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Differentiating Charter Elementary Schools from Traditional Publicelementary Schools

Martha L. Escalante [α] & John R. Slate [σ]

Abstract- In this study, the extent to which differences were present in teacher characteristics between charter elementary and traditional public elementary schools in Texas was addressed. The Moreno and Slate (2016) study was replicated in this investigation to determine whether the percentage of beginning teachers continued to be the major school characteristic that most differentiated charter schools from traditional public schools. Participants in this study were charter and traditional publicelementary schools in Texas in the 2014-2015 school year. Canonical stepwise discriminant analyses were conducted to determine whether teacher characteristics (i.e.,base salary average, teacher tenure average, teacher experience, beginning teachers, teachers with no degree, teachers with bachelor's degree, teachers with master's degree, teachers with doctoral degree, Blackteachers, Hispanic teachers, male teachers, and female teachers) could differentiate charter elementary schools from traditional public elementary schools.The canonical discriminant analysis revealed that the two school types could be statistically significantly differentiated, with the percentage of beginning teachers again making the most important contribution to the group separation. Charter elementary schools were more likely to have a higher percentage of beginning teachers, Black teachers, and teachers who did not have a college degree than were traditional public elementary schools. Implications of the results and suggestions for future research are provided.

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I. Introduction

Charter schools started to operate in Texas in 1995. Since then, they have expanded tremendously. Within the last 10 years, student enrollment at Texas charter schools has increased over 244% (Texas Education Agency, 2016). With the expansion of charter schools, teachers have more opportunities to seek for the school type for which they believe may be a better fit to their needs or teaching styles. Whereas some teachers opt to work in traditional public (Cannata, 2011), other teachers base their decision of working for a charter or a traditional public school on other aspects such as working conditions and instructional support (Wei, Patel, & Young, 2014).

Although charter schools follow the same accountability standards as traditional public schools, they do not receive the same funding as traditional public schools. By not receiving the same funding as traditional public schools, charter school have challenges in hiring and in retaining experienced teachers who may earn higher salaries by working at traditional public settings than at charter schools (Barden & Lassmann,2016). Charter schools are also facing a shift in the teaching profession and they are employing more new and younger teachers who are coming from non-traditional teaching backgrounds (Stuit & Smith, 2012). More than one third of charter school teachers are under 30 years old, and have less than three years of teaching experience (Stuit & Smith. 2012). Another challenge for charter schools is a high teacher turnover rate, losing an average of one in four teachers every year, which may affect the quality of instruction and the instructional stability (Stuit & Smith, 2012).

In an effort to improve the quality of instruction, the Department of Education created the No Child Left Behind Act (2001), which purpose was to improve the academic achievement of the disadvantaged and to close the achievement gaps between minority and nonminority students by providing high quality education. Even though, charter schools in Texas serve a high number of minority students (Penning & Slate, 2011), and the No Child Left Behind Act stipulated that charter schools needed to have highly qualified teachers-understanding that highly qualified teachers was synonymous to certified teachers-Texas, Georgia, and Arizona are three states that do not require teacher certification in charter schools (Maloney & McKenzie-Thompson, 2013).

In a study of importance to this empirical investigation, Moreno and Slate (2016)examined school characteristics to determine whether charter schools could be differentiated from non-charter schools in Texas at the elementary, middle, and high school levels. Throughout the use of canonical stepwise discriminant analyses, they established that the percentage of beginning teachers was the school characteristic that most strongly differentiated charter schools from non-charter schools at elementary, middle, and high school levels in Texas. Moreno and Slate (2016) established that charter schools were more likely to have a higher percent of beginning teachers and Black student enrollment at the elementary and middle school level than non-charter schools. Moreover, they documented the presence of a higher percent of beginning teachers and a higher student mobility rate at charter high schools than at traditional high schools.

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The U.S. Department of Education (2006) emphasized that a highly-qualified teacher is one of the most important factors in student achievement. Under the No Child Left Behind Act, Title I schools are required to notify parents when their children are served by a teacher who is not highly qualified for a period of four or more consecutive weeks. In the State of Texas, teachers can be labeled as highly-qualified after passing a test and obtaining a college degree in the teaching subject (Darling-Hammond & Berry, 2006).Highly-qualified teachers have a greater influence on the academic achievement of students who are determined to be at-risk, than they do for average students (Phillips, 2010).Unfortunately, students with greater needs such as students in poverty and students of color are more likely to be served by under-qualified teachers (Darling-Hammond & Berry, 2006) and are more likely to have a higher teacher turnover, more novice teachers, and more inexperienced teachers (Hanushek & Rivkin, 2010).

II. Statement of the Problem

Charter schools are expanding in Texas at an accelerated rate. Under the No Child Left Behind Act, improving the quality of teachers is necessary to close the achievement gaps. Despite the importance of having highly qualified teachers who may better prepare students in the classrooms, however, Texas is one of three states that does not require teacher certification in charter schools (Maloney & McKenzie-Thompson, 2013).Under Texas law, a high school diploma is sufficient to teach in an open-enrollment charter school, unless the teacher has been assigned to teach for a bilingual or special education program. In those instances, the certification is required (Texas Education Agency, 2013).Yet, the highly-qualified term, as defined by No Child Left Behind Act, also applies to charter school teachers. Despite their popularity, student academic performance at charter schools is not better than their counterpart, traditional public schools (Penning & Slate, 2011).

a) Significance of the Study

By providing comparison data on the characteristics of teachers who are employed at charter elementary schools and traditional public elementary schools, results may be used by educational leaders to analyze the effects of teacher characteristics on student academic achievement. The results can also provide information regarding the presence of trends in the hiring process of charter elementary schools and traditional public elementary schools. Results from this study may also provide information to parents when deciding where to enroll their children. Parents who are interested in having classroom teachers with experience, due to the relationship of teacher experience to student academic success, may find the results of this investigation to be of value.

b) Purpose of the Study

The purpose of this study was to determine whether differences were present in teacher characteristics between charter elementary schools and traditional public elementary schools in Texas. A secondary purpose was to analyze possible trends in teacher characteristics that could define if a school was either charter elementary or traditional public elementary school.

c) Research Question

The following research question was addressed in this study: To what degree can charter elementary schools be differentiated from traditional public elementary schools as a function of teacher characteristics?

III. Method

a) Participants

Participants in this study were teachers in charter elementary schools and traditional public elementary schools in Texas. The dataset was downloaded from the Texas Education Agency Academic Performance Report website. Of the 4,629 campuses on which data were analyzed in this study, 259 were charter schools and 4,370 were traditional public schools.

b) Instrumentation and Procedures

Data were obtained from the 2015 Texas Academic Performance Report database, and then imported into the Statistical Package for Social Sciences (SPSS) software program. The school type (i.e., charter elementary schools and traditional public elementary schools) was the grouping variable, and teacher characteristics (i.e., base salary average, tenure average, experience average, beginning teachers, teachers with no degree, teachers with bachelor's degree, teachers with master's degree, teachers with doctoral degree, Black teachers, Hispanic teachers, male teachers, and female teachers) represented the discriminant variables.

c) Definition of Terms

The focus of this study was to determine whether teacher characteristics were different between charter elementary schools and traditional public elementary schools. *Charter school s*operate with freedom from many of the local and state regulations that apply to traditional public schools. *Traditional Public Schools* are schools that follow state guidelines, operate with the help of tax dollars, and are divided into grades and governed by school districts. Per the Texas Education Agency (2013), *highly qualified teachers* are required to have a full Texas teacher certification, hold a minimum of a bachelor's degree, and demonstrate competency on the academic subjects the teacher teaches. A *beginning* teacher is a teacher who has

been teaching less than three years (U. S. Department of Education, 2004).

IV. Results

Prior to conducting a canonical discriminant analysis procedure, its underlying assumptions were checked. Regarding 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), 43 of the 48 coefficients were not within the range of normality, + / -3 (Onwuegbuzie & Daniel, 2002).Tolerance values were also examined and all were determined to be within the appropriate range. Readers are directed to Table 1 for the descriptive statistics on teacher characteristics in charter elementary schools and to Table 2 for the descriptive statistics for teacher characteristics intraditional public elementary schools.

Table 1: Descriptive Statistics on Teacher Characteristics of Charter Elementary Schools

Teacher Characteristic	M	SD
Total Base Salary Average	$43,096.06	$6,334.68
Tenure Average	1.82	1.34
Experience Average	4.14	2.99
Beginning Teachers	28.18%	25.86
Teachers with No Degree	2.98%	8.16
Teachers with Bachelor's Degree	80.62%	13.83
Teachers with Master's Degree	15.69%	12.00
Teachers with Doctoral Degree	0.71%	2.61
BlackTeachers	25.30%	30.94
Hispanic Teachers	28.00%	30.71
Male Teachers	15.13%	10.98
Female Teachers	84.87%	10.98

Note: The sample size for charter schools was 259.

Table 2: Descriptive Statistics on Teacher Characteristics of Traditional Public Elementary Schools

Teacher Characteristic	M	SD
Total Base Salary Average	$49,959.14	$4,628.82
Tenure Average	8.27	2.64
Experience Average	11.38	2.78
Beginning Teachers	7.08%	6.95
Teachers with No Degree	0.36%	1.44
Teachers with Bachelor's Degree	79.56%	10.84
Teachers with Master's Degree	19.81%	10.66
Teachers with Doctoral Degree	0.27%	0.94
BlackTeachers	7.72%	14.49
Hispanic Teachers	29.56%	30.04
Male Teachers	8.64%	7.21
Female Teachers	91.36%	7.21

Note: The sample size for traditional public schools was 4,370.

To determine whether charter elementary schools could be differentiated from traditional public elementary schools as a function of their teacher characteristics (i.e., total base salary average, tenure average, experience average, beginning full time, teachers with no degree, teachers with bachelor's degree, teachers with master's degree, teachers with PH degree, Black teachers, Hispanic teachers, male teachers, and female teachers), a stepwise canonical discriminant analysis was conducted. The canonical discriminant analysis involved school type as the grouping variable (i.e., charter elementary school and traditional public elementary school) and the 12 teacher characteristics as discriminant variables. The function that resulted from the discriminant analysis was statistically significant, $\chi^2(9) = 2224.69$, $p < .001$, and accounted for 38.19% of the variance between the groups (canonical $R = .62$; Wilks' $\Lambda = .62$). This discriminant function included nine variables: beginning full time percent (Standardized Coefficient = .35), Black teachers (Standardized Coefficient = .20),teachers with no degree (Standardized Coefficient = .20), male teachers (Standardized Coefficient = .17), Hispanic teachers (Standardized Coefficient = .06), teachers with a PH degree (Standardized Coefficient =.06), teacher tenure average (Standardized Coefficient = -.39),

teacher total base salary (Standardized Coefficient = -.37), and teacher experience average (Standardized Coefficient = -.20).Readers are referred to Table 3 for these standardized coefficients.

Table 3: Standardized Canonical Discriminant Coefficients by Teacher Characteristics for Texas Elementary Schools

Teacher Characteristic	Coefficient
Tenure Average	-.39
Total Base Salary	-.37
Beginning Teachers	.35
Black Teachers	.20
Teachers with No Degree	.20
Experience Average	-.20
Male Teachers	.17
Hispanic Teachers	.06

An examination of the standardized coefficients for these variables, using a cutoff coefficient of 0.3 (Lambert & Durand, 1975), three teacher characteristics contributed most to the canonical function, with the characteristic of beginning teachers making the most important contribution (.35). The teacher characteristics of beginning teachers, Black teachers, and teachers with no degree were statistically significant and contributed most to group separation. Group centroids were 3.23 for charter schools and -0.19 for traditional public elementary schools, representing a separation of 3.42 *SD* units. Positive standardized coefficients were interpreted to mean that charter elementary schools were more likely to have a higher percent of beginning teachers, Black teachers, and teachers with no degree than traditional public elementary schools.

V. Discussion

The number of charter schools has increased and continues to increase in the United States. In Texas, the student enrollment at charter schools has increased by over 244% since they were approved by the Texas legislature in 1995. Despite their growth and increased popularity, the academic performance of students enrolled in charter schools is not better than the academic performance of students enrolled in traditional public schools (Penning & Slate, 2011).In this study, the degree to which charter elementary schools and traditional public elementary schools differed with respect to their teachers was examined. A canonical stepwise discriminant analysis revealed that the percentage of beginning teachers, the percentage of Black teachers, and the percentage of teachers who did not have a college degree were the teacher characteristics that most contributed to differentiate charter elementary schools from traditional public elementary schools.

Charter schools had a higher percentage of beginning teachers, a higher percentage of Black teachers, and a higher percentage of teachers who did not have a college degree than traditional public schools. Examining the descriptive statistics for these variables revealed that beginning teachers comprised 28% of the teachers employed at charter elementary schools compared to only 7% of the teachers employed at non-charter elementary schools being beginning teachers. Readers should note that these percentages reflect that charter elementary schools had four times the rate of beginning teachers than did non-charter elementary schools. Black teachers constituted 25% of the teachers employed at charter elementary schools compared to 8% of the teachers being Black teachers at non-charter elementary schools. With respect to not having a college degree, 3% of the teachers at charter elementary schools did not have a college degree, compared to no teachers at non-charter elementary schools who did not have a college degree.

The results of this study were consistent with the results of Moreno and Slate (2016), who documented that the percentage of beginning teachers was the school characteristic that most strongly discriminated charter from non-charter schools at elementary, middle, and high school levels in Texas. Moreno and Slate (2016) established that charter schools had statistically significantly higher percentages of beginning teachers than did traditional public schools at the elementary school level, at the middle school level, and at the high school level. Teachers are more effective with 3 or more years of experience (Darling-Hammond, 2009). Conversely, inexperienced teachers have a negative effect on student achievement (Darling-Hammond, 2010). By increasing teacher retention, school districts improve their productivity reducing student failure and the need of remediation programs (Darling-Hammond, 2009). The creation of incentives to attract highly-qualified teachers to schools with higher needs, and the implementation of effective support systems to improve the retention of new teachers, are some of the strategies suggested by Darling-Hammond and Berry (2006) to alleviate the problem of under-qualified teachers in high-priority schools.

Charter schools have the same accountability standards as traditional public schools, however, as noted earlier, they do not receive the same funding as public schools. This funding issue represents one of their biggest challenges in competing to retain

experienced teachers who would rather transfer to traditional public schools seeking better salaries and resources. Another challenge faced by charter schools is the need for highly qualified teachers who can better serve the high number of Black and Hispanic students, and students in poverty, whom they have.

Although charter schools serve a higher number of minority students than traditional public schools, under Texas state laws, a high school diploma is sufficient to teach in an open enrollment charter school unless teaching in a bilingual or a special program where a teaching certification is required. As revealed in this study, charter elementary schools were more likely to have beginning teachers and teachers without a college degree. These teacher characteristics are not in alignment with the No Child Left Behind Act recommendations of having highly qualified teachers to reduce academic gaps between minority and nonminority students.

VI. Conclusion

Further studies should be recommended in regard to student characteristics that would help differentiate charter elementary schools from traditional public elementary schools. Lest readers over generalize from these results, several cautions are in order. First, this study was limited to state level data on charter elementary schools and traditional public elementary schools in Texas. Although the results obtained here were congruent with prior studies that charter schools have a higher percentage of beginning teachers, readers are urged to be cautious in any generalizations they make from this study.

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