U.S. Census reported no information on persons of Hispanic or Latino origin. The reporting of Hispanic or Latino populations by the National Conference of State Legislatures Population Division revealed the number as 50,000,000 (16.2%) (Ewert, 2015).

According to reports from the Pew Centers for Research, Hispanic and Latino Americans represent the fastest increasing demographic within public school populations (Lopez et al., 2020; Noe-Bustamante et al., 2020). These reports contain data showing trends from 1970 to 2019 that indicate an increasing Hispanic and Latino population; as of 2019, the population has reached 60.6 million in the United States (Noe-Bustamante et al., 2020). This growth impacts the ratio of teachers to students overall and for this teacher race group (Goodwin, 2017). Additionally, other demographics showed that at the district level, one in four students (23%) are from immigrant households; the result was closely correlated with poverty as measured by schools' free and reduced lunch policies (Camarota et al., 2017; Goodwin, 2017).

Historical Population Conditions in the United States

The population segregation along racial demographics presents a maturing contemporary view of America. Recent demographics have historical roots of growth and movement in the diversity of its population. The first census originated in 1790, as mandated by President Washington and the first Congress (U.S. Census Bureau, 2017). The inadequacy of the first United States census regarding race is illustrated by five questions used in the original 13 states. Census workers only interviewed the heads of the household. The questions were about the number of persons in each home and where their fit with the following descriptions: free White males age 16 years or older, free White males under 16 years of age, free White females, all other free persons, and slaves (U.S. Census Bureau, 2019).

The racial changes in United States demographics over the past 230 years have been cataloged in the intervening census, and changes in recognized racial demographics have helped demonstrate the multicultural changes taking place in the population. For example, the twelfth census of 1900 added the demographics of nativity, foreign parentage, and citizenship. The census also added Chinese and Japanese racial demographics (U.S. Census Bureau, 2018b). The 1970's decennial census is the first census to recognize the Mexican and Latino populations as part of the United States changing demographics (U.S. Census Bureau, 2019). In addition, the 1990 census added homelessness to the United States changing population. The 1990 census was surprising because it included the difference between White and other demographics (racial, other)

as 89,237,979 people; diversity had gained momentum in the United States. The last significant change in the 2010 census added a category of “three or more races” (U.S. Census Bureau, 2016). The additional race category allowed for a more diversified depiction of the United States population.

The United States Census of 2010 revealed even more dynamic changes taking place in the United States. The Hispanic-Latino and race demographic numbers tell a story of a shift as the increase of the Hispanic-Latino population supplants the historical dominance by the White population. The Hispanic-Latino population is predicted to become the majority population in the United States within a few decades (U.S. Census Bureau, 2016, 2018b).

The 2010 census Hispanic or Latino and race category combined creates a picture of the total population of the Hispanic or Latino race in the United States, which in 2010 was 52,563,471 (U.S. Census Bureau, 2010). The 2010 census's largest population is White, and the second largest is Hispanic or Latino, surpassing the Black or African American and non-specific race populations. The smallest population is the combined categories of American Indian and Alaska Native/Asian/Native Hawaiian and Other Pacific Islander; this is further confirmed by the Pew Research Center in their study of the racial voting population (Cilluffo, & Cohn, 2019).

The population shift from a White majority in the United States to a Hispanic majority is predicted by 2015, and the White population is projected to diminish by about 19 million by 2060 (U.S. Census Bureau, 2020a). The following review of literature

explores why this is occurring nationally and in Texas. Additionally, some historical events have contributed to the changing ratio between student and teacher races, which have had a lasting effect on the present school population, such as mandatory busing, integration, and immigration policies.

The Future Shift in Population in the United States

The 2014 and 2016 censuses showed a decrease in the native-born population and a significant increase in the foreign-born population. The most substantial shift is the projected increase in Hispanic foreign-born nationals, followed by people born in Asian countries (Colby & Ortman, 2015). The two populations predicted to decrease by 20% are White and Native American. Furthermore, by 2060, the United States is expected to become a majority-minority nation (Colby & Ortman, 2015). The 2060 projected child population is that 64% are members of a racial minority, and most of these members of minority groups will be foreign-born (Colby & Ortman, 2015; de Brey et al., 2019).

Texas Level Racial Trends

Texas racial demographics from 1990 to 2000 show the historical demographic shifts over 30 years (Table 1).

Table 1

Proportion, Numerical Change, and Net Change in Population Race Groups in 1980, 1990, and 2000, in the State of Texas

Race Category	Proportion of Population			Numerical Change		Net Change by Race	
	1980	*1990*	*2000*	1980-90	1990-2000	1980-90	1990-2000
Anglo/White	65.7	60.6	53.1	941,383	783,036	34.1	20.3
Black	11.9	11.6	11.6	283,818	445,293	10.3	11.5
Hispanic	21.0	26.6	32.9	1,354,081	2,329,761	49.1	60.3
Other	1.4	2.2	3.3	178,037	307,220	6.5	8.0
Total	100.0	100.0	100.0	2,757,319	3,865,310	100.0	100.0

Note. Source: Potter, L. 2000. Potter, L. modified table.

The White population declined by 34.1% in the 10-year span of 1980 to 1990 and continued to further decline by 20.3% in the 10 years between 1990 to 2000 (Table 1). The African American population declined in the 10 years from 1980 to 1990 and minimal growth in 10 years over 1990 to 2000. The Hispanic population experienced a steady growth becoming the dominant racial population over the years1980 to 1990, and has maintained steady growth as the majority population from 1990 to 2000.

Factors Affecting Texas Demographics

The demographic trend of net changes in race indicates that from 1980 to 2000, shows a diminishing Anglo/White Texas population that decreased by -13.8% and Black or African Americans community with a net increase of +1.2%. The net increase in the Hispanic and Latino populations was +11.2%, and other racial groups increased by

+1.5% (U.S. Census Bureau, 2018c). Poston (2019) reported that the White majority is disappearing in the United States. Anderson (2018) reported for *The Atlantic* that America's White population was shrinking for the first time in the nation's history. Some explanations are that the birth rate for White people has decreased to only 1.7 children while Latina women have averaged 2.2 children; the White population is aging. The Latino Americans have a high population of childbearing age women and are increasing their population (Poston, 2019; Wilson, 2018).

In 2017, Texas, New Mexico, California, and Hawaii were racially more diverse than other states in the United States (U.S. Census Bureau, 2020b). According to *Dallas News*, African Americans, with 3.8 million residents, compose one of the largest populations in Texas compared to other states (Cowan, 2018). Compared to other states, Texas (10.9 million), California (15.3 million), and Florida (5.1 million) contain the largest Hispanic populations. The Hispanic population in the United States is projected to grow to 106 million by 2050, adding to the dramatic changes in the demographics of Texas and the United States (Hernández-Nieto et al., 2017).

Students' Population Racial Trends

The growing trends nationally and in Texas are examined in this study because they reflect demographic changes in teacher and student composition in the classroom. As the population shifts in racial constitution and school demographics, the growth of the student minority racial groups is outpacing the classroom teachers in quantity and diversity, which may affect racial diversity in schools.

National Population Trends

The trends in recent age demographics show that the population of native-born Americans is aging, therefore decreasing, which means that the number of native-born children is also decreasing (U.S. Census Bureau, 2020b). The racial majority in the country has historically been White; however, well before the trend in native-born Americans began a notable decline, a shift from White majority students became apparent in 1997. More recently, the question at the national level for schools is who is filling seats in our public schools. Chen (2019a) reported, “White students are now the minority in U.S. public schools, foreign-born minority students are filling the seats” (p. 1). Thus, the population shift that is taking place for adults is also taking place in the United States public schools (Chen, 2019a). The most considerable growth in student demographics is among foreign minority groups, mimicking the adult expansion in Asian and Hispanic/Latino immigrants (Chen, 2019a). From the Pew Research Center, Krogstad and Fry (2014) reported declining numbers among White and African American students in public school classrooms demographics, and they predicted American-born Hispanic and Asian children would fill these schoolroom seats. The discrepancy between the growth rate of native-born and foreign-born members of minority groups underlies the shift from the White majority to the era of minority-majority demographics in the United States (Chen, 2019a; Krogstad & Fry, 2014; Poladian, 2015).

The appraisal from the National Center for Educational Statistics (U.S. Department of Education, 2019a) Indicator 6; Elementary and secondary enrollment, explained current public and secondary school enrollment as of fall 2019, of more than 50.8 million students in public school,

> Between fall 2000 and fall 2015, the percentage of students enrolled in public elementary and secondary schools who were White decreased from 61% to 49%. The percentage of Black students also decreased during this period, from 17% to 15%. In contrast, there was an increase in the percentage of students enrolled in public schools who were Hispanic (from 16% to 26%) and Asian/Pacific Islander (4% to 5%) during this time period. (U.S. Department of Education, 2019a, p. iv)

In 2019, the statistical breakdown of the 50.8 million total student population in K-12 public school by the four major racial groups showed: White students at 23.7 million (46.6%), Hispanics students at 13.9 million or (27.4%), African American students at 7.7 million (15.2 %), Asian students at 2.7 million (5.3%), and the other race categories at 2.8 million or 5.5% of students (U.S. Department of Education, 2020b).

Texas Population Trends

The total enrollment for Texas public schools in 2018–2019 was 5,431,910, an increase of 32,228 (.5%) students from the previous school calendar year 2017–2018 (Chen, 2019b; Marek et al., 2019). Thus, the 2018–2019 Texas racial demographics parallel the national K-12 public school student demographics with one exception. The

majority of students remain White at the national level, followed by the Hispanic/Latino student population. However, in Texas, the majority student population is the Hispanic/Latino race of 2,854,590, and the second place is in the White student population, 1,490,299, followed by the Black student population 685,775 and then others. (Marek et al., 2019).

Changes in the Texas student population are unique because "no state has experienced more growth in the number of K-12 students over the last decade than Texas" (Chen, 2019a, p. 1). These statistical trends were apparent in the 2010 U.S. Census and further substantiated by reporting in the *Texas Tribune* newspaper in 2014, both indicating that Texas has surpassed the 5 million mark in minority student population with Hispanic/Latino students comprising the majority of enrollment increase (Ahmed, 2014; Chen, 2019b). The significance of the Texas disproportionally increased population resulting in an increased school-age population in public schools, in which foreign-born (student or parent born anywhere but the United States) is 36% of the population (Sugarman & Geary, 2018), is that available teachers regardless of race are not available to meet these abrupt changes.

Teacher Population Racial Trends

The following section explores the trends in teachers' racial composition from the national to the state level as it affects Texas. The statistics show that the teacher population remains a White female majority, while the growth of minority teachers is slowly changing.

National Teacher Demographic Trends

Historically, White women have dominated teachers' race demography in K-12 public school classrooms in the United States (Billingsley et al., 2019; Ingersoll & May, 2011). The demographics have been stable until more recent years, as seen in a breakdown of the years 1990–1992, 2007–2008, and 2015–2016 (Table 2). The number of teachers employed by public schools increased by 1,504,000 from 1990–1991 to 2015–2016. Most public school teachers were White, followed by African American, Hispanic Americans, and Asian Americans until 2015–2016. In 2015–2016, Hispanic teachers' numbers substantially surpassed African American teachers in public school employment. Additionally, the number of Asian American teachers has doubled every other year.

Table 2

Number and Percentage Distribution of Teachers in Public and Private Elementary and Secondary Schools, by Selected Teacher Characteristics

Teacher-Demographic Race	1990-91	2007-08	2015-16
Total Public School Teachers	2,323,000	3,405,000	3,827,000
White	2,018,000	2,829,000	3,067,000
Black	191,000	239,000	256,000
Hispanic	69,000	240,000	338,000
Asian	21,000	42,000	86,000

Note. Adapted from "U. S. Department of Education. (2017). *National Center for Education Statistics, Schools and Staffing Survey (SASS)*. Institute of Education Sciences.

National Center for Education Statistics. (2017). From https://nces.ed.gov/surveys/sass/tables/sass1112_2013314_t1s_001.asp"

The teacher population has become more racially diverse, paralleling the shift in student demographics. White teachers are the majority of teachers in public school classrooms; however, the number of Hispanic and Asian teachers is increasing in most states (Musu-Gillette et al., 2016; Rhodes, 2020), and according to the U.S. Department of Education (2016), the trend will continue. The U.S. Department of Education reported that the number of new teachers entering the public school workforce is an average of 82% White, 7% African Americans, 8% Hispanic Americans, and 3% Asian Americans or other racial groups (U.S. Department of Education, 2016).

Texas Teacher Demographic Trends

Most of the racial diversity among teachers is distributed across New York, California, Florida, and Texas. New York, California, Florida, and Texas contained the most significant fractions of public school K-12 minority teachers by race for 2011–12, illustrating the highest population shifts for the country (Table 3).

Table 3

Total Number of Public School Teachers and Percentage Distribution of School Teachers, by Race and State: 2011–12

Location	Total # of Teachers	White	Hispanic	Black	Asian
United States	3,385,200	----	----	----	----
California	285,500	70.5	17.2	3.2	6.1
Florida	---	----	----	----	----
New York	241,400	76.2	9.6	8.6	3.4
Texas	350,800	65.3	23.1	9.0	----

Note: "Adapted from "U.S. Department of Education. (2017). *National Center for Education Statistics, Schools and Staffing Survey (SASS)*. Institute of Education Sciences. National Center for Education Statistics. https://nces.ed.gov/surveys/sass/tables/sass1112_2013314_t1s_001.asp"

As seen in Table 3, the most substantial increase in race diversity is most noticeable in Texas. Texas has fewer White teachers and a sizeable percentage of Hispanic teachers in their public education teacher workforce than state with similar minority migration arrangements (California and New York). Tables 2 and 3 suggest that teacher demographics are shifting, and the number of teachers is increasing, mimicking the student population changes. However, the information also indicates that teacher population growth and diversification are happening much slower than changes in the student population.

Table 4 illustrates the Texas teachers who graduated by all preparation routes in each race group. The data show an alarming trend, with fewer teachers graduating in Texas since 2008. A steady decline in teachers graduating over the four years from 2008 to 2012 reduced the number of incoming by 9,298 teachers. Although the number of teachers graduating increased by 2,244 in 2012–2013, the numbers since 2008 have not replaced the net loss of 7,054 teachers until 2012.

Table 4

Certified Teacher Demographics in Texas Through All Preparation Routes: 2009-2013

Year	Number of Teacher Graduates	White (%)	Hispanic/Latin American (%)	African American (%)	Asian American (%)
2012-2013	22,547	13,694 (60.7)	5,717 (25.4)	2,176 (9.7)	224 (2.2)
2011-2012	20,303	12,951 (63.8)	4,868 (24.0)	1,614 (7.9)	185 (1.9)
2010-2011	26,534	16,287 (61.4)	6,576 (24.8)	2,486 (9.4)	188 (2.0)
2009-2010	28,567	17,335 (60.7)	7,117 (24.9)	2,779 (9.7)	194 (1.9)
2008-2009	29,601	17,749 (60.0)	7,509 (25.4)	3,055 (10.3)	168 (1.6)

Note: Adapted from "Ramsay, Michael C. *Certified Teacher Ages by Preparation Route 2009-2013*. Texas Education Association, (2014), tea.texas.gov/sites/default/files/Certified%20Teacher%20Ages%20by%20Preparation%20Route%202009-2013.pdf."

The trends in the Texas teacher population are dissimilar from the national trend in the increase in diversification in race and changes in teacher numbers (Table 4; Ramsay, 2014). Campbell (2017) explained that the Texas teacher population is already more diverse than its national teacher counterparts, but the loss of teachers in the system prevents Texas from achieving some parity between teacher and student demographics. Changes in Texas teacher composition are counter to those changes consistent with the expanding diversity of racial makeup in the student population and keeping up with the growth of students entering the systems such that teacher shortages are not experienced.

Socioeconomics in the School Population

Students' household SES, surrounding communities, and school districts all play a role in the quality of educational opportunities for students. Owens et al. (2016) attributed income segregation as underlying the inequality students face in accessing quality educational resources, which affected students academically. They explained, "income segregation between both schools and district affect the socioeconomic composition of the student body and can influence teacher quality, school environment, parent involvement, student-teacher interaction, and peer interaction" (Owens et al., 2016, p. 1162).

Socioeconomics Nationally

The U.S. Census Bureau (2018d) identifies population groups living in poverty according to receiving assistance from Federal/State programs and self-reported information. Housing and geographic segregation by income place children from lower-

income families into lower-quality schools because a lower tax base funds the schools in these areas (Hanselman & Fiel, 2017). Districts with a lower tax base pay lower teacher salaries and might not be as attractive to teachers. Moreover, teachers might be discouraged by lower growth and passing rates on standardized tests for students in lower-income and schools with a higher percentage of minority students (U.S. Department of Education, 2019a, p. v). The impacts of the ratio of teacher race to student race may be related to poverty in public schools according to Hanselman & Fiel, 2017; Cortes & Lincove, 2019).

States with higher poverty levels are identified according to the number of individuals subsidized by the Federal and State governments under the supplemental poverty measures (e.g., SNAP/Food Stamps, WIC, Social Security benefits). The proportions of people of specific racial groups living in poverty defined by receiving assistance are: White 11%, African American 22.0%, Asian American10.1%, and Hispanic American (any race) 19.4%. The data also show the population that fell below the poverty line in 2017 by race: White 10.7%, Black 21.2%, Asian American 10.0%, and Hispanic American (any race) 18.3% (U.S. Census Bureau, 2018d). Among the population of native-born versus foreign-born in 2016, those who are native-born living in poverty are at 12.3%, and foreign-born people in poverty are at 15.1%. The foreign-born population in poverty was larger in 2016 by 2.8% compared to native-born people. In 2017, 11.9% of native-born people were in poverty, and 14.5% of foreign-born lived at or below the poverty level. The foreign-born poverty population in 2017 was 2.6%

greater than the native-born population. According to the *Economic Policy Institute Blog* article (2018) the reduction in poverty was due to government supplemental programs and work programs (Schieder & Wolfe, 2018).

Teacher Diversity Nationally

Teacher demographics are related to school district policy to hire teachers who mirror the racial demographics of the student population (TEA, 2018a, 2019b). In California school districts, the push is to hire more teachers that reflect the student population. A majority of California's students are Hispanic/Latino, outpacing any other demographic of students. The California school districts have also increased the Hispanic and Latino teacher population by 26% on those campuses that house primarily Hispanic and Latino students on campuses and within school districts. The new teacher hires are dispersed such that teachers who are members of minority groups are located to campuses and school districts that reflect the student population; thus, California has been seeking to increase diversity among its teaching corps that is consistent with the student and school communities (Reese, 2019). Another example of teacher recruitment and demographic reflection in teacher population to student population is Oakland Unified, in which African American teachers are 19% of the teacher population. The African American teacher demographic was accomplished as Oakland Unified's demographic is 24% black. The third example is given for higher like race teachers to reflect the student body is in San Francesco, Unified, with a 23% teacher demographics of Asian, Filipino, and Pacific Islander. The student population is 36% Asian, Filipino,

and Pacific Islander; again, teacher-student demographics mirroring each other (Grawe, 2018; Reese, 2019).

Texas Diversity in Teacher Population Practices

The hiring practice of Texas school districts is aimed to mimic California, which is to hire more teachers representing cultural, minority groups, particularly into districts with a higher population of students who identify as part of a racial minority group, and where schools are considered at-risk (Kirby et al., 1999b; Gray, 2019). The practice of placing same race teachers with same race student populations is a response to the research findings that show students with teachers who have similar racial backgrounds achieve more in school, are less likely to drop out, and have greater possibilities for attending higher education (Rivkin et al., 2005; Taboada, 2018; Young et al., 2019). Placing teachers with similar race to their students is a current practice in the Austin and Pflugerville districts. These districts have teamed up with Teach for America in Dallas, Fort Worth, San Antonio, and Rio Grande Valley to meet the demands to diversify teacher populations and shortages in high-demand areas, such as upper-level math and science (Ingersoll et al., 2018; Taboada, 2018).

Nationally and in Texas, high minority and low-income population school districts have difficulty recruiting and keeping teachers (Ingersoll & Stuckey, 2018; Kearney-Gissendaner, 2013; Kirby & Naftel, 1999a). According to a TEA policy research report (1994), teacher racial diversity is imperative in Texas public schools. As the Texas state population becomes more diverse, hiring teachers who are members of

minority groups becomes a priority to reflect the changes in demographics. A significant point for hiring the same race teachers is that current teacher preparation programs do not prepare the new teachers to be culturally responsive to students of other racial backgrounds (Sleeter et al., 2015; Sleeter, 2017). However, teacher preparation is changing, and cultural responsiveness has become a general education requirement for teachers in Texas General Education Core Curriculum as of 2014. The requirement falls under the Component Area of 040 Language, Philosophy, and Culture. The affected student-teachers who fall under this 2014 change graduated with the cultural knowledge in the 2018–2019 college/university school year (Texas General Education Core Curriculum WebCenter, 2020).

Texas campuses have a teacher diversity index chart to measure the diversity of the teaching force compared to the diversity of the student body (TEA, 1994; Rivkin et al., 2005; Bailey, 2017). The TEA's policy and educational research have focused on promoting a more diverse teacher population. Today, the teacher population has diversified, but not to the extent needed. The teacher population has also declined in Texas, as fewer students are going to the profession of teaching, and even fewer graduates are a minority (Bailey, 2017; U.S. Department of Education, 2016; U.S. Department of Education, 2018).

Racial Distribution of Teachers Internationally

Teachers' availability and racial diversity across the world may vary, but teachers are recognized as the determinant of meeting society's needs in the job market and

increasing innovation (Donohoo et al., 2020; Ramos et al., 2014). In many industrialized countries, education is prioritized, and as such, teacher education is considered a worthy investment. However, students across countries perform with marked differences, as shown in an international study of 40 countries and variables that affect student learning, with the most increase in achievement and learning measured as an indicator of an exceptional school (Woessmann, 2016). The results showed that students' knowledge through growth and achievement. The variables that affected student learning were: education level of families, reading or books found in the homes, the money spent on student learning by the schools, classroom size, level of family income, native or non-native born, time spent in school learning, and education level of the teacher (Woessman, 2016).

In the United States, a study on factors that influence academic achievement parallels Woesseman's (2016) study. In this study, Taggart (2018) cited that academic achievement outcomes are influenced by demographic, sociocultural, academic experiences, psychological, and school/instructional variables. The findings attributed significant student growth to one hour added to learning each day, small class size, and the most significant effect on increasing student achievement was the recruitment of higher ability teachers and quality instruction (Donohoo et al., 2020; Marotta, 2019; Woessmann, 2016).

The findings from research conducted worldwide (Woessman, 2016; Donohoo et al., 2020) and in the United States (Bailey, 2017; Taggart, 2018; Albornoz et al., 2018)

showed that schools have little control over some variables that affect student achievement and growth. The exception is quality teachers in the classroom (Curran et al., 2019; Kirby et al., 1999a; 1999b). In addition, teachers' race is a variable that may influence academic achievement as teacher demographics may play a role in mediating sociocultural variables that positively influence students' academic experiences and psychological variables (Kirby et al., 1999b; TEA, 1994; Albright et al., 2017).

The Effect of Racial Distribution of Students and Achievement

Teacher Influence

The idea that teachers alone are the primary reason students succeed places disproportionate importance on the teacher's influence regardless of race (Curran et al., 2019). Parents, community, socioeconomics, and school district policy play a significant role in student achievement in partnership with teachers (Albornoz et al., 2018; Saminathen et al., 2018). Furthermore, parents' level of motivation concerning their children's educational achievement is a crucial characteristic that affects the native and foreign-born students and school districts (Albornoz et al., 2018; Saminathen et al., 2018). Student achievement, student race, and teacher race affect parental decisions about where students are placed in school districts. As teachers directly affect student achievement, the school district population changes as teachers desire to teach in districts with high achieving students and supportive parents and community (Curran et al., 2019).

Teacher Shortage

Teacher attrition plays a role in quality education and quality schools. As the teacher shortage continues, finding quality teachers has become more problematic, but also hiring teachers who identify as members of minority racial groups becomes increasingly more challenging (Adnot et al., 2017; Kearney-Gissendaner, 2013; Kirby et al., 1999a). According to TEA, in 2020, just as in the 1994 statistics, White teachers made up most of the teaching population, followed by Hispanic Americans, African Americans, and Asian Americans (Ramsay, 2014).

The goal of TEA to have teachers and student bodies be mirrored demographically, i.e., racially, has been met with mixed results (TEA, 1994). The problem in Texas and many other states is not the race of teachers who are employed, but "whether we will be able to staff high-risk and high-minority districts with teachers that will enable students to learn" (Kirby et al., 1999a, p. 48). Teacher turnover and attrition rate are calculated at 46% to 71% depending on the district (Kirby et al., 1999a; Redding & Henry, 2019). Texas must find answers, as historically, teachers from minority groups tend to staff high-minority districts to match the increase in student diversity (Kirby et al., 1999b; Moore et al., 2018).

Teacher attrition or turnover rate is harmful to student achievement, as teacher attrition is excessively prevalent in high-poverty and high-minority urban schools (Moore et al., 2018; Whipp & Geronime, 2015). For example, the teacher attrition rate in urban Texas schools is twice the national average of 8% annually (Carver-Thomas & Darling-

Hammond, 2017), and Texas teacher attrition is 16% annually (TEA, 2020). Therefore, the study of factors contributing to teacher retention and how districts and campuses can promote retention is essential (Moore et al., 2018; Newberry & Allsop, 2017) and could offer information concerning recruiting quality teachers who are members of minority groups.

Quality Minority Teachers

Fewer students from minority populations tend to be college-ready than those of the predominant racial, and cultural groups in the United States (Dilworth, 2018). Thus, the pool of teachers in training and prepared to enter the workforce remains less diverse; the net effect precludes closing the gap in the diversity of teachers available for staffing schools (Flores et al., 2017; Jeffrey, 2020). The proportion of students lacking college readiness to enter four-year degree programs may affect the number of willing and available teachers to schools with low percentages of college-ready students. Additionally, few teachers identified as minority groups attended school with at-risk characteristics (Flores, et al., 2017; Jeffrey, 2020; Kirby et al., 1999b). Herberger et al. (2020) studied the extent to which student, neighborhood, and school factors predicted college readiness in English language arts and mathematics. The findings showed that student, school, and neighborhood affect student performance on the ACT, a consistent college readiness predictor. The predictors of lower proportions of students with college readiness are also associated with Title 1 schools (Cortes & Lincove, 2019; Herberger et al., 2020). Fewer students from low-performing schools enter colleges and graduate

(Meloche et al., 2020); these results discourage teachers from seeking employment at low-performing schools.

In Texas, at-risk schools are identified as Title I schools, and students in these schools have lower achievement before enrolling in higher education (TEA, 2020d). In addition, these schools tend to have higher African American and Hispanic enrollment; thus, these students are disproportionately disadvantaged, decreasing the likelihood of being college-ready (Flores et al., 2017). Furthermore, the definition of Title I school according to TEA Title I, Part A include "being 'at risk' of failing to meet the state's academic standards on the state assessment; this is not the same as some of the 'at risk' criteria that are used for State Compensatory Education purposes (defining at-risk students)" (TEA, 2020d, p. 6).

The state of Texas implemented a plan to aid minority students who are underprepared for college to close the college-readiness gap by 2015 (Texas Higher Education Coordinating Board, 2000). The aim was to increase African American and Hispanic college student population by 2015. The Texas Higher Education Accountability System's plan began in 2000 with an agreement between Texas colleges and universities to add 630,000 more students to the college track by 2015. The *Closing the Gaps by 2015* initiative was to incremental increase African American students in Texas was from 4.1% to 5.7%, i.e., an increase of 1.1% or an adding 56,300 African American students on the college campuses. The goal for Hispanic students was to move from 3.7% to 5.7%, an increase of 2.0%, which would add 341,600 Hispanic students to

college campuses by 2015 (The Texas Higher Education Coordinating Board, 2000). The initiative was reported as less successful for Hispanic students than African American students (Tajalli & Ortiz, 2018). However, degree completion was not substantially improved among those entering college during the program (Tajalli & Ortiz, 2018). The results from the *Closing the Gaps by 2015* initiative mimic Tajalli and Ortiz (2018) findings in which the number of Hispanic teachers is increasing do to more Hispanic student entering and finishing the teaching programs, and White and African American teachers are decreasing in Texas as few African American students are entering and finishing teacher preparatory programs (TEA, 2020), this can be attributed to the initiative

As many Texas public schools compete for teachers, an Institute of Education Science study concerning teacher mobility found that 20% (72,000) of teachers moved between school districts or left the Texas public schools each year (Sullivan et al., 2017). The study also found a significant positive correlation between teacher mobility rates (tendency to leave) in direct proportion to "students in special education programs and the proportions of economically disadvantage, low-performing, and racial minority students" (Sullivan et al., 2017, p. 14). The percentage of teachers by race who left Texas public school between 2011 and 2016 were: African Americans 14.3%, Hispanic Americans 14.3%, and White 12.6 %; the most significant movement between districts was African American teachers at 12.6 %. African American teachers moved from district to district on average 3.1% more than Hispanic or White teachers (Sullivan et al.,

2017). Therefore, factors that affect teacher mobility across districts likely include teachers' race. These factors are described in detail in the sections that follow.

District Influence

School choice and open enrollment policies using various vouchers, taxes, and private payments have caused an uncoupling of students from the district of residence (Chen & Moskop, 2020). In addition, the increased mobility and options for students may lead families to choose a higher-performing school out of the district than a lower-performing school in the district. Another possibility is that self-segregation is occurring, although this possibility is less significant than affording minority students a higher-quality, more integrated education than those who remain in their neighborhood schools (D'amico et al., 2017; Hansen & Quintero, 2018; Ledwith, 2009). Although some students benefit from leaving minority-majority schools that have lower resources to attend higher-performing educational venues, there is the possibility that teachers are also feeling the need to leave for the very same reasons (Albright et al., 2017; Ledwith, 2009; Martinez, 2020; Whipp & Geronime, 2015).

Studies of low-performing schools showed that the racial distribution of teachers in school districts was affected by the proportion of low SES students associated with Title I (high-risk) and non-Title I (low-risk) districts (Jeffrey, 2020; Kirby et al., 1999a). Nationally, the patterns of teachers employed in high poverty and racially segregated schools show increased teacher mobility and teacher attrition based on teacher beliefs about students of poverty and student race as well as collective perceptions of

administrators and school districts (Djonko-Moore, 2016; Foiles Sifuentes, 2015). Teachers' and educators' perceptions can come from an ecological perspective (Nations et al., 2020), in which educators perceive that "school and classroom environment are important contextual influences on child and adolescent learning, academic performance, and behaviors, but so are local, state, and national macro systems that influence educational goals, standards, and other polices" (p. 715). The ecological perspective influences the educators to create change in the students' conditions and improve students' educational outcomes.

Prior research has identified three determinants for teachers choosing which school setting to employ (Bacolod, 2007; Kirby et al., 1999b; Nations et al., 2020). The first is the school's racial and socioeconomic composition. The second is the support by school personnel and resource allocations for teaching. The last is the wage or teacher salaries and entitlements or pay-for-performance (Albright et al., 2017; Bacolod, 2007).

Several studies support the findings above by also explaining that new preservice teachers are basing their choice of school employment on working conditions (Bacolod, 2007; Hanushek & Rivkin, 2010). The study findings mimics non-preservice teachers criteria found in Hanushek and Rivkin (2010) conducted a meta-analysis of 34 quantitative studies on factors that moderate teacher attrition. The Hanushek and Rivkin (2010) meta-analysis found the following factors affected teacher attrition and employment: "a) teacher demographic characteristics, b) teacher qualifications, c) school organizational characteristics, d) school resources, and e) school student body

characteristics" (p. 26). Researchers have also found that teachers choose location and proximity to the school and select demographic similarities as criteria for a work environment. Most strikingly, some choose student race as criteria for selecting a workplace (Achinstein et al., 2010). Most evidence supports that the most significant determinant for choosing a school or district is the quality working conditions (Albright et al., 2017; Bacolod, 2007; Hanushek & Rivkin, 2010). Quality working conditions in schools and districts are attractive to teachers and a key element in reducing teacher attritions (Djonko-Moore, 2016; Mankin et al., 2018).

When teachers consider school districts for employment, they weigh tradeoffs, such as pay, teacher support, student and teacher accountability, and student test scores (Achinstein et al., 2010). The tradeoffs regarding working conditions found in high-risk or at-risk versus low-risk schools can include issues of teacher victimization. Where victimization is found, teachers must consider safety tradeoffs, and administrators must consider teacher turnover and safety tradeoffs (Curran et al., 2019).

The definition of at-risk implies identifying schools and districts that encapsulate the negative community characteristics and bias toward some student demographic profiles (Kirby et al.1999a; 1999b; Gray, 2019). However, by state and federal standards, schools are identified as Title I (at-risk) when most students have potential for educational failure (TEA, 2020d; Region 7 Education Service Center Texas, 2020). Texas school districts have many students identified as economically disadvantaged through the Free and Reduced Lunch Programs (Curran et al., 2019; Kirby et al., 1999a). Those

school districts identified as low-risk have a 75% student pass rate on mandatory testing, and students tend to be from middle-income households. Kirby et al. (1999a) reported a trend in Texas that showed an increasing enrollment of low-SES students and movement toward minority-majority demographics, with the most significant increase in the population of Hispanic students. Combining these two characteristics identifies them as the at-risk student population (Balfanz, 2011; DeLamar & Brown, 2016; Kirby et al., 1999a). The TEA defined a criterion for at-risk as students who did not perform satisfactorily on readiness tests and advance to the next grade. Moreover, some at-risk students have limited English proficiency, were placed in alternative education programs, or dropped out of school. Some of these students are homeless or transient, and they are identified as having substance abuse, psychiatric issues or could be in a foster group home (TEA, 2018b). The identifiable traits of at-risk students are attributes of minority students, which can increases a district or school being classified as an at-risk or Title 1 school when many of the students are a member of minority groups (TEA, 2010; TEA, 2018b).

The teacher shortage found in many states and districts may originate from a systemic deficit, requiring a deeper understanding of the workforce. Reininger (2012) analyzed the data concerning teachers' preference to work close to home. Teachers tend to work in schools within 20 miles of where they graduated from high school (Hanushek & Rivkin, 2007; Reininger, 2012). Furthermore, teachers working in a school with a high proportion of minority students who are low SES and have a reputation as hard-to-staff

tend to have the same teacher attrition as other schools that do not have these characteristics. Reininger (2012) explained that fewer teachers graduate and return to schools near their homes with higher minority populations, lower socioeconomic households, and hard-to-staff schools because these schools have a significantly lower rate of students earning a post-secondary degree. The reduced graduation rate in post-secondary education reduces the teacher pipeline to return to their home school, i.e., there is no grow-your-own from these schools (Fergus, 2017; Fiel, 2013; Paine et al., 2016).

Achinstein et al. (2010) found that many teachers of color were motivated by a humanitarian commitment to educating students in at-risk school districts. Teachers of color in school districts identified as high-risk are more willing to work in conditions with fewer resources, lower funding, and highly diverse student populations than their White counterparts (Achinstein et al., 2010; Goldhaber et al., 2017). The low socioeconomic status and diverse racial student populations sometimes found in at-risk school district environments are associated with higher teacher attrition rates (Hanushek & Rivkin, 2007; 2010; Nations et al., 2020).

Hanushek and Rivkin (2007) reviewed the quality and distribution of teachers in public schools and found that those teachers identified as high performing had students with higher achievement than low performing teachers who tended to have low performing students. The labeling of teachers as high-performing or low-performing teachers affected employers' interest in hiring them; the labels might translate to beliefs that students' low performance and inadequate academic growth are inevitable from some

teachers (Hanushek and Rivkin, 2007; Sondel, et al, 2019). They also found a higher rate of turnover and early exit rate of teachers in high-poverty communities Hanushek and Rivkin, 2007; Sleeter, et al, 2015). Teachers who left schools that embodied the Title 1 school characteristics (high minority, low socioeconomics, low college readiness) left the teaching profession or moved to a different school district not considered at-risk at a higher rate than those in school districts not identified as an at-risk school or district (Hanushek & Rivkin, 2007; Hanushek, & Rivkin, 2010; McCarthy et al., 2020).

Teacher effectiveness is correlated to two aspects of teacher well-being: teacher efficacy and school connectedness (Bacolod, 2007; Mankin et al., 2018). Teachers need to feel supported by the school and other teachers, and they need to feel connected to the school, the students, and the content they are teaching. A breakdown in any part of teacher well-being creates a disconnect, which, in turn, breaks down the teacher's effectiveness in academic instruction and student engagement (Brezich & Fuller, 2019; Carver-Thomas & Darling-Hammond, 2017). In addition, lack of teacher well-being increases adverse behavioral outcomes for both teachers and the students, increasing the possibility of lowering a district's rating (Albright et al, 2017; Adnot, Katz & Wyckoff, 2017).

Teachers of color have multicultural capital, legitimate school knowledge entwined with teaching practices relevant to current diverse, multicultural school culture (Achinstein et al., 2010; Fergus, 2017; Sleeter, 2017). District support for teachers and teachers with multicultural capital allows for positive engagement of teachers with

students in the classroom, which increases school connectedness (Fergus, 2017; Mankin et al., 2018).

As policy opinion changed between 1999 and 2004, Metropolitan Nashville Public Schools decided not to follow a policy of racially integrating schools. Instead, the public schools took a policy of allocating additional resources to schools with high minority populations (Houck, 2010). The findings showed more attrition of teachers in schools with high proportions of minority students, low-performing students, and large student-to-teacher ratios (Hanushek & Rivkin, 2007). The loss of older, more experienced teachers left a gap filled with less experienced, lower-quality teachers; therefore, whether students in segregated schools are receiving a quality education and the effect of teacher attrition on student achievement (Houck, 2010).

As teachers are leaving Title I schools at an increased rate (Albright et al., 2017; Achinstein et al., 2010), there are a large number of vacancies that need to be filled (Hanushek & Rivkin, 2007; Sahadewo, 2019). White teachers and new teachers of color are attracted to the increased pay associated with teaching at a Title I school (Springer & Taylor, 2016). Many of these teachers are not considering a school district's employee support system or the type of students who attend these low socioeconomic schools. This scenario frames why so many teachers leave at-risk schools (Albright et al., 2017; Achinstein et al., 2010).

A seasoned teacher of color is more likely to remain in Title 1 schools, committing to provide culturally relevant pedagogy (Achinstein et al., 2010). These

teachers have credibility with students of racial minority groups, and thus, they also receive student and community support in at-risk districts that sometimes do not support teachers (Brezicha & Fuller, 2019). The teachers who teach at high-risk schools do so because they feel a duty to provide a social change that improves students' outcomes to those who have housing instability and homelessness, part of the criminal justice system, and poor educational outcomes (Nations et al., 2020).

The Student Population and Academic Achievement

Proposed race socialization in children by Erikson (1968) described identity as a unique sense of being conscious of being an individual but with an unconscious need to feel part of a group and its ideals. A student vacillating between forming both an individual identity and group identity is influenced in the eight-plus hours in public school experiences. These experiences in school by teachers and peers may continue to confirm their identity and place in the world as positive or negative.

Part of student identity is their race, which, according to the research, contains three themes that have implications for educators and the educational field (Phinney & Rotheram, 1987). The themes include attitudes, values, and behaviors that disguise racial groups (Phinney & Rotheram, 1987; Yarnell & Bohrnstedt, 2018). First, teachers influence student attitudes as they work with students, socializing students to the group and other groups. Second, as students age, they become more self-aware, develop a racial identity with corresponding cultural values, and become more attuned to different cultures' attitudes. Finally, students become increasingly socialized to differences

between dominant cultural norms and minority cultural norms. According to Bondy et al.'s (2017) study on children of immigrants, self-efficacy in academics is based on assimilation and disusing racial group affiliation as a means to navigate the path to positive educational outcomes. They found, “a crucial part of assimilation is developing a healthy identity that positively affects their academic self-efficacy and schooling outcomes” (p. 504). Insight into student's socialization indicates that “[m]inority children … more often faced with a conflict between the values of their own group and majority culture” (Phinney & Rotheram, 1987, p. 276). The conflicted feelings by students may be further exacerbated in public schools if the educators are not aware of their own biases (Snyder et al., 2012).

Racial identity concerning learning in the school setting allows students to expand their identity by adding new information and even racializing their learning experience (Snyder et al., 2012). Snyder et al. stated, “The individual student identity is ‘Storylines’ that student carries around in their heads that get enacted in social interactions in schools and classrooms as students are positioned (and position themselves) as learners or as certain kinds of learns” (p. 286). These storylines are part of the student's life in school; they serve to socialize a student racially and academically and can influence or close “engagement and learning in school settings” (p. 286). The teacher can facilitate the storyline by being a racial threat or by creating a counter space that allows the student to have a positive racial identity regardless of the teacher’s racial affiliation (Snyder et al., 2012).

Loasa (2005) studied the segregation of Texas public schools students "by race, poverty status, and English-language proficiency" (p. 111). He found that schools are segregated by minority race and economic disadvantage due to public school policy and academic alignment (Loasa, 2005). Loasa (2005) also identified geography as the barrier to accessing quality education due to geographic effect on "students' ethnorace, family socioeconomic status, and English-language proficiency." (p. 111). The findings in Loasa's (2005) Texas study are extended by Hanselman and Fiel (2017); Hanselman and Fiel attributed the lack of access to quality education to geography and described it as "school opportunity hoarding" (p. 1077). In addition, Hanselman and Fiel found that communities and geographic locations were attributed to school hoarding because schools are boundaries that can access valuable resources unless exclusions occur, which happens because of community geographic location. Thus, both studies identify geography as a barrier to quality education, based on exclusionary practices such as socioeconomics, segregation, location to resources, and borders (Hanselman & Fiel, 2017; Loasa, 2005). Loasa (2005) further explained that the historical agent was due to a "tri-ethno-racial school systems developed in Texas, with segregated facilities for Mexican American, African American, and White Non-Hispanic students" (p. 113). Segregation was implemented because it was beneficial to the students. However, both Loasa (2005) and Hanselman and Fiel (2017) found no evidence that it is beneficial to segregate schools and students and showed this is detrimental to students learning.

Through the SES, geography, and language, the continuing student segregation in Texas has caused isolation for students and teachers who inhabit the United States/Mexico border schools and is linked to a concentration of poverty in those areas (Loasa, 2005; Owens, 2017). These are also low-performing schools, as academic achievement is lower for these populations. Regarding educational isolation in Texas, Loasa (2005) reported, “it needs to [be] address[ed] successfully …, aiming toward the goals of a fully integrated and equitable society” (p. 121).

Parris et al. (2018) studied students’ views concerning school climate and diversity and found African American students reported lower perceptions of the school climate compared to students of other races. All racial groups reported connectedness was greater in schools with high diversity ratios. The implication for this study within the context of teacher relationships is that there is an extensive range of racial groups that have vastly different experiences in school based on their racial membership (Bécares & Priest, 2015). Teachers call for school policy that is less generalized concerning racial focus and an understanding that learning is a uniquely individual experience for students (Parris et al., 2018; Redding, 2019). Teachers, regardless of color, need to have appropriate, relevant strategies and interventions to support students of all racial backgrounds (Hanselman, 2019; Redding, 2019).

Policy Impact

The teachers of the majority race struggle with cultural diversity on two fronts. The first is the public school's hypocritical policy of following policies and norms

regarding "tolerance and respect for others, dialogue between cultures, cultural diversity, the fight against prejudice, and coexistence" (Payet & Deshayes, 2019, p. 348). The second front is the policies that address the social issues affecting at-risk populations, such as immigrant populations, but do not act to remedy the cause of the issues. As a result, children of affluent families are sent to private schools, leaving many migrants and low socioeconomic students in public schools (Payet & Deshayes, 2019; Whitehurst, 2017).

Teachers tend to act as cultural interpreters and negotiate what is best for students to integrate into the current school setting. Teachers of all races and cultures work as a defacto multiculturalist bridge between school, parents, and students (Payet & Deshayes, 2019). However, teachers of color were expected to “confront issues of racism through teaching, to be advocates and cultural brokers, and to serve as role models for all students” (McCarthy et al., 2020, p. 3) more so than White teachers (McCarthy et al., 2020; Payet & Deshayes, 2019).

Achinstein et al. (2010) agreed with the findings that many minority and White teachers leave hard-to-staff schools because they are perceived as change agents and are undermined by those in power. The authors recognize the duplicity of schools and point out that "teachers of color may find that schools do not recognize their cultural resources and thus experience alienation from their schools' goals, particularly concerning issues of diversity, antiracism, and social justice” (p. 96).

Teachers have an essential role as representatives of the school in the community. Rudnick (2019) challenges schools to be "serious about their commitment to diversity, equity, and inclusion; they must do more" (p. 232) by providing the teacher with opportunities to engage in cultural competency and diversity training. The need to remove the colorblind ideology allows all students and teachers to fully participate in a multicultural community of learning. Public school policies on equality cannot be interpreted as colorblind because they are written to fix teacher race disparities in public schools (Campbell, 2017; Stevens, 1994).

The ever-present awareness is there are not enough minority teachers entering the profession (Ingersoll, May & Collins, 2019; Billingsley, Bettini & Williams, 2019; Grawe, 2018). Dilworth (2018) opened the dialogue while aware that increasing the number of teachers of color will not magically change the equity in education or close the academic achievement gaps for the student of various socioeconomic background. Many teachers belonging to minority population groups have reported interest in teaching because they seek to be positive role models for minority students. Evidence supports those teachers are role models for minority students' positive growth for both Black and Hispanic students (Villegas et al., 2012). The current understanding is today's teachers of color have a distinctive difference in teaching from their predecessors and White peers. The new shift and experiences contribute to teacher quality and student learning. Dilworth (2018) reported that literature showed overwhelmingly that a culture of Whiteness pervades teacher education programs, frames preservice teacher programs, and

influences school policy. However, studies by Villegas et al. (2012) and Dilworth (2018) highlighted positive aspects of having teachers who are part of minority populations mirroring the demographics of the students. Some key results showed the teacher's race affects learning, but the quality of teaching affects positive growth in student learning (Hanselman, 2019; Kirby et al., 1999b).

Finally, parents, community, and students from the racially diverse locals should be involved in decisions concerning criteria for teaching in their public schools. Using cultural responsiveness in hiring process policies to improve a multiracial school climate may be complicated. Still, congruent race or ideology may improve school culture and environment and reduce staff turnover (Brezicha & Fuller, 2019; Tran et al., 2020).

Many teachers of color are motivated by the humanistic commitment to give back to their communities, a type of reinvestment (Achinstein et al., 2010; Heer, 2015). Students of color benefit by having a non-white or teacher of color like them, as it challenges the normative structure of who can be an educator. Additionally, teachers of color can open up learning by using counter marginalization strategies, which may not seem authentic when approached by White educators (Dilworth, 2018; Villegas et al., 2012). Marginalized strategies are methods by which a social justice lens is used to view the public school curriculum from the multicultural students' and teachers' of color viewpoints (Kelly, 2012). The strategies advocating these perspectives include discussing and challenging assumptions in texts that serve to exclude groups of students, devising class activities that allow for greater inclusion, creating assignments that allow for

exploration and articulation of alternative narratives, and fostering supported integration and de-streaming of students (Gitomer & Bell, 2016; Kelly, 2012).

Issues Identified in the Literature

The research literature review illuminates the following issues within the research direction. First, there is a reduction or teacher shortage globally, nationally, and locally in Texas. The shortage results from teachers leaving the profession at an increasing rate as older teachers retire and younger teachers do not stay in the profession (Albright et al, 2017). Notably, countermeasures could support student recruitment into the teaching profession, such as grow-your-own and alternative certification.

Second, the current teacher population in the United States and Texas is not racially diverse. The majority of teachers in the United States are White (84%), followed by Hispanic (5.1%), then African American (1.9%) followed by other race (1.0%) (Ramsay, 2014; U.S. Department of Education, 2017; U.S. Department of Education, 2019b). The number of Hispanic teachers is growing, and the number of White and African American teachers is decreasing (U.S. Department of Education, 2017; 2019b). The decline in African American and White teachers and an increase in Hispanic teachers have accentuated the teaching profession's lack of diversification (Chin, Quinn, Dhaliwal & Lovison, 2020; Field, 2013). Texas is marginally more diverse in the teacher population as the gap between White teachers, and Hispanic teachers are half the national average (Marek, et al., 2019; National Center for Education Statistics, 2020).

The third issue found nationally and locally is the growth of foreign-born students in classrooms. The most significant growth is evident in the Hispanic population. Currently, Texas is a majority-minority due to this explosive growth. The decline in White and African American students has caused a rethink of what it means to be a minority in the United States (U.S. Department of Education, 2016; U.S. Department of Education, 2020b).

The re-segregation of students is stratified by race and socioeconomic lines and is further emphasized by geographical location and school choice (Loasa, 2005; Owens, 2017). The connection of minority and economic clustering has caused teachers to fracture due to their diametrical racial beliefs (D'amico, et al., 2017; Djonnko-Moore, 2016: Egalite, Kisida & Winters, 2015). Teachers have become polarized by racial beliefs in pedagogy and racial ties to teaching students that reflect their race, or economic background (Gracia, Bergsieker & Shelton, 2017; Hansen & Quintero, 2018). The book *School Resegregation: Must the South Turn Back?* (Boger & Orfield, 2005) was written 15 years ago, yet the same information is relevant as contemporary researchers explore the issue of schools becoming increasingly re-segregated in the 21st century (Chin et al., 2020; D'amico et al., 2017; Sondel et al., 2019).

The fracturing of public schools along racial, socioeconomic, and geographic lines is expedited by public school systems nationally (Egalite et al., 2015; McGrady & Reynolds, 2013) and locally in Texas (Boger & Orfield, 2005; Kucsera et al., 2015; Loasa, 2005). According to the literature, districts identified as Title I (at-risk) employ

most of the African Americans, Hispanic Americans, and teachers who identify with other minority groups (Kirby, et al., 1999b; Achinstein et al., 2010; McCarthy, et al., 2020). On the other hand, the rural and non-Title I (low-risk) schools employ mostly White teachers (Achinstein et al., 2010; Kirby et al., 1999a; Reininger, 2012). Reininger (2012) attributed this to many teachers working within 20 miles of the school from which they graduated. Another reason is that many teachers feel the need to give back to the community from which they came (Achinstein et al., 2010; Lac, 2019).

The lack of a diverse population of teachers has exacerbated racial and cultural issues in the student body, community, and education (Bacolod, 2007; Houck, 2010; Mankin et al., 2018). Many teachers of color feel that seeing someone other than a White teacher instructing students of color allows students to feel empowered and capable. In addition, the teachers of color become mentors and ambassadors for students and the broader global community (Achinstein et al., 2010).

Importance of the Research

Factors that predict the racial diversity and change in racial diversity of teachers in Texas high schools have not been explored using the regression formula to determine relationships. The importance of migration by teachers is that they are being affected by an outside force that may be causing this phenomenon, such as type of district, student population, socioeconomics, and teacher race. Therefore, the goal of this study is to use data to determine relationships between teacher's race and other predictors to determine what variables are predictive of teacher diversity. Another question for this research is

what factors may predict change in the racial diversity of teachers. However, the practical application of this research is to understand factors that predict teacher diversity in Texas public schools and determine how to meet the needs of diverse students better, and increase the number of Texas teachers who are members of minority groups.

Theoretical Framework

The study included archival data from the TEA to examine what factors predict teacher diversity in Texas high schools. The findings are a reflection of the system and its parts. The theoretical framework used is predicated by the ordinary least square (OLS) regression; OLS requires the theoretical specification of variables. Furthermore, the literature review conveys a theoretical framework inhabiting the space of both teacher and student race and education (Texas public high schools) relationships. Finally, the theoretical framework for this study is in-group favoritism (Tajfel & Turner, 1985).

The theory of in-group favoritism was pioneered by the social behavior psychologists Tajfel and Turner in the 1970s, which was based on the study of intergroup conflict (Tajfel, 1978; Tajfel & Turner, 1985). In-group favoritism "is when people classify themselves and others into social categories, such as, organizational membership, religious affiliation, gender, age cohort" (Ashforth & Mael, 1989, p. 20,); Social identity also governs a group and individuals affiliation by determined group's features, such as color, race, and norms toward others; emotions, and behaviors (Garcia et al., 2017; Scheepers & Ellemers, 2019).

The in-group favoritism theory lends a structure to the current research, which helps to identify different variables, which are teacher demographics (race, % minority), student demographics (race, % minority and low SES), and Texas public high school characteristics such as the number of students (school size), college-readiness (% pass rate on ACT/SAT), and average teacher salaries in the Texas public schools. These variables could predict where teachers by race may be choosing to work (Garcia et al., 2017), based on factors associated with Texas public high schools (Houston, 2016). This study uses in-group favoritism theory, based on variables representing features of affiliation according to the definition put forth by social identity research to answer what influences teacher diversity in Texas public high schools.

Summary

The literature review, both historically (U.S. Census Bureau, 2017; 2018b; 2019; 2020a) and current, showed a trend of population change at the national and state levels National Center for Education Statistics, 2020; Noe-Bustamante, Lopez & Krogstad, 2020), affecting school populations (Poladian, 2015). In addition, the literature review quantifies the changes in racial demographics, showing a shift from White majority to minority-majority in the classroom (Potter, 2000; Saminathen, et al., 2018), which mirrors the adult census population change. The current trend further diversifies the classroom both in the teacher population and the student population (Sondel, Kretchmar & Hadley-Dunn, 2019; Sullivan, et al., 2017).

The literature review also illuminates the issues affecting teacher race in classrooms (Taboada, 2018; Taie & Goldring, 2020: TEA, 2019e). The issues of decrease number of teachers in the teaching profession (Adnot et al., 2017; Ramsay, 2014; Moore, et al., 2018), such as fewer individuals of all races choosing the teaching profession,(Redding & Henry, 2019) even fewer individuals of minority demographic status choosing to teach, and the contended problem with teacher attrition in all races and increased numbers of teachers who are members of minority groups teachers leaving the teaching profession except Latinos (The Texas higher Education Coordinating Board, 2000).

The review also showed the historical relationship between low-SES students and minority status and the problem of segregation, both voluntary and involuntary (Boger & Orfield, 2005; Egalite, et al., 2015), by the family/student population. This issue is also affecting the demographics in the schools by creating schools containing a majority of one race (Loasa, 2005; Sullivan, 2017; Lac, 2019).

In conclusion of Chapter 2, the literature review shows the gap in the knowledge of the locations of teachers who belong to minority racial groups and the predictors of employment locations for Texas teachers who are minority group members (Garcia et al., 2017; Boger & Orfield, 2005: Sondel et al., 2019). The use of in-group favoritism theory (Tajfel & Turner, 1985: Scheeper & Ellmers, 2019) is foundational to themes that emerged from the literature review as a critical point in the research to understand relationships among factors, such as student demographics and school characteristics,

against teacher race, in Texas public high schools through the chosen quantitative format of OLS statistical analysis.

Introduction to Chapter 3, the methodology of the study is explained in the following chapter by identifying the two guiding research questions, describing the research design, and detailing the data collection process and use of data organizers. Finally, the operationalization of both research questions and factors is explicated in the following chapter.

CHAPTER III

Methodology

The purpose of this quantitative research study was to determine the factors that predict the racial diversity of teachers in Texas high schools. The research examined what factors predict teacher diversity in Texas high schools and investigates what factors predict change in racial diversity of faculty in Texas high schools. This chapter describes the research design and procedures used to investigate the research questions that direct this project. The research design is discussed, along with the statistical methods employed to analyze the data from TEA.

First, this researcher examined what factors predict the racial diversity of Texas high school teachers in public schools. For this analysis, the percent of minority teachers is the dependent variable, and the predictor variables are the percent of minority students, the percent of low SES students, and variables related to student achievement, such as the percentage of students college-ready per ACT/SAT score, school size or the number of students, and average teacher salary were used as control predictors.

Secondly, the study examined the factors that predict change in teacher diversity in Texas high schools; the percentage change in teachers (change score) who are minority group members was the dependent variable, and the change was computed between the year 2008–2009 and the year 2018–2019. The predictor variables are the percent of minority students in the school in 2008-2009, the percent of low SES students in 2008–

2009, the percentage of students considered college-ready per ACT/SAT score, school size or the number of students, and average teacher salary.

Research Questions

The following research questions guided the study.

1. What factors predict the racial diversity of faculty in Texas high schools?

2. What factors predict change in racial diversity of faculty in Texas high schools?

Research Design

Ordinal Least Squared (OLS) regression is a procedure to determine the explained variation in the dependent variable by each independent variable's relative and unique effect (Field, 2018). The application of OLS allows for an unbiased approach to factor prediction. Furthermore, comparing variables from the analysis may explain an interaction phenomenon in public schools between school demographics and state demographics (Payne & Payne, 2009; Trochim, 2020; Yilmaz, 2013).

OLS regression is a linear modeling technique that may be used to find a causal and predictive relationship between a single continuous dependent variable(s), and a multiple independent or predictor variables (Hutcheson, 2011). OLS regression model is referred to as multiple regression. The strength of the relationship between each variable is estimated using a beta coefficient (Hutcheson, 2011; Salkind, 2017).

There is no sampling for this research as all Texas public high schools are included in the data. The number of Texas public high schools included is 2,813 (TEA,

2020c). The population under study is the teacher and the student populations in all the Texas public high schools. The population of teachers was described and compared with other variables using the identifying numbers obtained from TEA PEIMS data. The report for teacher's characteristics is defined by TEA (TEA, 2018c). Because this research represents an enumeration of an entire target population, the data were not sampled. Therefore, the interpretation of inferential statistics lacks meaning in this usage.

Data Collection

Data were collected from the Texas Education Association's public database from Texas public schools, for all Texas public high schools for 2008-2009 and 2018-2019. The following data were requested from TEA: teacher demographics, student demographics including race and SES, school size, percentage of students considered college-ready per ACT/SAT score, and teacher average salary. These data were entered in SPSS to obtain the results from the OLS regression.

For the first research question, factors that predict teacher diversity (dependent variable) in Texas high schools, PEIMS data from the 2018–2019 school year were entered into SPSS. The independent variable was the percent of minority students, and the following control variables were entered: the number of students or school size, percent of minority students, percent of low SES students, percentage of college-ready students, and average teacher salary. The regression equation for this question is:

Percent minority teachers =a + b_1 percent minority students + b_2 school size + b_3 percent low SES + b_4 percentage college ready + b_5 avg teacher salary. (1)

For the second research question, factors that predict change in teacher diversity in Texas high schools were obtained from the 2008–2009 PEIMS data. The dependent variable was the percentage change in minority teachers or change score of teacher diversity between 2008-2009 and 2018-2019. The predictors include percent minority students, number of students or school size, percent low SES students, percentage of students college-ready per SAT/ACT score, average teacher salary from the 2008-2009 PEIMS data, and teacher diversity in 2008-2009. The regression equation for this question is:

Percentage change of minority teachers/change score = a + $b_1$percent minority teachers $_{t1}$ + b_2 low SES + b_3 percentage college ready + b_4 average teacher salary. (2)

Table 5

Question 1: Variable Questions with Description and Associated Texas Education Agency (TEA) The Public Education Information Management System (PEIMS) Code-Number and Snapshot descriptors (Graphic Organizer of Information)

Variables: Question 1	**Description & abbreviated name**	**PEIMS Number**	**Snapshot -District**
Dependent	The percentage of teachers identified as members of racial minority groups in the year 2008–2009 or **percent minority teachers (2018-2019)**	Hispanic-Latino-Code (E1064) Black-African-American-Code (E1061) White-Code (E1063) Other as group American-Indian-Alaska-Native-Code (E1059) Asian-Code (E1060)	*** Part of the Snapshot (year) district detail. Found for each school district in the Performance Report

Table 5 Continued

Variables: Question 1	Description & abbreviated name	PEIMS Number	Snapshot -District
		Native-Hawaiian-Pacific-Islander-Code (E1062)	
Independent	Student Demographics % of minority students in each Texas public high school, i.e., **percent minority students (2018-2019)**	Code Table ID: C014 Ethnicity-Code (E0005) Part 1: Ethnicity: Is the Person Hispanic/Latino? (choose only one) • Hispanic/Latino • Not Hispanic/Latino Part 2: Race (choose only one) 1. American Indian Or Alaskan Native 2. Asian Or Pacific Islander 3. Black, Not of Hispanic Origin 4. Hispanic 5. White, Not of Hispanic Origin	*** Part of the Snapshot (year) district detail. Found for each school district in the Performance Report
Control	Number of students as the size of each Texas public high school or **school size (2018-2019)**	Texas Accountability Rating. Each Campus must be searched for District Summary. As part of the Snapshot (year) District Detail (line item #3)	Number of students in High school is used for school size. Grouping Size 1: Texas public high schools with student enrollment 2220 and above.

Table 5 Continued

Variables: Question 1	**Description & abbreviated name**	**PEIMS Number**	**Snapshot -District**
			Size 2: Texas public high schools with student enrollment between 1230-2219. Size 3: Texas public high schools with student enrollment between 515-1229. Size 4: Texas public high schools with student enrollment between 230-514. Size 5: Texas public high schools with student enrollment between 105-229. Size 6: Texas public high schools with student enrollment between 105 and below.
Control	% of student Low SES status for each Texas public high school or **percent low SES (2018-2019)**	Code Table ID: C054 Economic-Disadvantage-Code: (E0785) Subcode: 00: Not low SES 01: Low SES (Eligible for free meals) 02: Low SES (Eligible for reduced meals)	**** Texas Accountability Rating. Each Campus must be searched for District Summary. As part of the Snapshot (year) District Detail (line item #11)

Table 5 Continued

Variables: Question 1	Description & abbreviated name	PEIMS Number	Snapshot -District
		99: Low SES (Eligible for free meals)	
Control	% student considered college-ready per ACT/SAT score for each Texas public high school or **percentage college ready (2018-2019)**	Texas Accountability Rating. Each Campus must be searched for: SAT and ACT participation and performance data, then searched at campus level files.	
Control	% of minority students in each Texas public high school or **percent minority students (2018-2019)**	Code Table ID: C014 Ethnicity-code 101: Student-Demographics (E0005) Ethnicity Code Code 1: American Indian/Alaskan Native Code 2: Asian or Pacific Islander Code 3: Black (Not of Hispanic Origin) Code 4: Hispanic Code 5: White (Not of Hispanic Origin)	*** Part of the Snapshot (year) district detail. Found for each school district in the Performance Report
Control	Average Teacher salary for each Texas high school or **average teacher salary (2018-2019)**	Part of the Snapshot (year) district detail Found for each school district in the Performance Report (line item#53)	

Note. Variable names in bold text are the abbreviated names for analysis purposes in Chapter 4. Adapted from TEA (2018c) PEIMS Information https://tea.texas.gov/reports-and-data/student-data/standard-reports/peims-standard-reports and 2019c Snapshot Information-code https://rptsvr1.tea.texas.gov/perfreport/snapshot/2019/itemdef.html

Table 6

Question 2: Variable Questions with Description and Associated Texas Education Agency (TEA) The Public Education Information Management System (PEIMS) Code-Number (Graphic Organizer of Information)

Question 2	Description	PEIMS Number
Dependent	Teacher demographic changes: % change of minority teachers in each Texas public school between two school terms that are 10 years apart: the 2008–2009 year and the 2018–2019 or **change score.**	Hispanic-Latino-Code (E1064) Black-African-American-Code (E1061) White-Code (E1063) Other as group American-Indian-Alaska-Native-Code (E1059) Asian-Code (E1060) Native-Hawaiian-Pacific-Islander-Code (E1062)
Independent	Student Demographics % of minority students in each Texas public high school for the years 2008-2009 and the 2018-2019 or **change score**.	Code Table ID: C014 Ethnicity-Code (E0005) Part 1: Ethnicity: Is the Person Hispanic/Latino? (choose only one) • Hispanic/Latino • Not Hispanic/Latino Part 2: Race (choose only one) 1. American Indian Or Alaskan Native 2. Asian Or Pacific Islander 3. Black, Not of Hispanic Origin 4. Hispanic 5. White, Not of Hispanic Origin

Table 6 Continued

Question 2	Description	PEIMS Number
Control	Number of students (Size of each Texas public high school) for the years 2008-2009 and the 2018-2019 or **change score**.	Texas Accountability Rating. Each Campus must be searched for District Summary. As part of the Snapshot (year) District Detail (line item #3)
Control	% of student Low SES for each Texas public high school for the years 2008-2009 and the 2018-2019 or **change score**.	Code Table ID: C054 Economic-Disadvantage- Code: (E0785) Subcode: 00: Not low SES 01: Low SES (Eligible for free meals) 02: Low SES (Eligible for reduced meals) 99: Low SES (Eligible for free meals)
Control	Average Teacher Salary for each Texas High school for the years 2008-2009 and the 2018-2019 or **change score**.	Part of the Snapshot (year) district detail Found for each school district in the Performance Report (line item#53)

Note. Adapted from "Texas Education Agency, 2018c PEIMS Information https://tea.texas.gov/reports-and-data/student-data/standard-reports/peims-standard reports, and 2019c Snapshot Information-code https://rptsvr1.tea.texas.gov/perfreport/snapshot/2019/itemdef.html"

Operationalization and Measurement of Variables for Research Question 1

The variables used as predictors of the dependent variable, percent minority teachers are operationalized using the definitions below. These variables were used in an OLS regression to predict the dependent variable percent minority teachers as described

above for this study and by PEIMS. The variables are referred to by the short, abbreviated form in Table 5.

Percentage of Minority Status Teachers

The percent minority teachers variable is a part of the TEA PEIMS' Academic Performance Report (2020b) and is computed for each school as the total sum of the identified minority full-time equivalent staff (FTE) using the formula: the number of minority teachers divided by a total number of teachers for a school year multiplied by 100 (TEA, 2018c, 2019c, 2020b).

College Readiness per ACT/SAT Scores-Percentage-College Ready

College readiness is determined by scores on the ACT and SAT. The information is found in the TEA Accountability Research reports; the SAT and ACT examinations are designed to measure students' college readiness and academic achievement as they prepare for postsecondary college and career opportunities (Croft & Beard, 2021; TEA, 2019d; TEA, 2019f). In Texas, the college readiness score is determined using the criteria of the Meet Texas Success Initiative (TSI) Criteria in ELA/Reading and Mathematics by passing with a college-ready score on SAT or ACT or both (TEA, 2020b). The College Readiness ACT/SAT score or percentage college-ready is computed using "Number of Graduates Who Met ACT/SAT minimum criterion scores, Indicators, Divided by the number of (year) Annual Graduates" (TEA, 2020b, p. 17).

Students' Minority Racial Groups-Percent Minority Students

The variable percent minority students are defined by self-reporting using the two-step question. First, students can identify as part of the Hispanic or Latino community, and then in part 2 of the question, they specify a racial identity. The first part of the question includes a choice of identifying as Hispanic or Latino, White, or a broad category of "other," with the latter including Native American, Pacific Islander, and Asian American (TEA, 2019c, 2020b). The other category includes these several race groups as a single group due to the relatively small percentage of students with potential membership in these groups at the national and Texas school population levels. (U.S. Census Bureau, 1997). After membership in the White group is excluded, the remaining respondents constitute the number of students belonging to the listed racial minority groups.

The percentage of students in these minority groups is computed by dividing the number of respondents by the total number of students for that year and multiplying by 100 to obtain the percentage for each reporting campus. The questions are stated as Part 1 and "Part 2: Race (choose only one) 1. American Indian Or Alaskan Native, 2. Asian Or Pacific Islander, 3. Black, Not of Hispanic Origin, 4. Hispanic, 5. White, Not of Hispanic Origin" (TEA, 2020b, p. 1). The total racial distribution per campus is reported in PEIMS in the district summary as part of the SnapShot (year) District Detail (TEA, 2019c).

Number of Students-School Size

The total number of students is reported in the TEA SnapShot (year) for each Texas high school in the Texas accountability rating system (TEA, 2019c). The number for each campus is found on the district summary and as part of the SnapShot (year) District Detail (line item #3). Furthermore, the variable total students excludes those served in a district for less than two hours a day. The number of students was defined by the membership as of the year-end 2009 for students attending high school grades. Membership differs from enrollment because it does not include those students who are served in the district for less than two hours per day. (Source: TSDS PEIMS, 40110) (TEA, 2018c).

Socioeconomic Status-Low SES

Eligibility for the free or reduced lunch program or the National School Lunch Program (NSLP) is used to define SES by the TEA. For the NSLP, students eligible for the program have household incomes falling below the federal government poverty guideline (TEA, 2014) and are considered economically disadvantaged. The TEA requires schools to report SES based on "The count and percentage of students eligible for free or reduced-price lunch or eligible for other public assistance" (TEA, 2019c, p. 1). The percentage is the number of students eligible for free or reduced-price lunch or students who qualify for other public assistance divided by the total number of students. The PEIMS data information is found in the Texas high schools SnapShot (year) District Summary.

Average Teacher Salary

Average teacher salary is reported for each district found in the Snapshot (year) district detail, located in the performance report for each school district (line item #53). The average teacher salary by school district is based on years of experience (regular duties only) and the sum of all teacher salaries divided by the total number of Full-Time Employees (FTE) (TEA, 2019c, 2020b).

Operationalization and Measurement of Variables for Research Question 2

The dependent and independent variables associated with research question 2 are operationally defined below. The independent variables were used in an OLS regression to predict the dependent variable, the percent change of minority teachers in each Texas public school between two school terms 10 years apart: the 2008–2009 year and the 2018–2019 or change score. The variables are referred to in this section using the short-abbreviated form in Table 6.

Percent Change Minority Teachers-Change Score

The change score is a measure of changes in teacher diversity (Zaheer et al., 1999). The change score for this study is computed from the difference in percent minority teachers using in two chosen points in time: the school year 2008–2009 and 2018–2019 as found in the TEA PEIMS archive. The percentage change computation is the percentage difference of minority teachers divided by the total minority teachers in 2008–2009.

Student's College Readiness per ACT/SAT Scores-Percentage College Ready

College readiness is determined by ACT and SAT scores. The information is found in the TEA Accountability Research reports; the SAT and ACT examinations are designed to measure students' college readiness and academic achievement as they prepare for postsecondary college and career opportunities (Croft & Beard, 2021; TEA, 2019F).

Percent of Minority Students

The variable percent minority students is defined as above for question one using the student self-reporting through the two-step question given above. In part 1, students identify as members of the Hispanic or Latino community or as non-Hispanic White, and in part 2 of the question, they specify a racial identity. The first part of the question includes a choice of identifying as Hispanic or Latino, White, or a broad category of "other," with the latter including Native American, Pacific Islander, and Asian American (TEA, 2019c; 2020b). The other category includes these several race groups as a single group due to the relatively small percentage of students with potential membership in these groups at the national and Texas school population levels. (U.S. Census Bureau, 1997). After membership in the White group is excluded, the remaining respondents constitute the number of students belonging to the listed racial minority groups.

The percentage of students in these minority groups is computed by dividing the number of these respondents by the total number of students for that year and multiplying by 100 to obtain the percentage for each reporting campus. The questions are stated as

Part 1 and “Part 2: Race (choose only one) 1. American Indian Or Alaskan Native, 2. Asian Or Pacific Islander, 3. Black, Not of Hispanic Origin, 4. Hispanic, 5. White, Not of Hispanic Origin” (TEA, 2020b, p. 1). The total racial distribution per campus is reported in PEIMS in the district summary as part of the SnapShot (year) District Detail (TEA, 2019c).

Number of Students or School Size

The variable, number of students, is reported in the TEA SnapShot (year) for each Texas high school in the Texas accountability rating system (TEA, 2019c). The number for each campus is found on the district summary and as part of the SnapShot (year) District Detail (line item #3). Furthermore, the total students exclude those served in a district less than two hours a day. (TEA, 2018c).

Socioeconomic Status-Low SES

The percentage of low-SES students is based on a school’s number of students on the free and reduced lunch programs. The percentage is the number of students eligible for free or reduced-price lunch or students who qualify for other public assistance divided by the total number of students. The PEIMS data information is found in the Texas high schools SnapShot (year) District Summary (TEA, 2014). The percentage of economically disadvantaged students is the number who are reported as eligible for free or reduced-price meals under the National School Lunch and Child Nutrition Program or other

public assistance. Students reported with any of these status codes may or may not be enrolled in a special program such as compensatory or special education (TEA, 2018c).

Average Teacher Salary

For this variable, the sum of all teachers' salaries is divided by the total FTE count of teachers. The salary is paid for regular duties only; supplemental payments for activities such as coaching, band and orchestra assignments, and club sponsorships are excluded (2008-2009 and 2018-2019) (TEA, 2018c).

Data Analysis

The data were analyzed using SPSS (Statistical Package for the Social Sciences). In addition to descriptive statistics, a table of Pearson's correlation statics were calculated to examine bivariate relationships. For research Question 1 a OLS model was used to determine the fit of the mode and the relative strength of each predictor variable. Similarly, for model #2 an OLS model using the change score for teacher diversity was used as the dependent variable.

Regression Diagnostics

SPSS was used to examine the variable inflation factors (VIF) to check for multicollinearity. Additionally, a Person's bivariate matrix was constructed to look for problematic strong relationships.

Reliability and Validity

The TEA database is one of the largest educational databases in the world. The use of the Public Education Information Management Systems (PEIMS) provides

information for research and reports by providing disaggregated data by student groups, demographics, and district information in the form of the Texas Academic Performance Report (TAPR), formerly known as the Academic Excellence Indicator System (AEIS) Report (2003 through 2012) (TEA, 2012), and the School Report Cards (SRC) since 1949 (TEA, 2018c). For this reason, these data appear to have face validity. That is, they logically seem to measure each variable appropriately. In addition, no evidence or reports are known that suggest these data are unreliable, but ultimately, they are of unknown reliability.

Summary

This chapter described the research methods used in the study and a detailed description of the data set, the instruments, data collection, and the data analysis process. The research questions were restated in this section with a detailed description of how each question was answered.

CHAPTER IV

Findings

The purpose of this research study was to determine the factors that predict the racial diversity of teachers in Texas high schools. The aims of the study were to examine what factors predict racial teacher diversity in Texas high schools and the factors that predict teacher demographics, i.e., the diversity of racial demographics of teachers in Texas high schools. The questions addressed in this study were:

1. What factors predict the racial diversity of faculty in Texas high schools?
2. What factors predict the change of racial teacher diversity in Texas high schools?

The method used in this study to address these questions was OLS regression. The dependent variable for the first question was the percent of minority teachers in each Texas public school for the school year 2008–2009 (Table 5). As defined in chapter 3, the independent and control variables used as predictors were the number of students enrolled in each school (school size), the percent of minority students, the percent of low SES students, student achievement or percentage college-ready as defined by ACT/SAT scores meeting College readiness standards and average teacher salary.

The dependent variable for the second question was the percentage change in teacher race between two school terms that are 10 years apart: the 2008–2009 school year and the 2018–2019 year. This dependent variable is defined by the term the change score (Table 6). The predictor variables in the regression model addressing the second question

are defined in chapter 3 and are those described above for question one: the percent of minority students, the percent of low SES students in 2008–2009, student achievement or college-ready per ACT/SAT score, school size or the number of students in each school, and average teacher salary.

Answering these questions is essential to understanding the teacher and student demographics trends related to key factors such as college readiness and other demographic variables. The researcher aimed to explore predictors of changes in teacher demographics as Texas is becoming a minority-majority population. The outcomes could have some practical importance for teacher hiring policies and the relationship between teacher diversity and student achievement. A study identifying factors that predict changes in racial teacher diversity in Texas high schools has not been performed using the methods used in this research. The remainder of this chapter contains the findings organized by research question and analysis methods; the analyses included review and comparison of descriptive statistics, correlation analysis, regression modeling, and a summary of results.

Research Question 1: What factors predict racial diversity of faculty in Texas high schools?

Descriptive Results: Question 1

The data for the study were collected from the entire population of Texas high schools are included in the data, i.e., 1775 data records were used (TEA, 2020c). The researcher accessed these data from the TEA's public database, specifically teacher information in the PEIMS database was accessed. Thus, the population under study

included all Texas public high schools, and in 2018–2019, the number of schools was 1775.

The mean number of students in Texas high schools was 841.6. The largest high school in Texas had 5,098 students, and the smallest high school enrollment was 1 student, which was an outlier (Table 7). Similarly, the percent of low SES ranged widely among Texas high schools; percent of low SES students could make up as much as 0 to 100% of the student body in a school, with the mean among schools at 59.6%. The mean percentage of minority students among schools is 66.6%. The mean percentage of college-ready students based on SAT/ACT scores is 33.3% (Table 7). The average teacher salary is nearly $53,000 per year.

Table 7

Descriptive Statistics

Variables	*n*	Min	Max	*M*	*SD*
School size	1775	1.0	5098.0	841.6	974.0
Percent low SES	1775	0	100.0	59.6	5.5
Percentage college ready	1388	0	100.0	33.3	22.3
Avg. teacher salary	1621	20778.0	101332.0	52944.7	6164.6
Percent minority teachers	1630	0	100.0	37.2	29.2
Percent minority students	1775	0	100.0	66.6	28.4

The mean percent of minority teachers (37.2%) is substantially lower than the percent of minority students in Texas (about 67%). This difference is consistent with the general national trend as well; however, the gap is wider nationally, with about 80% of teachers

across the United States in 2018 identified as White and about 20% of students identified as members of a racial minority groups (Taie & Goldring, 2020).

Correlations

The Pearson correlation coefficient was computed between each of the variables. Significance levels are not relevant to this analysis because the data represent an enumeration of the variables; that is, no sampling was done. The correlations with the dependent variable are discussed first. For example, the percent minority students strongly correlate with the dependent variable (percent minority teachers, r = .81, Table 8). The positive value of r is interpreted as the percent minority students increasing as the percent minority teachers increases. Alternatively, the percent low SES students correlate with the percent minority teachers (r = .60), but more weakly than the percent minority students (Table 8).

The percentage of college ready students appears to be negatively correlated with the percent of minority teachers (r = -.42; Table 8). Other independent variables yielded correlation coefficients below .50 and likely have weaker relationships with the dependent variable. For example, school size and average teacher salary are weakly correlated with the percent of minority teachers (.09 and .19, respectively). The percent of low SES students is the most strongly correlated independent variable with the dependent (r = .60).

Table 8

Pearson Correlation Coefficients

Variables	School size	Percent low SES	Percentage college ready	Avg. teacher salary	Percent minority. Teachers
School size	--	--	--	--	--
Percent low SES	-.19	--	--	--	--
Percentage college ready	.20	-.67	--	--	--
Avg. teacher salary	.40	-.06	.16	--	--
Percent minority teacher	.09	.60	-.42	.19	--
Percent minority students	.14	.58	-.40	.28	.81

The relationships among independent variables are essential for the analysis because relatively high correlations suggest the potential for a multicollinearity. Although correlation analysis is not definitive to detect multicollinearity, which can bias an OLS regression analysis, values of correlation coefficients that are relatively high should be examined further. For example, as might be expected, the percentage of college-ready students appears negatively associated with the percent of low SES students given a correlation coefficient greater than .50 (r = -.67, Table 8). Thus, as a part of the OLS analysis, the potential for multicollinearity between these variables is addressed.

Ordinary Least Squares Regression Analysis

The next step was to develop a model to determine if the independent variables of interest explained the percent minority teachers. The dependent variable was regressed against the independent variables described above. The model took the form using variable abbreviations from Table 8:

Percent minority teachers =a + b_1 percent minority students + b_2 school size + b_3 percent low SES + b_4 percentage college-ready + b_5 avg teacher salary (1)

A bivariate correlational analysis alone can suggest relationships between variables but is insufficient to show a causal relationship because spurious variables cannot be ruled out. Alternatively, OLS regression model the simultaneous impact of all independent variables and provides the unique effect of each in addition to the overall explanatory power of the model.

The adjusted R^2 for this model was .72, indicating that after adjustment for the number of predictors, the predictors jointly explained 72% of the variance in the dependent variable. The standardized *B* was the coefficient considered for the relative influence of each predictor on the dependent variable. Significance levels are not reported because the data under consideration represent an enumeration and not a sample.

The coefficients for the model suggested that the percent minority students is the variable with the strongest influence on the dependent variable; the standardized *b* is 0.80, and this was the most substantial potential influence found among the predictors. The school size *b* is negligible at -0.03; other variable coefficients were similarly low

with percent low SES, percentage college-ready, avg. teacher salary, and percent minority students at 0.06, -0.04, and -0.02, respectively.

Table 9

Multiple Linear Regression: Model Parameters

Variables	*b*	*t*	*p*	VIF
Constant		-2.82	.005	
School size	-0.03	-1.59	.112	1.54
Percent low SES	0.06	2.35	.019	3.58
Percentage college ready	-0.04	-2.02	.044	1.95
Avg. teacher salary	-0.02	-1.19	.233	1.53
Percent minority students	0.80	33.28	< .001	2.88

The Variable Inflation Factor (VIF) was also computed as a part of the initial plan for data analysis. The VIF is computed to assess the potential degree of multicollinearity among a group of predictor variables used in a multiple regression model. SPSS computes the VIF as the ratio of the variance for the overall regression model with the variance in a model that contains only a single predictor alone. The guidance used by many statisticians is that VIFs greater than five exhibit modest multicollinearity, and those with values greater than 10 indicate an unacceptable level of multicollinearity (Laerd Statistics, 2021). However, the values of VIF do not suggest multicollinearity of concern for this model; none of the VIF values are less than five, and none approach 10

(Table 9). This is important because multicollinearity of high value positive number up to ten show a high relationship between variables and a negative number of five would mean the relationship had an inverse relationship (Laerd Statistics, 2021). The modest relationship shown in the table (Table 9), shows there may be other factors that may influence the relationships between variables.

Research Question 2: What Factors Predict Change of Racial Teacher Diversity in Texas High Schools?

Descriptive Statistics: Research Question 2

Descriptive statistics were calculated to describe the independent and dependent variables during the 2008–2009 school year. In 2009 (Table 10), the number of high schools was similar to 2018 (Table 7). However, the range of school size values or the number of Texas students at year-end 2009 was smaller (Table 10) than 2018–2019; similarly, the mean for the school term 2008–2009 was lower than the year 2018–2019 (Table 7). The percentage of college-ready students in Texas increased from approximately 19% in 2008–2009 to 33% in 2018–2019. Texas teachers' salaries were about $45,000 per year; however, as seen under question one, the average salary had risen by 2018 but remained below the national average.

In 2008–2009 about 46% of all United States public school students were members of minority groups (U.S. Department of Education, 2020a), less than the percentage in Texas High Schools, which stood at about 57% (Table 10). The national percentage of teachers identified as members of racial minority groups was less than 14%

nationally during these years (U.S. Department of Education, 2016), but in Texas, the percentage was 27.3% (Table 10). As described above for question one, the diversity of teachers in the U.S. has been slowly increasing from 2008 through 2019 (Taie & Goldring, 2020; U.S. Department of Education, 2016).

Table 10

Descriptive Statistics 2008–2009

Variables	*n*	Min	Max	*M*	*SD*
School size	1721	1.00	4572.00	735.91	897.96
Percent low SES	1721	0.00	100.00	50.98	26.38
Percentage college ready	1211	-1.00	86.70	18.87	14.76
Avg. teacher salary	1548	24555.00	109569.00	45979.44	5410.63
Percent minority teachers	1557	0.00	100.00	27.32	28.610
Change score	1432	-100.00	100.00	10.55	39.78
Percent minority students	1721	0.00	100.00	57.05	31.16

Correlation Statistics

The results from the Pearson correlation analysis suggest several independent variables are correlated with the dependent variable, i.e., the change score or percentage change of minority teachers between the years 2008–2009 to 2018–2019 (Table 11). The percent of minority teachers has the strongest correlation with the percentage change in minority teachers or change score, r = -.68. The result indicates that as the percent minority teachers increased, the change score decreased; thus, the percentage change in

teacher diversity tended to be lower if the school had a higher percent teacher diversity in 2018–2019 than in 2008–2009. On the other hand, the percent of minority students is negatively correlated (r = -.50) with the change score for the benchmark years (Table 11). The result suggests that as the percent minority students increased, the change in the percent minority teachers decreased; thus, indicating that fewer minority teachers were leaving schools with higher percentages of minority students.

Conversely, the associated change score is higher in schools with lower percent minority students, and more minority status teachers may have left these school over the 10-year interval. The percentage of college-ready students has a moderately positive correlation (r = .31) with the change score, suggesting that a shift in teacher demographics toward a higher percentage of minority teachers is associated with college readiness. School size appears to be uncorrelated (-.04) with the teacher change score. The pattern of bivariate correlations between independent variables is similar to those found in 2018–2019 (Table 7), and the interpretations of these are consistent with the findings for question one.

Table 11

Pearson Correlation Coefficients

Variables	School size	Percent low SES	Percent college ready	Avg. teacher salary	Percent minority teachers	Percent minority students
School size	--	--	--	--	--	
Percent low SES	-.13	--	--	--	--	
Percent college-ready	.30	-.63	--	--	--	

Table 11 Continued

Variables	School size	Percent low SES	Percent college ready	Avg. teacher salary	Percent minority teachers	Percent minority students
Avg. teacher salary	.40	-.08	.16	--	--	
Percent minority teacher	.09	.60	-.43	.14	--	
Percent minority students	.13	.60	-.42	.25	.75	
Change score	-.04	-.40	.31	-.07	-.68	-.50

Ordinary Least Squares Regression Analysis

The rationale for the next step of analysis is similar to that for question one; the aim was to develop a model to determine if the independent variables contributed to explaining the percentage change of minority teachers, i.e., the change score. Therefore, the dependent variable, the minority teacher change score, was regressed against the predictor variables described above. The model took the form using variable abbreviations from Table 12:

Change Score = a + $b\text{i}_1$ percent minority students + $b\text{i}_2$ school size + $b\text{i}_3$ percent low SES + $b\text{i}_4$ percentage college ready + $b\text{i}_5$ avg teacher salary (2)

The model suggests several independent variables are related to the dependent variables (Table 11). For example, among the independent variables, the percent minority teachers have the strongest relationship with the change score (r = -.68), and the percent minority students is negatively related (r = -.50) with the change score (Table 11). These two variables have a relationship with teacher change score, and thus, are predictors of

changes in teacher diversity. However, all the independent variables were included in the modeling analysis because they were obvious choices as typical controls found by other researchers, such as Gray, (2019), Hansen and Quintero, (2018) and Kirby, Naftel and Berends (1999b) and were included in the modeling regardless of the correlation results. These issues are discussed further in Chapter 5.

The adjusted R^2 for this model was .28, indicating that after adjustment for the number of predictors, the predictors jointly explained 28% of the variance in the dependent variable. This value suggests a relatively weak fit of the model to the data. The standardized *B* coefficients were used to test the relative influence of each predictor on the dependent variable.

The coefficient for the percent minority students is the variable with the potentially largest influence on the dependent variable; the standardized *b* is -0.43 (Table 12). The inverse relationship suggests that in schools where the percent of minority students increased, the percentage change in teacher diversity or change score decreased between 2008 and 2019. The remaining predictors had a weak or no influence on the dependent variable based on the coefficient magnitudes. School size appears as a weak predictor for teacher change score but had no effect in the model described for question one concerning predictors of teacher diversity.

Table 12

Multiple Linear Regression: Model Parameters

Variables	*b**	*t*	*p*	VIF
Constant		2.29	.022	
School size	0.12	3.33	.001	1.85
Table 12 Continued				
Percent low SES	0.04	1.29	.197	1.70
Percentage college ready	-0.06	-1.27	.205	3.23
Avg. teacher salary	-0.05	-1.50	.133	1.71
Percent minority students	-0.43	-9.01	< .001	3.44

As discussed for question one, the VIF is computed to assess the potential degree of multicollinearity among a group of predictor variables used in a multiple regression model. The values of VIF were less than five and did not suggest multicollinearity of concern for this model (Table 12).

Summary

Two regression models were tested that correspond to each of the two research questions. The first questions concern the factors that predict the racial diversity of faculty in Texas high schools and the second question is related to factors that predict the change in the racial diversity of teachers in Texas high schools. The regression modeling aimed to address independent variables that predict the racial diversity of teachers yielded results suggesting a relationship between the independent variables and dependent

variables. The adjusted R^2 value for this model suggests a reasonable fit, and the standardized beta coefficient for the percent minority students suggests that this independent variable might predict the percent minority teachers. The percent of low SES and percentage of college-ready students also appeared to contribute some predictive power to the model with the dependent variable concerning the racial diversity of faculty, but less so than the percent of minority students.

In contrast, the model containing the dependent variable concerning the change in the diversity of Texas teachers, i.e., provided weak explanatory power (R^2 .28). However, the model did suggest that the percent of minority students was by far the most important predictor change in the racial diversity of teachers.

CHAPTER V.

Conclusion

Summary, Conclusion, Implications, and Recommendations

Introduction

The United States is experiencing a population-level racial demographic shift; the change is mainly due to the growing Hispanic and immigrant populations, paralleled by shifting student demographics in public schools (Lopez, et al., 2020). As a result, the teacher population has become more diverse, as shown in Table 2 (U.S. Department of Education, 2017), but White teachers are still the majority Nationally and in Texas (Rhodes, 2020). Before this trend had reached full scale, the TEA (1994) assessed that in Texas, White teachers are over-represented and that low numbers of minority teachers would likely continue to enter the system despite the increasing numbers of minority students. Therefore, TEA (1994) linked teacher diversity with quality characteristics of Texas public schools when rating the schools and emphasized that teacher demographics should be as diverse as the community and students. Thus, linking teacher diversity to school quality was intended to support diversity that reflects the student population and provides quality education. Ingersoll (2019) suggested that lack of teacher diversity could have detrimental consequences for students' academic achievement because minority students of the same race tend to achieve at higher levels. Therefore, in Texas, a goal was

set to increase the quality of schools and education by increasing the numbers of minority teachers to be congruent with the student population (Texas Education Agency, 1994).

Summary of the Study Findings

The problem for this study is that student populations are increasingly diverse in race both nationally (Taie & Goldring, 2020; U.S. Department of Education, 2016) and in Texas, while the teacher population remains primarily White (U.S. Department of Education, 2016). The purpose of this quantitative statistical methods research was to determine what relationships, if any, exists between teacher race and identified variables found in Texas public high schools, that may predict the racial diversity in all the Texas public high schools. The researcher examined the variables that may contribute to racial diversity and may help to predict changes in racial diversity, utilizing a comparison of change between the school year 2008-2009 and 2018-2019. Finally, the researcher identified specific relationships that highly predict where minority teachers are choosing to teach.

Based on the problem and purpose, research questions guiding this research were:

1. What factors predict the racial diversity of faculty in Texas high schools?

2. What factors predict change in racial diversity of faculty in Texas high schools?

Existing school data from TEA in 2008-2009 and 2018-2019 (TEA, 2020) were used in a quantitative study design to evaluate the research questions. Correlation analysis and OLS regression were used to analyze relationships between variables (Field, 2018). The OLS regression model is also used to test whether the independent variables (percent minority teachers, percent minority students, percent low SES, school size, percentage

college-ready students, average teacher salary) predicted dependent variables for each research question. These dependent variables are the percent of minority teachers in each school and the percentage change of minority teachers in each school (change score) for questions one and two, respectively. Thus, these control variables are chosen as they are agreed-upon indicators of teacher attrition and retention, according to Boger and Orefield (2005) and Lac (2019).

For question one, the population was all 2,813 public high schools in Texas for the 2018-2019 school year. The population for question two included the high schools in Texas in the years 2008-2009 and 2018-2019. These data were entered into SPSS for OLS regression analysis which was used in both questions.

Summary and Discussion of Research Question Findings

The first research question was, "What factors predict racial diversity of faculty in Texas high schools?" The question was aimed to examine the relationship between teacher race and the following variables: school size (number of students), percent low SES students, percentage college ready students, average teacher salary, and percent minority students (Table 8). The Pearson correlational coefficients and OLS regression statistics were computed using SPSS, and the analysis was completed to determine if the independent variables contributed to the percent of minority teachers in Texas public high schools.

Among the Pearson correlation coefficients, the highest correlation found was between percent minority teachers and percent of minority students (.81, Table 8). The

result meets expectations as minority teachers most often teach in schools with relatively high population of minority students (Achinstein et al., 2010; Hanselman, 2019; Hansen & Quintero, 2018), and that minority teachers tend to choose schools that reflect their racial identity (Hansen & Quintero, 2018; Herberger et al., 2020; Payet & Deshayes, 2019; Redding, 2019; Sullivan et al., 2017). Similarly, minority teachers are more likely to teach in Title I schools, and these students are more likely to come from low SES households (Achinstein et al., 2010). Thus, the result from the study is consistent: the percent of low SES students in Texas is likely correlated with the percent minority students (.60, Table 8; Curran et al., 2019).

The average teacher salary and percent minority teachers had little apparent relationship per the Pearson correlation (.19, Table 8). In the results of this study, the percent minority teachers indicates a strong relationship with percent minority students, and results also, indicate that a higher fraction of minority students in schools is associated with lower teacher salaries (U.S. Department of Education, 2019a, p. v); thus, this result concerning teacher salaries in Texas could be expected (Glenn, 2019). Many of these schools offering lower salaries are Title I schools, which tend to have fewer college-ready students and more low SES students in Texas (Glenn, 2019).

The correlations of the independent variables with percent minority teachers are primarily consistent with findings in the literature; the percentage of college-ready students was negatively correlated with percent minority teachers (-.42, Table 8) and percent minority students (-.40, Table 8). The potential finding appears consistent with

other results; the percentages of college-ready minority students are generally lower than White students regardless of the presence of minority teachers (Curran et al., 2019). This study's result suggested the teacher minority population's stability in schools can be found in schools with higher percentages of minority students. However, the potential finding appears counter to results showing that teachers generally choose to work in schools with higher percentages of college-ready students (Curran et al., 2019).

Although college-readiness in Texas remains a characteristic that falls along racial lines, with a more considerable fraction of White students appearing college-ready, college-readiness of minority students in Texas has increased slightly between 2008-2009 and 2018-2019 (5%, Table 10). Additionally, other factors such as the percent of low SES students and Title I status of a school likely influence student college readiness; thus, the implications of these results are complex and discussed further below. The populations of minority teachers and college-ready students have been growing in Texas while the percent of minority students also grows (Damico eta al, 2017; Ingersoll et al, 2018); the implication is that Texas can expect improvements in the college-readiness of minority students, but it is not clear that can become a reality without continuing policies like racial integration though redistricting supported by U.S. Supreme Court Milliken vs. Bradley (1974) and Texas' TEA 1984 policy of school teacher integration (TEA, 1984) to support it (Verma & Apple, 2020). There was little apparent relationship between the school size and percent minority teachers, suggesting no implications from the potential result. Overall, these independent variables have been associated with teacher attrition

(Boger & Orefield, 2005; Lac, 2019) and were all expected to have a relationship with the dependent variable but not all.

Based on the discussion above and the expected relationships between the independent variables and the dependent variable, it could be expected that these independent variables are similarly related. For example, the percent minority students and low SES status appeared to have an association (Table 8), as did teacher salaries and percent minority students (Table 8). This result is not unexpected as low SES is associated with income segregation and funding for schools and teacher salaries (Curran et al., 2019; Owens et al., 2016), affecting student achievement (e.g., college readiness) (Owens, 2017). The implications of these potential relationships and those with the dependent variable are discussed in the implications section.

The OLS regression analysis revealed results consistent with the correlations. The adjusted R^2 for this model was .72, which suggested that the predictors explain 72% of the variance in percent minority teachers. The percent minority students appeared to be the strongest predictor of percent minority teachers (0.80 coefficient, Table 9). The variable standardize beta coefficients were less than .1, suggesting that these remaining variables, school size, percent low SES, percentage college-ready, avg. teacher salary, and percent minority students, had little predictive power for the diversity of teachers in a school.

The second research was, “What Factors Predict Change of Racial Teacher Diversity in Texas High Schools?” The relationship between percent minority teacher

and the, the percentage change in minority teachers, or change score (r = -.68, Table 11). Thus, the negative relationship suggested that as the percent minority teachers increased, the change score decreased. The relationship of the percent minority teachers to the change score can be interpreted as the change in teacher diversity tended to be lower if the school had a higher percent teacher diversity in 2008–2008 than in 2018–2019. In contrast, the percent of minority students is negatively related (r = -.50, Table 11) with the change score computed between these two school years that were a decade apart. The potentially inverse relationship between these variables suggests that the larger percent minority students, the smaller the change in the percent minority teachers. The result is consistent with minority teachers tending to choose schools that have higher minority student populations (Hansen & Quintero, 2018; Herberger et al., 2020; Sullivan et al., 2017); because the mean change score is positive (Table 10), the suggestion is that they tend to stay with these schools. The result has implications for the loss of minority teachers from lower percentage minority student schools; i.e., teachers were likely entering or remaining in schools with higher percentages of minority students in Texas. These implications for teacher choice of schools and retention are discussed further in the section below.

The OLS regression for question two aimed to determine if the independent variables predicted the change score for the percent minority teachers between the years 2008-2009 and 2018-2019. The regression model with the dependent variable representing a change in teacher diversity appeared to have a poor fit; the predictors

jointly explained 28% of the variance in the percent change in minority teachers. Thus, these variables likely do not predict the change score or percent change in minority teachers. Among the predictors, only percent of minority students appeared to have some relationship with the dependent variable, with a standard beta coefficient of -0.43 (Table 12). The interpretation of the relationship between percent minority students and the dependent variable might provide similar implications as the coefficient from the OLS regression, and these are discussed in the next section.

Conclusion

This research challenges the diversity in Texas public high schools and what it means to be a diverse campus in relation to teacher race. Although the study finds that both nationally and in the state of Texas students are being educated by predominantly White educators (U. S. Department of Education, 2016); the number of educators as a group is decreasing (Ingersoll et al., 2019). The population of Whites is also decreasing both nationally and in the state of Texas. The greatest shift in population is the increase in the Hispanic population both nationally and in Texas (U. S. Department of Education, 2016; Chen, 2019a), yet there are few minority teachers in the classroom and many who are leaving. The lack of practicing teachers and the exodus of minority teachers leave very few teachers and even fewer minority teachers to populate the many high school campuses both nationally and in Texas (Loasa, 2005). In 1994 TEA set forth a Policy in the *Policy Report: Texas teacher diversity and recruitment* that mandated diversity in teachers but did not say how this could be accomplished. Further, this 1994 TEA *Policy*

Report: Texas teacher diversity and recruitment, sited the lack of diversity in the teacher populations as detrimental to student learning (TEA, 1994).

The problem seems two-fold, the lack of minority teachers and where minority teachers choose to work. According to the literature review and this study, minority teachers go to schools that are predominantly populated by minority students due to barriers (Loasa, 2005). The barriers (socioeconomic barriers, segregation barriers and location barriers) obstruct access to quality education (Hanselman & Fiel, 2017). These barriers create high minority schools, are also where many minority teachers attend and graduate (Young et al., 2019). The findings in both literature review and this study also, exposed a relationship between Title 1 schools, which are associated with low socio economics, low college readiness scores (based on passing score for ACT and SAT), and increased population of both minority students and minority teachers (Table 8; Mankin et al., 2018; Reininger, 2012). The problem presented in the low minority teacher population is that the Title 1 schools are not graduating students that are able to successfully attend teacher preparatory colleges and universities. These issues reduce the number of available minority teachers. The study shows that before Texas public high schools can meet the 1994 TEA *Policy Report: Texas teacher diversity and recruitment*, there needs to be a change in the availability of minority teachers to employ. More research about lack of minority teachers and policy revisions are needed before penalizing Texas high schools for their lack of diversity.

According to this study and the literature review, minority teachers choose to work in school districts that reflect their own cultural background and race (Table 11; Achinstein et al., 2010; Sondel et al., 2019; Dilworth, 2018). The theory of in-group favoritism suggests individuals choose affiliation based on like(ness), norms and emotions (Scheepers & Ellemers, 2019). The theory of in-group favoritism according to Garcia et al. (2017) and Boger and Orfield (2005), may be unconsciously the reason why many minority teachers are found in high minority student population Texas public high schools. Although, many minority teachers point to being motivated to teaching in Title 1 schools as a way to give back or reinvest in minority students (Heer, 2015), this thought process reduces minority teacher availability and instead increases minority teachers educating in high minority populated schools. This again, is a problem for many Texas public high schools as many minority teachers do not work in small Title 1 schools (Achinstein et al., 2010; Reininger, 2012; Lac, 2019), or majority white schools Ingersoll et al, 2018), adding to the non-diversity issue.

The lack of available minority teachers is a major factor inhibiting many schools, both Title 1 and non-Title 1 schools, from reaching TEA's required diversity requirements. As many schools do not have control over the available teacher population, and lack the control to change district lines, this leaves many of Texas public high schools unable to meet TEA's 1994 diversity policy. As the research shows, the solution may not be palatable at this time, but the dissolved 1971 Supreme Court ruling Swann V. Charlotte-Mecklenburg Board of Education, in which busing effectively integrated many

schools shows that diversity barriers can be overcome. The General Education Provision Act of 1974 effectively stopped the busing of students, causing a slow slide back into segregated schools due to both geographical and economic barriers (Loasa, 2005). In the future, the possibility of busing may not apply to just students. It may also be used to raise the number of minority teachers each Texas public high school may employ in order to meet TEA's polices. As this study shows, the movement of teachers is difficult to show, but where teachers choose to teach is highly related to race and economics. Changes to policy may need to be made in the future to meet diversity requirements for public high schools, the consequences for future students and teachers may be overwhelming, but having diversity in schools is a step in a positive direction to access quality education.

Implications

Texas public schools are more diverse than many high minority states e.g., California, Florida, New York (Campbell, 2017). Texas is outpacing the national trends, but White teachers remain in the majority in Texas (Rhodes, 2020). Although Texas public schools are doing marginally better than the national average in regard to the percentage of minority teachers in schools, there is a gap between student and teacher racial demographic composition in Texas and nationally. As Ingersoll et al. (2019) discussed, the decades of research shows the value of minority teachers instructing minority students. They summarized their findings by explaining that a lack of diversity among teachers could be harmful to the achievement of students" (p. 30). Thus, an

implication of Texas's current school demographics is that improving education includes increasing and retaining minority teachers consistently throughout the state. School leaders struggle to comply with TEA's early diversity policy (1994) in an era of teacher shortages and slow growth of minority teachers in the state. This means that secondary teacher preparation programs should increase new teachers' cultural responsiveness to the students of other racial backgrounds (Sleeter, 2017) and to invest in educating and mentoring minority teachers that enter their programs so that they can graduate and stay in the teaching profession (Donohoo et al., 2020).

Researchers have identified at least three determinants for teachers choosing schools and settings where they are employed (Bacolod, 2017; Kirby et al., 1999b; Nations et al., 2020). Significant to this study, a primary factor is the school's racial and socioeconomic composition. Also, teachers tend to prefer schools offering support by school personnel and resource allocations for teaching. This study is similar to pay-for-performance studies, in which, teachers tend to choose a situation where they are monetarily rewarded (Albright et al., 2017; Bacolod, 2007). These factors and others are discussed as having the potential for changing Texas teachers' employment distribution and retention across the state.

As found in the literature (Kirby et al., 1999b; D'amico, 2017, TEA, 2019e) and this study, the percentage of minority teachers appears to be highly correlated to the percent of minority students in schools (Table 8). This study looks at teacher diversity at two different points in time. The results implied some possible relationships between the

percent change in minority teachers and teachers' retention concerning where minority teachers are choosing to educate and type of school minority teachers are choosing to stay in. The results suggested that schools with a larger percentage of minority students likely have smaller changes in the percentage of minority teachers from 2008-2009 to 2018-2019. That is, the stability in teacher turnover is higher when a large minority teacher population staffs a high minority population school. The result is consistent with minority teachers choosing schools with higher minority student populations (Hansen & Quintero, 2018; Herberger et al., 2020; Sullivan et al., 2017). The possible result from the study is consistent with in-group theory prediction of employment movement based on race (Chen, 2019a; Krogstad & Fry, 2014), and with one of the known motivators for teacher choice of employment (Bacolod, 2017; Kirby et al., 1999b; Nations et al., 2020).

Although the percentage of minority teachers in Texas is above the national levels and has increased over the decade examined in this study, it is not clear that the growth of minority teachers is keeping pace in Texas well enough to meet the growth in minority students. This result implies that even small losses of minority teachers from the system could likely prevent balancing minority student-teacher ratios and providing the best quality education possible. The trends found in the literature review showed that teachers identifying as a minority race are most likely found in public schools where their race matches their own (NCES, 2020a). The results here point to the possibility that minority teachers tend to choose and stay with higher minority population schools in Texas. This finding is consistent with the pattern found in the literature review, which highlighted that

minority teachers tend to teach in schools that reflect their in-group attributes (Hansen & Quintero, 2018; Herberger et al., 2020; Sullivan et al., 2017;). The theory predicts that individuals classify themselves according to a "like" category (Scheepers & Ellemers, 2019). The association of minority teachers with minority students indicates that in-grouping can affect teacher attrition and employment choices, according to Hanushek and Rivkin (2010). If the theory of in-group favoritism is a predictor in Texas, the distribution of minority teachers could remain imbalanced across the state if teachers tend to enter and remain in schools with the more significant minority students. Texas is undergoing a population shift with minority students increasing in numbers. As predicted by the theory, as populations shift (Chen, 2019a; Krogstad & Fry, 2014) like members gravitate to schools that have groups teachers and students identify with (Hanselman, 2019; Payet & Deshayes, 2019; Redding, 2019).

The results of this study suggest the reasons a teacher might choose to leave a school, present challenges for districts in Texas, which must balance the student-teacher ratio to produce the best quality education and in doing so meet the needs of their growing minority student population. Achinstein et al. (2010) found that a disproportionate number of minority teachers work in Title I schools with diverse minority student populations. The results of this study also showed that the percentage of Texas public high school minority teachers was correlated with low college readiness for students and low SES students. As discussed above, the percentage of college-ready students in a school is one of the top motivators of teachers' attraction to a school (Curran

et al., 2019). However, minority teachers appear to stay with schools that have lower achievement records, and lower percentages of college-ready students.

The research (Hanselman, 2019; Whitehurst, 2017; Hanushek & Rivkin, 2010) and in-group theory suggest that Texas minority teachers will remain with high student minority population schools, which could slow the spread of diversity across schools. This issue is discussed further regarding the policy for Texas schools. The relationship between minority teachers and minority students in Texas indicates that in-grouping is occurring, which can affect teacher attrition and employment choices (Hanushek and Rivkin, 2010). If the theory of in-grouping is a predictor for Texas, the distribution of minority teachers could remain imbalanced across the state if teachers tend to enter and remain in schools where minority students are the same race as the teachers. Texas is experiencing an ongoing population shift with an increase of minority students. As predicted by the theory, as populations shift (Chen, 2019a; Krogstad & Fry, 2014) like members gravitate to schools that have groups, teachers and students with whom they can identify (Hanselman, 2019; Payet & Deshayes, 2019; Redding, 2019).

Recommendations for Future Research

This study examined the relationships between teacher race (percent minority teachers and percent change in minority teachers) and several independent variables (percent minority teachers, percent minority students, school size, percent low SES, percentage college-ready, and average teacher salary). As discussed in the summary and implications sections, questions remain about the implications for changes in teachers'

diversity in Texas and how these variables might influence where and how long teachers of different racial groups are employed in Texas public high schools. The recommendations for further study are oriented toward learning why and where teachers choose to work and what affects their retention in a particular school. One of the recommendations for future study is to create an interview protocol and questions and a questionnaire/survey aimed at minority and majority group teachers as well as White teachers. The primary aim of the instruments is to explore and learn more about why they choose, stay, or leave the teaching profession. The primary aim of this instrument would be to focus on teachers who leave schools and specific districts to find out their specific issues for leaving. Findings of this study and future research may support policy changes and aims based on the needs of Texas teachers. The results could help to shape policy for teacher retention of all races of teachers.

Apart from developing a new instrument for further study, work from the current study can be followed up. For example, the aims of the current study could be re-visited using the data in this study and adding data from years between 2008 to 2019 to examine the results in a longitudinal framework. However, to make the findings more relevant in the follow-up suggested the studies create and use an appropriate instrument that can be applied to the problem of closing the gap for minority teacher-student ratio, better understanding the reasons for teacher retention and attrition are needed. Due to the differences in the current Texas context, questions related to the retention and attrition of all teachers are relevant. Nations et al. (2020) has theorized that teachers consider the

contextual influences in the classroom and the teaching environment as crucial for teaching and learning. These environmental concerns are influenced by the school, district, state, and primary classroom. Using a mixed-methods approach would facilitate obtaining individual teachers' perspectives and those of a larger sample of teachers via a survey. Some questions of interest might be, "Why are teachers leaving the field of teaching, and what would they recommend school leaders do to increase retention?"

A similar mixed methods study could be performed to question students entering teacher preparatory programs (college, universities, and alternative certification) as to why they choose teaching as a career. If followed up longitudinally, these students could be followed through the various career stages and choices that lead to graduation, and endurance of their careers, and what kinds of schools they work at. Again, issues related to student-teacher racial backgrounds would be the emphasis.

Another distinct issue to address in the future is how secondary teacher preparation programs could increase new teachers' cultural responsiveness to students of other racial backgrounds (Sleeter, 2017). This process could include investing in educating and mentoring minority teachers who enter their programs to graduate and stay in the teaching profession (Donohoo et al., 2020). An approach such as this requires an applied research approach where researchers partner with university educators in teacher education departments to determine the approaches needed and gain input from practicing teachers and new student trainees. In addition to educating new teacher graduates, experienced teacher-educators must remember they have responsibility for

shaping and supporting the school's teacher population. For example, teacher-educators might be given opportunities to attend informational seminars as part of continuing education to understand better the needs of school districts across the state that have different needs and are trying to meet the diversity policies. Particularly, those located in majority White communities could contribute to new ideas and become informed of the concerns of minority teachers and schools at all levels.

Recommendations Beyond Research for Social Policy

A positive shift for Texas high schools could be based on the identified factors and theoretical predictions concerning teachers' mobility. An optimistic scenario for this includes a shift in policies that focused first on student achievement. For example, as more minority teachers find employment in the low minority schools, student achievement may follow. According to this study, the college-readiness of minority students in Texas has increased slightly between 2008-2009 and 2018-2019. Even if the improvement continues as incremental and small, as college-readiness scores increase for these schools, teachers may find them more attractive (Meloche et al., 2020). The possibility of this positive change in minority teachers into low minority schools, according to Payet and Deshayes (2019), allows for minority teachers to work as de facto multiculturalists and advocates for minority students. These roles for teachers bring equity and change in academics (Dilworth, 2018), creating minority role models for minority students (Villegas et al., 2012). More minority teachers can translate into more minority students entering teaching and increasing in numbers across schools such that

student-teacher ratios to support minority students reach levels to support higher quality education. Moreover, according to Curran et al. (2019) and Ingersoll et al. (2019), uplifting achievement makes schools more attractive to all teachers and could increase competition for teachers in Texas. Increasing competition may mean higher salaries and more reinforcement for teacher retention in high-achieving districts. However, improving student achievement is an enormous challenge for educators and all stakeholders. Therefore, changes are needed to turn these various factors in a direction that supports teacher movement and choices toward enhancing diversity and against the likelihood of in-group motives that prevents dispersion of White and minority teachers across schools.

Although Gitomer and Bell (2016) argued that teacher diversification is a priority, schools are becoming re-segregated and stratified by race and along socioeconomic lines (Chin et al., 2020; Boger & Orfied, 2005). Moreover, though minority students can benefit from having same-race teachers this is counter to broad-based desegregation approaches, such as busing (Browne-Marshall, 2019). Also, other counter diversification studies, by researchers Achinstein et al. (2010) and Nasir et al. (2012), seeing a person that looks like you in a position of authority leads to identifying with an empowered group.

Evaluating a broad policy of teacher diversification is complex due to the many factors that can affect teachers' motivation and choice of schools. These include in-group motivation, students' SES status, college-readiness status, school size, teacher salary, support systems, and percentages of minority students in schools. Texas public high

schools and the state itself have very little influence over these factors in the short to intermediate-term because they are based on the geographic location of that school within communities, and schools do not have influence over the racial diversity of their communities (Owens et al., 2016; Owens 2017). The basis of school funding is local property taxes, and a low tax base perpetuates the effects of lower SES status on the quality of education in a locality (Glenn, 2019). School choice and open enrollment policies using various vouchers, taxes, and private payments, have caused an uncoupling of students from the district of residence (Chen & Moskop, 2020); thus, students can migrate and change the racial make-up of local public schools. Achinstein et al. (2010) showed that many minority teachers were motivated by a commitment to socially just education for students in at-risk schools. Teachers of color in these schools are most willing to work in low-resourced schools with diverse student populations than are White teachers (Achinstein et al., 2010; Goldhaber et al., 2017).

The schools and districts do have some influence on hiring and retaining current school teachers, regardless of race. Thus, a major policy change would be to increase pay support and provide school curriculum support so that teachers choose to work in Title I schools. In the current study, the increase in college-ready students was modest from 2008-2009 to 2018-2019. As a result, few minority students are college-ready, and fewer new minority teachers can enter the system (Flores et al., 2017; Jeffrey, 2020).

According to past research, teachers may be less likely to leave if support is available (Redding & Henry, 2019), and importantly they may be more willing to choose

Title 1 schools (Bacolod, 2007; Kirby et al., 1999b; Nations et al., 2020). Although the Title 1 program provides schools with financial support through the federal government, this does not directly impact individual teachers, unless it is part of loan forgiveness program. Increasing salaries could help to retain teachers in Texas.

School leaders face many challenges related to the lack of teacher diversity as intensified by societal forces such as racial and cultural differences in communities (Mankin et al., 2018; Verma & Apple, 2020). Texas public high schools could meet the requirements for both the mandates of TEA requesting diversity and the changes in student population in a more expedient, systematic, and equitable manner (Achinstein et al., 2017; Sahadewo, 2019) by employing a more diverse teacher workforce (U.S. Department of Education, 2017; Ramsay 2014; U.S. Department of Education 2019b). However, Sullivan et al. (2017) and Ingersoll et al. (2019) suggested that the national-level teacher shortages are related to the higher percentage of teachers from minority groups leaving the profession than their White counterparts. The problem is not as prominent in Texas, but the issue reinforces that it is not just that teachers of all demographic groups remain in their school of choice but that minority teachers are not remaining at all sometimes. Overall, attrition reduces the number of teachers in the public education system and increases the number of students per teacher. While an incremental decrease in the number of White teachers has risen, who are diverse racially, these changes are insignificant compared to the growth of students entering the public schools (Ingersoll et al., 2019; NCES, 2020a). Moreover, the lack of college-ready minority

students could widen the deficit in minority teachers available for employment in public schools (Flores et al., 2017; Jeffrey, 2020).

Nationally, the reduction in teachers has exacerbated the teacher-to-student ratio and the teacher-to-student ratio is also impact by the increase in foreign-born students (Colby & Orman, 2015; de Brey et al., 2019; Chen, 2019a). The results from this study in Texas provide overall information on a persisting problem although Texas is among those states with more favorable ratios of minority student to teacher ratios; however, if fewer teachers are retained in the near term, the diversity of the teacher population will likely not keep pace with the minority students entering the public school (NCES, 2020a).

The movement toward teacher diversity in Texas is entwined with TEA's policies and accountability reports (TEA, 1994, 2019a). Teacher diversity for Texas is connected to TEA's policies and accountability reports which are part of school quality characteristics (TEA, 1994, 2019a). Whether the policies have supported growth in the percentage of minority teachers in Texas is unclear, but the Texas percentage of minority teachers does differ from the national average.

Part of the problem for policymakers in Texas is to achieve greater parity for minority teacher-student ratios despite the growth of foreign-born students outpacing the number of new graduates' teachers and available practicing teachers (Fergus, 2017; Reininger, 2012). Findings showed that many minority teachers choose to teach in schools whose population reflects their race. Moreover, they often teach close to where they graduated from high school, possible reinforcing existing segregation (Loasa, 2005;

Reininger, 2012), based on affinity groups or in-grouping. Policy changes should consider the need to address how minority teachers can have more opportunities in other than at-risk schools (Browne-Marshall, 2019; Kirby et al., 1999b: TEA, 2018b).

The reduction in teachers has exacerbated the teacher-to-student ratio. As few teachers stay in practice and fewer people go to the teaching profession, the diversity of the teacher population cannot keep up with the increasing number of students interning (NCES, 2020a). This is further an issue nationally as students in the classroom are increasingly minority and foreign-born (Chen, 2019a; Colby & Ortman, 2015), while the population of White people is projected to decrease by 20% (Colby & Orman, 2015; de Brey et al., 2019).

Concluding Remarks

The significant finding of this research is that teacher racial diversity appears positively correlated with higher percentages of minority students in Texas public high schools. This result is consistent with the in-grouping theory and supports teachers choosing to teach students who identify with their racial group. The second finding is that the percentage of minority teachers increased between 2008-2009 to 2018-2019; thus, the percentage change or change score was positive. This suggests the number of teachers in Texas high schools is remaining similar or increasing within minority-majority schools. Additionally, the potentially inverse relationship between the percent of minority students and the percentage change in minority teachers suggests that the larger percentage of minority students, the smaller the change in the percentage of minority teachers.

However, this finding suggests minority teachers tend to choose schools that have higher minority student populations and is consistent with findings from the literature and within-group theory (Hansen & Quintero, 2018; Herberger et al., 2020; Sullivan et al., 2017).

Based on national level statistics and those found in this study, it can be concluded that Texas public schools are doing better than the national average for percentages of minority teachers in public schools by about 20%. Although Texas is among those states improving the teacher representation of the student population, more improvement is needed to retain and recruit teachers to reflect the emerging majority-minority state population.

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