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Texas Charter Schools: A Multiyear Analysis of Teacher Characteristics

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Abstract

The extent to which differences were present in teacher gender and teacher ethnic membership as a function of school level (i.e., elementary, middle, and high school) in Texas charter schools for the 2002-2003 to the 2012-2013 school years was examined. Statistically significant differences in the percentages of male and female teachers and in teacher ethnicity were present as a function of school level from the 2002-2003 to the 2012-2013 school years in Texas charter schools. The percentage of male teachers in Texas charter elementary schools has declined at a steady rate of 17.9% to 15.6% from 2002-2003 to 2012-2013 school years. The percentage of Black teachers in Texas elementary charter schools has decreased substantially, from 52.4% to 27.8%, from 2002-2003 to 2012-2013. These numbers are indicative of the need for more male representation of diverse backgrounds in Texas charter schools.

Legislature established charters schools in 1995 to provide an alternative to traditional public schools and regulated by fewer state mandates (Texas Association of School Boards, 2009). Charter schools are independently operated public schools governed by the Texas State Board of Education (SBOE) and the Texas Education Agency (TEA) to promote (a) student learning, (b) school choice, (c) teacher recruitment, (d) non-traditional accountability measures, and (e) innovation of instructional methods (TEA, 2013). The Texas Education Code (TEC) authorized four types of charter schools: (a) home-rule school district charters (i.e., operate under a traditional school district); (b) campus program charters (i.e., operate as a new campus in a traditional school district or as an existing campus within a school district); (c) open-enrollment charters (i.e., sponsored by public higher education institutions); and (d) college or university charters (i.e., SBOE grants colleges or universities charters who meet certain eligibility criteria; Texas Charter School Technical Assistance Network [The Network], 2012).

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Charters schools in Texas are funded from the Foundation School Program (FSP) based on weighted average daily attendance (WADA) and the number of students participating in special education, career and technology education, bilingual/ESL education, state compensatory education, and gifted/talented education programs (TEA, 2012). Further, charter schools are not allowed to collect local taxes or issue bonds for financial revenue (Penning & Slate, 2011). Because charter schools do not collect property taxes, they have lower per pupil operating expenditures (i.e., average $1,000 lower) compared to traditional public schools (Gronberg & Jansen, 2005; Penning & Slate, 2011).

With an increase in a diverse student population, researchers contend that a need is present for the teaching force to reflect this diversity (Gomez, Rodriguez, & Agosto, 2008; Ingersoll & May, 2011; Noguera, 2009; Quiocho & Rios, 2000, Torres, Santos, Peck, & Cortes, 2004). Teachers of diverse ethnic backgrounds serve as role models and have been linked as a contributing factor for increasing student of diverse ethnic backgrounds' academic performance (Dee, 2004; Villegas & Irvine, 2010). This pattern of a diverse teaching workforce in charter schools could be a "positive predictor for student academic and social achievement across the state of Texas" (Borgemenke, Hinojosa, Bone, & Slate, 2012, p. 3).

In 2007-2008, the National Center for Education Statistics reported that 76% of the teaching force was female. Although, the number of males choosing teaching as a profession had grown by 26%, the number of females choosing teaching as a profession had almost tripled that rate (Ingersoll & Merrill, 2012). Male-to-female teacher ratio continues to be disproportionate at the school level, with 18.3% males at the elementary and middle school levels and 42% at the secondary school level (Men Teach, 2011).

Borgemenke et al. (2012) determined that due to a diverse student and teacher population at Texas charter elementary schools, students were more likely to be taught by a teacher of their own race; however, teacher gender and the implications of gender on student achievement were not examined. Additionally, ethnic and gender diversity in the teaching force would help to bridge the gap of cultural discontinuity that exist in the classroom and address the varying learning styles of ethnically diverse students (Bone & Slate, 2011). Because these disparities are still present, Texas charter schools continue to search for ways to diversify teacher ethnic and gender population at all school levels (i.e., elementary school, middle school, and high school) to increase underrepresented groups among their student population (Borgemenke et al., 2012).

Purpose Statement

The purpose of this multiyear, statewide investigation was to examine the extent to which differences in teacher gender and teacher ethnic membership were present as a function of school level in Texas charter schools between the 2002-2003 and the 2012-2013 school years. An analysis of three years of Texas charter school data by teacher gender and teacher ethnic membership assisted in analyzing trends of Texas charter school teachers in regard to their ethnic and gender backgrounds. These three school years were selected so that the first year of charter school data available on the TEA website could be obtained; the 2008-2009 school year as a middle point; and then the 2012-2013 school year as the most recent year of available data. Additionally, analyzing these archival data aided in understanding the degree to which Texas charter schools had closed the ethnic and gender gaps among their teaching population at the school level. We believe that our results could be used by policymakers in increasing the diversity of teachers in Texas charter schools.

Significance of the Study

Disparities exist among the numbers of ethnic and gender teacher backgrounds in comparison to the number of minority students within a school (Ingersoll & May, 2011). One of the focus of Texas charter schools is to increase ethnic and gender diversity among their teaching population at the school level (Borgemenke et al., 2012; Ingersoll & Merrill, 2012).

Limited research exists in which teacher ethnicity and gender backgrounds in Texas charter schools by school level have been addressed. This study will be beneficial for Texas charter schools and governing entity officials in attempt to recruit and hire teachers of diverse ethnic and gender backgrounds. Ideally, the results of this study could generate an interest and policies toward increasing male representation at Texas charter schools.

Research Questions

The following research questions were addressed in this study: (a) What is the difference in the percentages of male and female teachers as a function of school level in Texas charter schools for the 2002-2003 school year?; (b) What is the difference in the percentages of male and female teachers as a function of school level in Texas charter schools for the 2008-2009 school year?; (c) What is the difference in the percentages of male and female teachers as a function of school level in Texas charter schools for the 2012-2013 school year?; (d) What is the difference in the percentages of teachers by ethnic membership as a function of school level in Texas charter schools for the 2002-2003 school year?; (e) What is the difference in the percentages of teachers by ethnic membership as a function of school level in Texas charter schools for the 2008-2009 school year?; and (f) What is the difference in the percentages of teachers by ethnic membership as a function of school level in Texas charter schools for the 2012-2013 school year?

Method

Participants

Participants for this study were all teachers employed in Texas charter schools during the 2002-2003 to 2012-2013 school years on whom data were available from the Texas Education Agency Public Education Information Management System website (http://www.tea.state.tx.us/index4.aspx?id=25769805784). A request for data was presented to the Texas Education Agency. A staff member at the Texas Education Agency provided data regarding teacher gender, teacher ethnicity, and school level for all teachers in Texas charter schools for the three years of data analyzed herein. The data were converted into a Statistical Package for the Social Sciences (SPSS) datafile for statistical analyses.

For the purpose of this study, data were gathered for the 2002-2003, 2008-2009, and 2012-2013 school years. The total number of teachers at the elementary level for the 2002-2003 school year was 872; at the middle school level was 33; and at the high school level was 384. For the 2008-2009 school year, the total number of teachers at the elementary level was 1,949; at the middle school level was 252; and at the high school level was 746.

Finally, the total number teachers at the elementary level for the 2012-2013 school year was 2,893; at the middle school level was 480; and at the high school level was 834. Utilizing a large sample size for this study will assure an appropriate sample power to detect a statistical significance (Johnson & Christensen, 2012; Krejcie & Morgan, 1970; Suresh &Chandraskekara, 2012).

Results

To ascertain whether a difference was present between gender and school level (i.e., elementary school, middle school, and high school) in Texas charter schools; ethnic membership (i.e., White, Hispanic, Black, and Asian); and school level in Texas charter schools, Pearson chi-squares were conducted. This statistical procedure was selected because categorical data were present for gender, school level, and ethnic group membership (Field, 2005). Due to the large sample in this investigation, the criteria for utilizing a chi-square were met.

The purpose of the first research question was to determine whether a difference was present in the percentages of male and female teachers as a function of school level in Texas charter schools for the 2002-2003 school year. This result was statistically significant, $\chi^2(2) = 191.36$, $p < .001$. The effect size for this finding, Cramer's *V,* was small, .32 (Cohen, 1988). As can be seen in Table 1, 82.1% of female teachers were in elementary schools, compared to only 17.9% of male teachers. In the 2002-2003 school year, the highest percentage of male teachers was in middle schools, 51.5%, compared to 17.9% in elementary schools and 47.4% in high schools.

The focus of the second research question was to determine whether a difference was present in the percentages of male and female teachers as a function of school level for the 2008-2009 school year. This result was statistically significant, $\chi^2(2) = 305.37$, $p < .001$. The effect size for this finding, Cramer's *V,* was small, .28 (Cohen, 1988).

As delineated in Table 2, 84.5% of female teachers were in elementary schools, compared to only 15.5% of male teachers. The highest percentage of male teachers was in high schools, 41.2%, compared to 58.8% of female teachers.

The purpose of the third research question was to determine whether a difference was present in the percentages of male and female teachers as a function of school level for the 2012-2013 school year. This result was statistically significant, $\chi^2(2) = 431.27$, $p < .001$. The effect size for this finding, Cramer's *V,* was small, .28 (Cohen, 1988). As revealed in Table 3, 84.4% of female teachers were in elementary schools, compared to only 15.6% for male teachers. The highest percentage of male teachers was in high schools, 42.3%, compared to 57.7% for female teachers.

The focus of the fourth research question was to determine whether a difference was present in the percentages of teachers by ethnic membership as a function of school level for the 2002-2003 school year. This result was statistically significant, $\chi^2(6) = 58.70$, $p < .001$. The effect size for this finding, Cramer's *V,* was small, .13 (Cohen, 1988). As can be seen in Table 4, 52.4% of Black teachers were in elementary schools, compared to only 28.0% of White teachers; 17.7% of Hispanic teachers; and 2.0% of Asian teachers. The highest percentage of White teachers was in middle schools, 51.5%, compared to 29.4% for Black teachers; 19.1% for Hispanic teachers; and 0.0% for Asian teachers.

The purpose of the fifth research question was to determine whether a difference was present in the percentages of teachers by ethnic membership as a function of school level for the 2008-2009 school year. This result was statistically significant, $\chi^2(6) = 33.20$, $p < .001$. The effect size for this finding, Cramer's *V,* was trivial, .07 (Cohen, 1988). As can be seen in Table 5, 41.2% of White teachers were in elementary schools, compared to 34.2% for Black teachers; 20.9% for Hispanic teachers; and 3.7% for Asian teachers. The highest percentage of White teachers was in middle schools, 49.0%, compared to 27.7% for Black teachers; 17.9% for Hispanic teachers; and 5.9% for Asian teachers.

The focus of the final research question was to determine whether a difference was present in the percentages of teachers by ethnic membership as a function of school level for the 2012-2013 school year.This result was also statistically significant, $\chi^2(6) = 36.23$, $p < .001$. The effect size for this finding, Cramer's *V,* was trivial, .06 (Cohen, 1988).

As can be seen in Table 6, 41.6% of White teachers were in elementary schools, compared to 27.8% for Black teachers; 26.7% for Hispanic teachers; and 3.9% for Asian teachers.

The highest percentage of White teachers was in middle schools, 50.1%, compared to 23.2% for Black teachers; 23.7% for Hispanic teachers; and 3.1% for Asian teachers.

Discussion

The average percentages of male-to-female ratio in Texas charter schools have remained relatively steady for the 2002-2003 to 20012-2013 school years, with female teachers in Texas charter elementary schools at a steady rate of 82.1% to 84.4%. The percentage of male teachers in Texas charter elementary schools has declined at a steady rate of 17.9% to 15.6% from 2002-2003 to 2012-2013 school years. The percentage of male teachers was highest at the high school level with an average of 43.63% from 2002-2003 to 2012-2013 school years. The percentage of Black teachers in Texas elementary charter schools has decreased substantially, from 52.4% to 27.8%, from 2002-2003 to 2012-2013. Borgemenke et al. (2012) also discussed the decline of Black teachers in Texas charter schools, from about 50% in 1999-2000 school year to 11% over an 11 year period.

Furthermore, a steady increase of the percentages of Hispanic teacher representation continued to grow over an 11 year period; however, this steady increase in Hispanic teacher population is relatively low compared to the increasing Hispanic student population (Bone, 2011). Texas elementary charter schools has had the greatest increase in the percentage of Hispanic teachers, from 17.7% to 26.7%, from 2002-2003 to 2012-2013. The percentage of Asian teachers has remained relatively low in Texas middle charter schools, 0.0% to 3.1%, from2002-2003 to 2012-2013 school years. These teacher demographic changes documented in this investigation for Texas charter schools might be attributed to diverse communities in which charter schools are established (Borgemenke et al., 2012). Researchers noted that White teachers continue to be the highest ethnic group in Texas public schools contributing to the ethnic disparities that still exist among the number of diverse student population in Texas public schools (Bone, 2011; Borgemenke et al., 2012; Graybill, 1997; Rojas-LeBouef & Slate, 2012).

Statistically significant differences were documented between gender as a function of school level and teacher ethnicity as a function of school level from 2002-2003 to 2012-2013 school years in Texas charter schools.

Based on the findings, Texas charter schools have a diverse teacher population; however, females continue to constitute the highest percentage of elementary school teachers. Few studies have been conducted to determine the extent to which gender may impact student achievement (Graybill, 1997). Therefore, Texas charter schools along with the SBOE could examine why teachers of diverse ethnic and gender backgrounds choose to teach at Texas charter schools. Research in this area would contribute to a better understanding of how to hire underrepresented gender groups in Texas charter schools.

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Table 1: Descriptive Statistics for the Percent of Male and Female Teachers in Texas Charter Schools as a Function of School Level in the 2002-2003 School Year

	Female		Male	
School Level	*n*	*%age*	*n*	*%age*
Elementary School	872	82.1	190	17.9
Middle School	33	48.5	35	51.5
High School	384	52.6	346	47.4

Table 2: Descriptive Statistics for the Percent of Male and Female Teachers in Texas Charter Schools as a Function of School Level in the 2008-2009 School Year

	Female		Male	
School Level	*n*	*%age*	*n*	*%age*
Elementary School	1,949	84.5	357	15.5
Middle School	252	64.6	138	35.4
High School	746	58.8	523	41.2

Table 3: Descriptive Statistics for the Percent of Male and Female Teachers in Texas Charter Schools as a Function of School Level in the 2012-2013 School Year

	Female		Male	
School Level	*n*	*age*	*n*	*age*
Elementary School	2,893	84.4	534	15.6
Middle School	480	65.0	258	35.0
High School	834	57.7	611	42.3

Table 4: Descriptive Statistics for the Percent of Teachers by Ethnic Membership in Texas Charter Schools as a Function of School Level in the 2002-2003 School Year

Ethnic Group Membership by School Level	*n*	*%age*
White Teacher		
Elementary School	296	28.0
Middle School	35	51.5
High School	631	34.1
Hispanic Teacher		
Elementary School	187	17.7
Middle School	13	19.1
High School	145	20.0
Black Teacher		
Elementary School	555	52.4
Middle School	20	29.4
High School	270	37.3
Asian Teacher		
Elementary School	21	2.0
Middle School	0	0.0
High School	9	1.2

Table 5: Descriptive Statistics for the Percent of Teachers by Ethnic Membership in Texas Charter Schools as a Function of School Level in the 2008-2009 School Year

Ethnic Group Membership by School Level	*n*	*%age*
White Teacher		
Elementary School	949	41.2
Middle School	191	49.0
High School	617	48.9
Hispanic Teacher		
Elementary School	480	20.9
Middle School	70	17.9
High School	256	20.3
Black Teacher		
Elementary School	786	34.2
Middle School	106	27.2
High School	350	27.7
Asian Teacher		
Elementary School	86	3.7
Middle School	23	5.9
High School	40	3.2

Table 6: Descriptive Statistics for the Percent of Teachers by Ethnic Membership in Texas Charter Schools as a Function of School Level in the 2012-2013 School Year

Ethnic Group Membership by School Level	*n*	*%age*
White Teacher		
Elementary School	1,398	41.6
Middle School	359	50.1
High School	703	49.5
Hispanic Teacher		
Elementary School	899	26.7
Middle School	170	23.7
High School	329	23.2
Black Teacher		
Elementary School	935	27.8
Middle School	166	23.2
High School	346	24.4
Asian Teacher		
Elementary School	131	3.9
Middle School	22	3.1
High School	41	2.9