

Teacher Production at 4-Year Institutions: Differences Over Time in Students Taking the State Teacher Exam

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Abstract

The extent to which changes had occurred in the percentages of Black, White, and Hispanic students taking the Texas Examinations of Educator Standards from 4-year higher education institutions between the 2006 and the 2011 academic years in Texas was examined. Statistically significant results were revealed for Hispanic test takers (i.e., increased from 31% to 34%) and for White test takers (i.e., decreased from 62% to 58%). Statistically significant results were not present for Black test takers (i.e., 15% in 2006 to 16% in 2011). Minimal changes in diversity are occurring in the percentages of individuals taking the teacher test in Texas, despite substantial changes in student diversity. Implications of these findings and suggestions for further research are discussed.

Keywords: TExES, Black, Hispanic, White, ethnic diversity, 4-year institutions, Texas

The United States was established from a variety of cultures, languages, and beliefs. According to Boser (2011), students of color (i.e., not classified as non-Hispanic Whites) will constitute more than one half of the United States elementary and secondary nation's public school students. This demographic trend continues to show throughout the United States, for the United States has a large amount of public school students (i.e., 40%) who are students of color. In contrast, teachers of color (i.e., not non-Hispanic White) constitute only 17% of the teaching force (Boser, 2011).

Of interest to this investigation is that Texas is one of the states most affected by the change of the ethnic makeup of the student body.

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In Texas, students of color (i.e., Black and Hispanic) represent more than 60% of the students enrolled in the public schools (Texas Education Agency [TEA], 2012), whereas, teachers of color (i.e., Black and Hispanic) comprise approximately 33% of public school teachers in the state (TEA, 2013).

Teacher shortages exist across the United States (Boser, 2011; Ingersoll, 2001, 2003; Howard, 2003). Teacher attrition, rising birth rates, immigration, and teacher retirement are fueling the need for new teachers, and issues of quantity, quality, and equity increase discussions about the teacher pool (Zumwalt & Craig, 2005). To date, teaching is still an overwhelmingly White female career (i.e., 84% White females in the United States), but changes have occurred with more people of color entering the field of teaching (Feistritzer, 2011). However, policymakers continue to be concerned about the relatively low percentages of teachers of color working in the nation's schools (Boser, 2011). According to Villegas and Lucas (2005), two main arguments exist in terms of diversifying the teacher workforce: (a) students of ethnic minority need teachers similar to themselves as role models; and (b) teachers of an ethnic minority have an inherent awareness and understanding of the cultural backgrounds and experiences of students of various ethnic minorities.

Statement of the Problem

Changes in demographics affect education (Kirby, Berends, & Naftel, 1999). The diversity gap between teachers and the students they teach is expanding (McNulty & Brown, 2009). Because of the changes in student ethnicity, the need exists for more ethnic diversity in teachers for the teaching population to reflect the student populations in education (Ingersoll & May, 2011; Villegas, Strom, & Lucas, 2012). Villegas et al. (2012) identified minority teacher recruitment policies and programs created over the past 20 years. These researchers explored trends in the representation of minority teachers to determine the extent, if any; the ethnic gap between students and their teachers had reduced. They determined that 31 states had adopted minority teacher recruitment policies. Some states enacted recruitment policies through a government mandated agency. Other states recruited minorities into teaching through (a) teacher cadet initiatives, (b) targeting students at 2-year colleges for transfer, and (c) paraprofessionals career ladder programs.

Overall, Villegas et al. (2012) suggested that although important progress had been made toward growing the overall number and percentage of minority teachers in the public schools, the gains have been hidden by the fast growth of the minority student population. Consequently, the racial/ethnic gap between students of color and their teachers has widened over the years (Boser, 2011).

Using data from the National Center for Education Statistics' Schools Staffing Survey and a Teacher Follow-up Survey, Ingersoll and May (2011) attempted to ground the debate on minority teacher shortages by examining the causes of minority teacher turnover and the trends in recruitment and retention of White and minority K-12 teachers. The researchers documented that a gap exists but not because of a failure to recruit minority teachers. Although the amount of minority teachers increased over the past 20 years, the turnover rate of minority teachers increased compared to White teachers during this time period. After analyzing the survey, the researchers established that minority teachers are leaving the field because of organizational conditions. Overall, Ingersoll and May (2011) believed the school system is no closer to ethnic parity because, due to the decline in the number of White students, a gap remains between the percentage of minority students and the percentage of minority teachers.

Bradley and Loadman (2005) determined that to retain and recruit teachers in an urban public school system, it is important to gain understanding regarding why teachers chose to teach, why they remain there, and what they feel would attract new teachers. They approached the research by emphasizing why teachers chose to teach in urban settings in hopes to help aid retention and recruiting efforts made by teacher preparation programs. Bradley and Loadman (2005) determined that teachers' motivations to continue teaching came from internal factors; many teachers remained in the teaching profession because they wanted to motivate students and help students succeed. In their study, teachers reported that a higher salary and more positive image of teachers would help recruit more people into the profession.

To recruit more teachers of color, Central Washington University and the Renton School District partnered to create a Recruiting Washington Teacher Academy. The academy recruits students of color while in high school to become teachers.

The success of the program is measured by high school graduation rates and matriculation to either an institution of higher learning and acceptance into a teacher preparation program. Schmitz, Nourse, and Ross (2012) noted that they believe the academy will do its part to prepare more ethnic diversity for the classroom. More ethnic diverse teacher education students will lead to more ethnically diverse students taking the state teacher exam.

Purpose of the Study

The purpose of this study was to determine the extent to which differences were present in the percentages of teacher education students at Texas universities taking the Texas Examinations of Educator Standards (TExES) exam for the s 2006 and 2011 academic years. Specifically, the differences in the percentages of Black, White, and Hispanic teacher preparation students taking the TExES exam for the years 2006 and 2011 were analyzed. Additionally, the differences among the percentages of test takers who were Black, White, and Hispanic for the years 2006 and 2011 were analyzed.

Significance of the Study

As student enrollment diversity is increasing in Texas, the need for more teacher diversity is expanding. In this investigation, information about the percentages of teachers who are taking the teacher state certification exam in the state of Texas is provided. Accordingly, this study will be beneficial for 4-year higher education institutions' directors and to school districts across the state of Texas in an attempt to train and hire more minority teacher candidates seeking a teaching certification. The results of this study may lead to the development of policies or decisions regarding the need for recruitment.

Research Questions

The following research questions were addressed in this study: (a) What is the difference in the percentage of Black students taking the TExES for the 2006 and 2011 academic years?; (b) What is the difference in the percentage of White students taking the TExES for the 2006 and 2011 academic years?; (c) What is the difference in the percentage of Hispanic students taking the TExES for the 2006 and 2011 academic years?; (d) What is the difference in the percentage of Black students compared to the percentage of White students taking the TExES for the 2006 and 2011 academic years?; (e) What is the difference in the percentage of Black students compared to the percentage of Hispanic students taking the TExES for the 2006 and 2011 academic years?; and, (f) What are the difference in the percentage of White students compared to the percentage of Hispanic students taking the TExES for the 2006 and 2011 academic years?

Method

Selection of Participants

Participants for this study were the 38 four-year higher education institutions for which data were available from the Texas Higher Education Coordinating Board Accountability (THECB) system. The data downloaded were the amount of and percentage of Texas public university teacher education students who took the TExES exam for the 2006, 2007, 2010, and 2011 academic years. For this research, only the data for the 2006 and 2011 academic years were analyzed. Using the 2006 and 2011 academic years permitted us to determine the extent to which changes in the ethnic diversity of individuals taking this exam had changed over a 5-year time span.

Instrumentation and Procedures

Data were obtained for the 2006, 2007, 2010, and 2011 academic years from THECB database. Some academic years were not available for download. Data collected were the number of and percentages of students from each public university in the state of Texas who took the TExES for the years aforementioned. The data, downloaded in Excel file, were converted into the Statistical Package for the Social Sciences (SPSS) for statistical analyses.

For the purpose of this study, data were only downloaded for White, Black, and Hispanic teacher education students, and sample sizes vary by academic school year.

Results

Prior to conducting inferential statistics to determine whether a statistically significant difference was present between the percentages of White, Black, and Hispanic studentstaking the TExES examination, checks were conducted to determine the extent to which the data were normally distributed. Of the standardized skewness coefficients (i.e., the skewness value divided by its standard error) and the standardized kurtosis coefficients (i.e., the kurtosis value divided by its standard error), eight (i.e., White and Hispanic students taking TExES for 2006 and 2011) were within the limits of normality, ± 3 (Onwuegbuzie & Daniel, 2002). Because the majorityof the coefficients were normally distributed, a parametric dependent samples *t*-test was conducted to answer each research question.

In the first analyses, comparisons were made within ethnic groups across the 2006 and 2011 academic years. With respect to the percentage of Black students who took the TExES in the 2006 and 2011 academic years, the parametric dependent samples *t*-test analysis did not yield a statistically significant result, $t(18) = -0.78, p = .46$. The percentage of Black test takers remained relatively unchanged over this period (i.e., 15% in 2006 to 16% in 2011). Regarding the percentage of White students who took the TExES in the 2006 and 2011 academic years, the result was statistically significant, $t(30) = 3.58, p = .001$, Cohen's $d = 0.13$. The effect size for this difference was small (Cohen, 1988). The percentage of test takers who were White decreased from 62%in 2006 to 58% in 2011. The parametric dependent samples *t*-test analysis yielded a statistically significant result for the percentage of test takers who were Hispanic, $t(28) = -3.99, p < .001$, Cohen's $d = 0.11$. The effect size was small (Cohen, 1998).The percentage of test takers who were Hispanic increasedfrom 31% in 2006 to 34% in 2011. Depicted in Table 1are the descriptive statistics for the percentages of test takers who were Black, White, and Hispanic for the 2006 and 2011 academic years.

Regarding the next comparisons, statistical analyses were conducted across ethnic groups for the 2006 academic year. A comparison of Black test takers with White test takers revealed a statistically significant result, $t(21) = -7.80, p < .001$, Cohen's $d = 2.89$. The effect size for this difference was large (Cohen, 1988). In 2006, 11% of the test takers were Black, and 68% of the test takers were White. The comparison of Black test takers with Hispanic test takers did not yield a statistically significant result, $t(20) = -0.97, p = .34$. A comparison of White test takers with Hispanic test takers revealed a statistically significant result, $t(30) = 2.93, p = .006$, Cohen's $d = 1.02$, large effect size (Cohen, 1998). In 2006, 59% of the test takers were White and 30% of the test takers were Hispanic. Readers are referred to Table 2 for the descriptive statistics for the differences between percentages of test takers (i.e., Black compared to White; Black compared to Hispanic; and White compared to Hispanic) for the 2006 academic year.

Regarding the next comparisons, statistical analyses were conducted across ethnic groups for the 2011 academic year. A comparison of Black test takers with White test takers revealed a statistically significant result, $t(18) = -6.43, p < .001$, Cohen's $d = 2.73$, large effect size (Cohen, 1988). In 2011, 12% of the test takers were Black, and 66% of the test takers were White. The comparison of Black test takers with Hispanic test takers yielded a statistically significant result, $t(17) = -3.60, p = .002$, Cohen's $d = 1.10$, large effect size (Cohen, 1998). In 2011, 8% of the test takers were Black, and 19% of the test takers were Hispanic. Finally, the comparison of White test takers with Hispanic test takers revealed a statistically significant result, $t(29) = 2.93, p = .007$, Cohen's $d = 1.06$, large effect size (Cohen, 1998). In 2011, 60% of the test takers were White compared to 31% Hispanic. Delineated in Table 3 are the descriptive statistics for the differences between the percentages test takers (i.e., Black compared to White; Black compared to Hispanic; and White compared to Hispanic) for the 2011 academic year.

Discussion

A growing need exists for more ethnic diversity in teachers as researchers (Boser, 2011; Dee, 2005; Ingersoll, 2003; Ingersoll & May, 2011; Khan & Slate, 2013; Zumwalt & Craig, 2005) have contended that the teaching workforce needs to reflect the diverse student population in the school setting.

Although increases were present in the percentages of Hispanic teacher education students taking the TExES test in the 2006 year compared to the 2011 year, the increase was small (i.e., 3%). The analysis also revealed that the percentages of White test takers compared to the percentage of Black and Hispanic test takers in 2006 and in 2011 was statistically significantly higher despite the fact the percentages of White test takers decreased in 2006 to 2011 (i.e., from 62% to 58%). As a result, we recommend 4-year institutions of higher learning work to recruit more students of color in the teacher education program. However, to accomplish this recruitment, additional research might be warranted to determine obstacles or roadblocks experienced or perceived by students.

In this study, the extent to which other ethnic groups (i.e., Asian; Other) performed on the TExES was not examined. Few studies were located in which the number of students taking and passing the TExES by ethnicity group was examined. As well, data were not examined for the passing rates of each ethnic group on the TExES exams to show the percentages of new teachers fully certified to be in the field. More years of data could be analyzed to ascertain the extent to which trends are present in the percentages of students taking and passing the state exam. Research in this area would contribute to a better understanding of why the gap exists between teacher diversity and student diversity and why certain ethnic groups perform better or worse on the TExES exam. Additionally, future research could be expanded to include alternative teacher certification program teachers taking the state teacher exam. Researchers may be able to utilize the information gathered from other states and various programs to determine characteristics of best practices of teacher certification programs used by various higher education institutions.

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Table 1: Descriptive Statistics for the Percentages of Test Takers who were Black, White, or Hispanic for the 2006 and 2011 Academic School Years

Test Takers	<i>n</i> of universities	<i>M</i>	<i>SD</i>
Black			
2006	19	15.46%	20.95%
2011	19	16.40%	24.38%
White			
2006	31	61.79%	28.48%
2011	31	57.99%	27.07%
Hispanic			
2006	29	31.11%	30.15%
2011	29	34.30%	29.18%

Table 2: Descriptive Statistics for the Differences in the Percentages of Test Takers who were Black, White, or Hispanic for the 2006 Academic Year

Test Takers	<i>n</i> of universities	<i>M</i>	<i>SD</i>
Pair 1			
Black	22	10.80%	16.14%
White	22	67.73%	22.73%
Pair 2			
Black	21	13.77%	20.47%
Hispanic	21	20.25%	18.99%
Pair 3			
White	31	59.26%	28.37%
Hispanic	31	29.79%	29.64%

Table 3: Descriptive Statistics for the Percentages of Test Takers who were Black, White, or Hispanic for the 2011 Year

Test Takers	<i>n</i> of universities	<i>M</i>	<i>SD</i>
Pair 1			
Black	19	12.14%	17.95%
White	19	65.54%	21.09%
Pair 2			
Black	18	8.09%	3.39%
Hispanic	18	18.67%	13.12%
Pair 3			
White	30	59.66%	25.86%
Hispanic	30	31.02%	27.97%