DIFFERENCES OVER TIME IN HISPANIC STUDENTS TAKING AND PASSING THE STATE TEACHER EXAM

Myriam Q. Khan[1], John R. Slate[2]

[1,2]Sam Houston State University, [2]myriamq2001@yahoo.com

Abstract: The extent to which changes had occurred in the numbers of Hispanic students taking the Texas Examinations of Educator Standards and passing this exam from 2-year higher education institutions between the 2004 and the 2011 academic years was examined. Statistically significant increases were yielded in the average number of Hispanic students taking the Texas Examinations of Educator Standards between the 2004 and the 2011 academic years, from 7.17 to 17.83 students, and in the average percentage of Hispanic students passing the Texas Examinations of Educator Standards, from 80.46% to 99.56%. These numbers are indicative of improvements with respect to Hispanics being able to enter the teaching profession. Implications of these findings are discussed.

Keywords: TExES, Hispanic students, 2-year institutions, Texas

I. INTRODUCTION

The U.S. Census Bureau (2010) reported that 16% of the nation's population were Hispanics, having experienced a 3% increase since 2000 (Ennis, Ríos-Vargas, & Albert, 2011). The states most affected by the increase in Hispanics have been California, Texas, and Florida. These states account for over half of the total Hispanic population in the nation. In particular, 50.2% of the Texas population is Hispanic, making it a majority-minority state. This growing population trend influences both the economy and the education system (Pew Hispanic Center, 2005).

In the 2011-2012 academic year, 2.6 million Hispanics were enrolled in non-profit institutions (Hispanic Association of Colleges and Universities, 2013). Of these 2.6 million Hispanic students, 51.7% were enrolled in 2-year higher education institutions (Hispanic Association of Colleges and Universities, 2013). A 25.2% increase has occurred in the overall Hispanic student enrollment in 2-year higher education institutions, particularly in the 18-24 year old student group (Fry & Lopez, 2012). Furthermore, the National Center for Education Statistics documented that 13.2% of Hispanics students earned an associate's degree compared to 8.5% of Hispanic students who earned a bachelor's degree in 2010 (Snyder & Dillow, 2012). Haro (2008), however, contended that the increase in Hispanic student enrollment in 2-year higher education institutions has not led to these students persisting to 4-year higher education institutions. As such, enrollment in 2-year institutions may ultimately influence their future academic and career goals (Haro, 2008). Higher education institutions need to assess their current policies and practices to determine factors influencing the Hispanic student persistence rates.

A growing need exists for more ethnic diversity in teachers as numerous researchers (e.g., Gomez, Rodriguez, & Agosto, 2008; Ingersoll & May, 2011; Noguera, 2009; Quiocho & Rios, 2000; Torres, Santos, Peck, & Cortes, 2004) have contended that the teaching workforce needs to reflect the diverse student population in the school setting. Reported in the 2008 School and Staffing Survey was that 83% of the teaching force was White and 7% was Hispanic or Black. Furthermore, school districts have not kept up with these changing student demographics (National Center for Education Statistics, 2008). Fry and Gonzales (2008) noted a 60% increase in Hispanic student enrollment in Kinder thru 12th grade from 1990 to 2006. Due to this demographic trend, one-in-five public school student is of Hispanic descent (Fry & Gonzales, 2008). The latest population projections by the U.S. Census Bureau indicate an increase of 166% by 2050 of Hispanic students while the non-Hispanic student population will only grow by 4% in public schools (Day, 1996; Fry & Gonzales, 2008; Irizarry & Donaldson, 2012). Almost half, 49.7%, of the students under the age of five were minority in 2011 (U.S. Census Bureau, 2012). Disparities exist among the numbers of minority teachers in comparison to the number of minority students within a school (Ingersoll & May, 2011). Because these disparities are still present, higher education institutions have formulated recruitment and retention plans to increase underrepresented groups among their student population (Harris, Joyner, & Slate, 2010).

In recent years, debate surrounding educational reform has been focused on the need to diversify the teaching workforce and to provide role models for students of diverse ethnic backgrounds (Villegas & Irvine, 2010). Benefits from a culturally diverse teaching workforce would help to bridge the gap of cultural discontinuity in the classroom and improve teachers' perceptions of students' ethnic and cultural backgrounds (Bone & Slate, 2011; Graybill, 1997). Additionally, culturally diverse teachers have an impact on the cultural climate within the classroom, facilitate multicultural interactions among students, and address the varying learning styles of ethnically diverse students (Bone & Slate, 2011; Harris et al., 2010).

School districts have relied on 2-year higher education institutions along with other teacher certification entities to bridge the ethnic gap among their teaching staff (Little & Barlett, 2010). Two-year higher education institutions that incorporate early recruitment strategies of Hispanic students in teacher preparation programs establish a pathway to teacher certification and reduce the Hispanic teacher shortage in public schools (Texas Association of Community Colleges, 2002). School districts and 2-year higher education institutions play a key role in shaping teacher preparation program policies and practices that are culturally responsive to their diverse student population (Irizarry & Donaldson, 2012). The state of Texas evaluates teacher certification entities based on their teacher candidates' 3-year performance average along with a survey administered to the school's principal (National Council on Teacher Quality, 2010). These accountability measures help to preserve the integrity and effectiveness of the certification programs. However, despite these accountability efforts, a lack of Hispanic teacher candidates taking and passing the Texas Examinations of Educator Standards (TExES) from 2-year higher education institutions still exists (Irizarry, 2011).

II. PURPOSE OF THE STUDY

The purpose of this study was to determine the extent to which Hispanic teacher candidates had changed in their performance on the TExES at 2-year institutions between the 2004 and the 2011 academic years. An analysis of Hispanic teacher candidates' passing rates on the TExES assisted in analyzing the passing rate trends of Hispanic teacher candidates in 2-year higher education institutions in regard to their ethnic background. Additionally, analyzing these archival data aided in understanding the degree to which 2-year higher education institutions in the state of Texas had closed the ethnic gap among their Hispanic students' passing rate on the TExES. Furthermore, through this study we intended to address the gap in the literature and contribute to efforts made by 2-year higher education institutions to increase the percentage of Hispanic teachers in the teaching workforce.

III. SIGNIFICANCE OF THE STUDY

Recruiting ethnically diverse teacher candidates into the teaching force has become a primary focus of many community colleges. This focus is in response to the need of school districts to serve diverse student populations (Bone & Slate, 2011; Johnson, 2008; Montecinos & Nielsen, 2004; Noguera, 2009). Limited research exists in which Hispanic teacher candidates in 2-year higher education institutions perform on the TExES has been addressed. This study will be beneficial for 2-year higher education institutions' directors and key officials and to school districts across the state of Texas in attempt to train and hire Hispanic teacher candidates seeking a teaching certification. Ideally, the results of this study may lead to more Hispanic teacher candidates taking and passing the TExES and becoming part of the teaching force.

IV. RESEARCH QUESTIONS

The following research questions were addressed in this study: (a) What is the difference in the number of Hispanics taking the TExES between the 2004 and the 2011 academic years?; (b) What is the difference in the percentage of Hispanics passing the TExES between the 2004 and the 2011 academic years?; (c) What are the numbers of Hispanics taking the TExES for the 2004 through the 2011 academic years?; and (d) What are the percentages of Hispanics passing the TExES for the 2004 through the 2011 academic years?

V. METHOD

5.1 Participants

Participants for this study were the 23 two-year higher education institutions on whom data were available from the Texas Higher Education Coordinating Board Accountability system website (http://www.txhighereddata.org/Interactive/Accountability/default.cfm). Using the Interactive Institutional List function on the Texas Higher Education Coordinating Board Accountability system website, the number of and percentage of Hispanic students taking and passing the TExES between the 2004 and the 2011 academic years, as well as the total of Hispanics taking and passing the TExES for the 2004 through the 20011 academic years were downloaded into an Excel file. These data, which were downloaded as Excel files, were converted into a Statistical Package for the Social Sciences (SPSS) datafile for statistical analyses. For some academic years, however, data were not available. As such, the sample size varies by year and by research question. For the purpose of this study, the data gathered were only for Hispanic students because they constitute a large percent of the student enrollment population and are one of the most underrepresented groups in the field of education (Pew Hispanic Center, 2005).

VI. RESULTS

Descriptive statistics were calculated for all four research questions investigated in this study. Delineated in Table 1 are the sample sizes, means, and standard deviations pertaining to the number of Hispanics students taking the TExES between the 2004 and the 2011 academic years. The average number of Hispanic students taking the TExES in 2004 was 7.17 compared to the average number of 17.83 of Hispanic students taking the TExES in 2011.

Table 1. Descriptive Statistics for the Number of Hispanic Students Taking the TExES by Academic Year

Hispanic Students Taking the TExES by Academic Year	*n* of 2-year institutions	*M*	*SD*
2004	6	7.17	8.11
2005	7	9.43	6.66
2006	8	18.38	9.35
2007	7	22.00	7.23
2008	8	30.75	28.90
2009	8	17.88	7.20
2010	7	14.86	2.55
2011	6	17.83	9.15

Descriptive statistics pertaining to the percentage of Hispanic students passing the TExES between the 2004 and the 2011 academic years are delineated in Table 2. The average percent of Hispanic students passing the TExES in 2004 was 80.46% compared to the average of 99.56% of Hispanic students taking the TExES in 2011. These percentages are depicted in Figure 1. The average number of Hispanic students taking the TExES increased from 7.17 in 2004 to 17.83 in 2011. As evidenced in Table 1, a gradual increase was observed in the average number of Hispanic students taking the TExES for the 2004 through the 20011, varying by year. The average percentage of Hispanic student passing the TExES increased from 80.46% in 2004 to 99.56% in 2011. Readers are directed to Figure 2 for the average percentage of Hispanic students who passed the TExES in these two academic years. As revealed in Table 2, a gradual increase was revealed in the average percent of Hispanic students passing the TExES for the 2004 through the 2011, varying by year.

Table 2 Descriptive Statistics for the Percentage of Hispanic Students Passing the TExES by Academic Year

Hispanic Students Passing the TExES by Academic Year	*n* of 2-year institutions	*M*	*SD*
2004	13	80.46	36.83
2005	18	79.11	37.07
2006	17	96.71	6.61
2007	17	98.18	6.64
2008	17	96.00	5.90
2009	19	97.68	7.72
2010	18	96.00	6.12
2011	15	99.56	1.75

Prior to performing inferential statistics to address the previously mentioned research questions, the number of Hispanic students taking and passing the TExES variables were checked for normality. To test for normality in the distribution of the number of Hispanic students taking and percentage of Hispanic students passing the TExES, the standardized skewness coefficients (i.e., the skewness value divided by the standard error of skewness) and the standardized kurtosis coefficients (i.e., the kurtosis value divided by the standard error of kurtosis) were calculated. Because all of the standardized coefficients revealed normally distributed data (i.e., +/- 3) for the first dependent variable, number of Hispanic students taking the TExES, a parametric statistical procedure was utilized (Onwuegbuzie & Daniel, 2002). Because three of the four standardized coefficients revealed non-normally distributed data (i.e., +/- 3) for the second dependent variable, percentage of Hispanic students passing the TExES, a nonparametric statistical procedure was utilized (Onwuegbuzie & Daniel, 2002).

For the first research question, a parametric dependent samples *t*-test was utilized. The parametric dependent samples *t*-test revealed a near statistically significant difference in the number of Hispanic students taking the TExES between the 2004 and the 2011 academic years, $t(9.86) = -2.14$, $p = .059$. The effect size associated with this difference, Cohen's *d*, was 1.23, large (Cohen, 1988). Thus, a near-statistically significant average increase of 10.67 Hispanic students took the TExES in the 2011 academic year than in the 2004 academic year. As noted previously, descriptive statistics for this research question are listed in Table 1. For the second research question, a nonparametric Wilcoxon's dependent samples *t*-test (Huck, 2007) was utilized. The Wilcoxon's dependent samples *t*-test yielded a statistically significant difference in the percentage of Hispanic students passing the TExES between the 2004 and the 2011 academic years, $z = 2.78$, $p = .005$. The effect size associated with this difference, Cohen's *d*, was 0.73, moderate (Cohen, 1988). Hispanic students who passed the TExES in 2011 demonstrated a statistically significantly higher passing percentage than Hispanic student who passed the TExES in 2004, 19.10% higher. As noted previously, the descriptive statistics for this research question are presented in Table 2.

VII. DISCUSSION

Results from this study indicate that 2-year institutions had an average gain of 5.60 Hispanic students taking the TExES from the 2004 to the 2011 academic years. Readers should note, however, that this gain was not reflective of a statistically significant increase. For the percentage of Hispanic students passing the TExES, however, a statistically significant increase of 13.44% was present in the passing rate from the 2004 to the 2011 academic years. Efforts made to increase the passing rate of Hispanic students have clearly been successful. Efforts made

by 2-year higher education institutions to increase the number of Hispanic students taking the TExES for the 8 years included in this study, however, have not been as successful. Hispanic students constitute 51.7% of the total student enrollment in 2-year higher education institutions across the nation, however, the enrollment population percentage is not reflective of the number of and percentage of Hispanic students taking and passing the TExES. The overall number of Hispanic students taking the TExES in 2004 through 2011 academic years at 2-year higher education institutions increased, however, increases in the number of Hispanic students taking the test has not reduced the disparities that still exist among the numbers of Hispanic teachers represented in the teaching force. The ethnic background of the teaching force remains overwhelmingly White and does not reflect the ethnic diversity of the student population (Rojas-LeBouef & Slate, 2012).

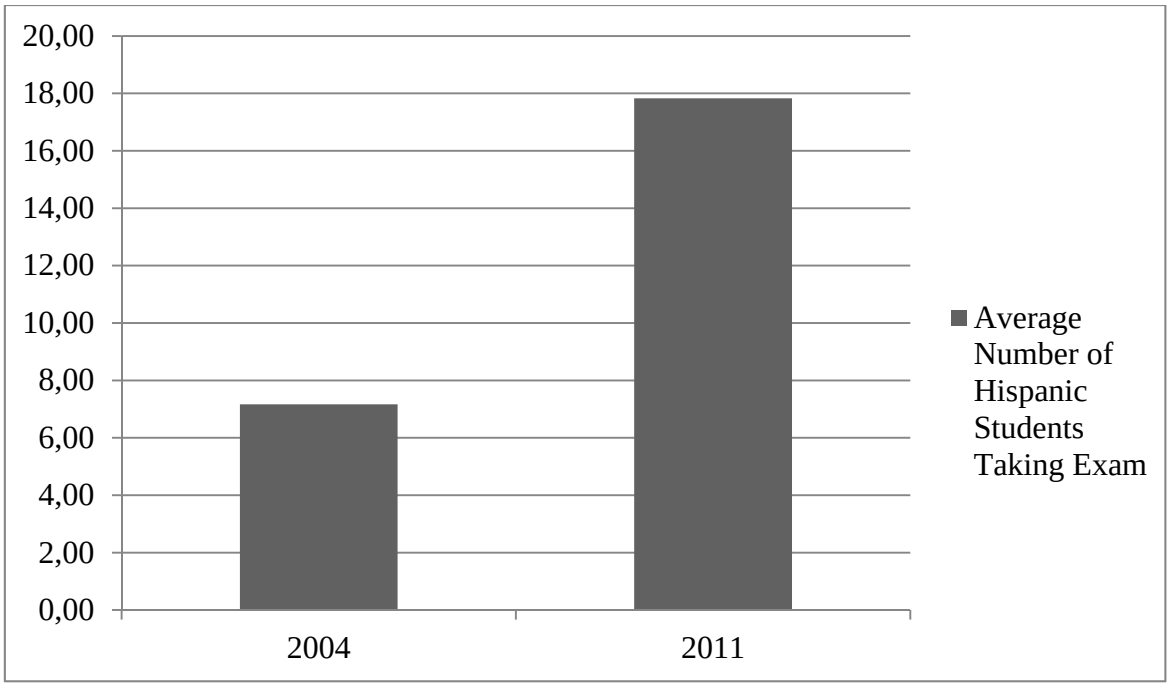

Figure 1. The average number of Hispanic students taking the TExES for the 2004 and 2011 academic years.

In the state of Texas, accountability measures of teacher preparation programs in 2-year higher education institutions have not been successful in increasing the number of Hispanic students taking and passing the TExES. Hispanic teacher candidates score lower on teacher certification examinations than Whites or Blacks (Angrist & Guryan, 2007). Few studies have been conducted to determine the extent to which teacher examination scores predict student achievement (Ferguson & Brown, 2000). Therefore, 2-year higher education institutions along with other teacher preparation entities could conduct an evaluation of their teaching preparation programs. Policy changes should reflect the growing need for underrepresented groups in the teaching force. The impact of a diverse teaching population may bridge the cultural gap in the classroom, facilitate learning, and improve teacher and student relationships (Bone & Slate, 2011; Graybill, 1997). Results from this study could evoke changes at the state and national level to examine higher education institutions and other teacher preparation programs' initiatives to increase the number of underrepresented groups taking and passing teacher certification exams to correlate with the number of underrepresented students groups in public education. Furthermore, higher education institutions could be more consistent in their annual reporting of students taking and passing the teacher examination.

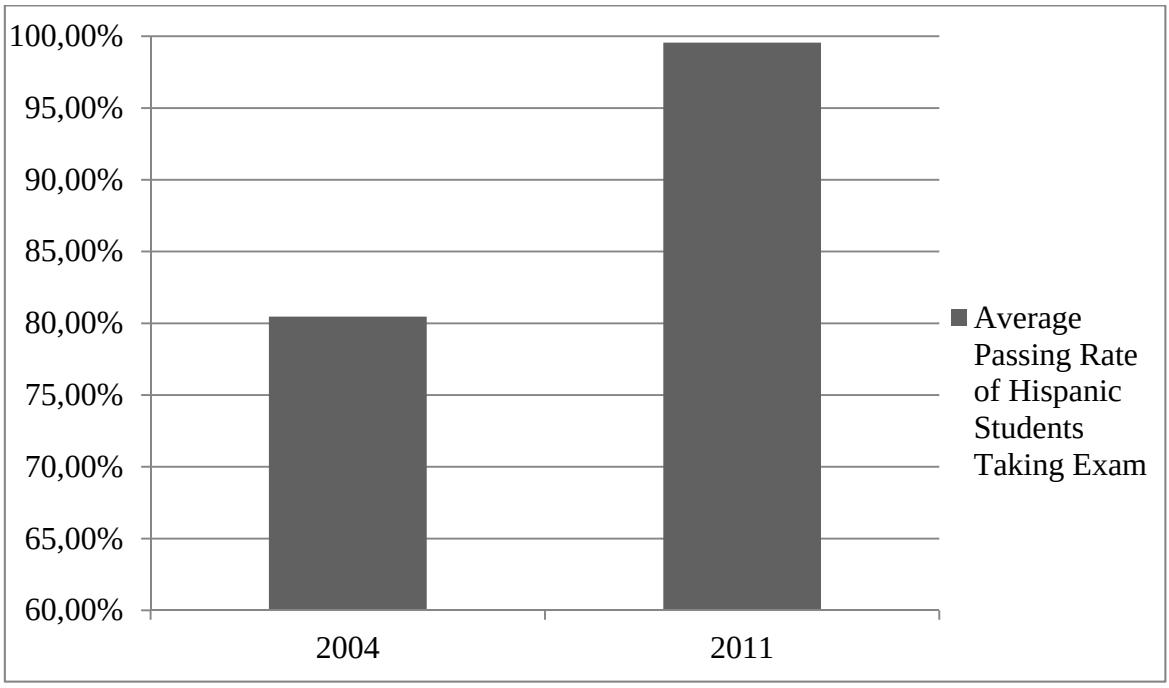

Figure 2. The average passing rate of Hispanic students taking the TExES for the 2004 and 2011 academic years.

In this study, the extent to which other ethnic groups (i.e., White, Black, Asian) 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. Research in this area would contribute to a better understanding of why certain ethnics groups perform better or worse on the TExES. Additionally, future research could expand to higher education institutions in other states. Including more states would yield a larger sample size and provide a more comprehensive analysis of the data. Researchers may be able to utilize the information gathered from other states to determine best teacher certification practices used by other higher education institutions.

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