Academic and Financial Causal Factors Related to Charter School Failure in the State of Texas

Dr. Bruce F. Marchand
Director, Pineywoods Community Academy Charter School
bmarchand@pcacharter.net

Dr. Julia Ballenger
Professor
Texas A&M University-Commerce
jnballenger@tamuc.edu

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Introduction

Charter schools are a public education option for students in 40 states, with over 6,000 charter schools educating nearly 2.3 million students, a number that represents approximately four percent of the public school population as of the 2012-2013 school year (National Alliance for Public Charter Schools, 2013). Since 2009, charter school enrollment nationwide has increased 80%, and in the 2009-2013 timeframe, nationally over 3500 new charter schools have opened on average while approximately 700 have ceased operations (Center for Research on Education Outcomes, 2013).

The Texas legislature authorized the creation of charters as a public school option in 1995. As defined in statute and administrative rules, Texas charters are held to the same standards of academic and financial accountability as all Texas public schools (Texas Education Code, 2012). Although the state limits the number of open-enrollment charters to 215, Texas charter holders can operate multiple campuses under the same charter. Since 1995, the state has awarded 308 charters. Of that number, 104 charters have been removed by the state, with the charter either converted, revoked, rescinded, renewal denied, returned, expired, merged, or abandoned (Texas Education Agency, 2013). As of the 2012-2013 school year, there were 204 charter holders operated 544 open-enrollment charter schools in Texas, with over 179,120 students enrolled from pre-kindergarten through grade twelve (Texas Education Agency, 2014). Recent developments in the 83rd Texas legislature incrementally expanded the number of open-enrollment charters from the current cap of 215 to a total of 305 charters in 2019. In addition, final authorizing authority for new charters shifted from the elected Texas State Board of

Education to the governor-appointed Commissioner of Education, beginning with charters authorized for the 2014-2015 school year (Texas Charter School Association, 2013).

Open-enrollment charter schools in Texas vary in the types of students they serve and the staff they employ when compared to traditional Texas public schools. Data from the Texas Education Research Center for the 2008-2009 school year indicated that open-enrollment charters served a higher percentage of African American students (28%) when compared to traditional Texas public schools (14%), a higher percentage of Hispanic students (52%) than traditional Texas public schools (48%), and fewer White, non-Hispanic students (17%) than did traditional Texas public schools (35%). Students in open-enrollment charters were 11% more likely to be identified as economically disadvantaged than in traditional Texas public schools. In regards to instructional staff, nearly 60% of charter teachers were in their first or second year of teaching, compared to 20% of traditional Texas public school teachers, while open-enrollment charters employed a higher percentage of teachers who were African American, male, and with less teaching experience than teachers in traditional Texas public schools. Average salaries for open-enrollment charter teachers were nearly $10,000 less than for teachers in traditional Texas public schools. Per-pupil spending for all expenditure categories was nearly $500 less per student at open-enrollment charters than in small and mid-sized traditional Texas school districts (Texas Education Research Center, 2011).

Each year, a small number of these open-enrollment charter schools lose their charter and cease operation. Substandard academic performance is one of the most common reasons for charter school failure (Garza, 2011). Specific performance indicators are used to measure the academic proficiency of Texas open-enrollment charters, including performance on state assessments consisting of the State of Texas Assessment of Academic Readiness (STAAR) in

grades 3-8, the Texas Assessment of Knowledge and Skills (TAKS) and the STAAR end of course assessments in grades 9-12. Accountability measures linked to these assessments monitor performance by grade, subject area, and student demographic indicators. Through 2011, schools and districts were assigned ratings based on student performance on the TAKS test, varying from "Academically Unacceptable" to "Exemplary" performance as identified in the state accountability rating system, as well as ratings tied to the federal NCLB Adequate Yearly Progress (AYP) measures. The state of Texas recently put into effect accountability measures linked to the new STAAR assessment (Texas Education Agency, 2013).

Another common reason for charter school failure is financial insolvency. By statute, an annual independent financial audit is conducted for each Texas open-enrollment charter. Financial data from this audit provides the basis for the measurement of nineteen financial accountability standards as part of the Financial Integrity Rating System of Texas, or F.I.R.S.T. The F.I.R.S.T. ratings range from Superior Achievement, Above Standard Achievement, Standard Achievement, Substandard Achievement, and Rating Suspended. Poor performance on F.I.R.S.T. measures can result in sanctions, governance by the state, or the revocation of the charter (Texas Education Agency, 2013).

Statement of the Problem

Because of the unique nature of charter schools, it is often difficult to identify the specific causes that can be linked to the school's ultimate failure as related to academic and financial factors (Briggs, 2009). Charter schools vary significantly in a variety of ways including student enrollment, location (rural or urban), purpose and mission as defined in the charter, administrative structure, leadership experience, staffing, and student demographics. For example, the administrative staffing for a charter managed by an educational management

organization (EMO) with multiple campuses and centralized personnel and business office functions will look much different than the administrative staffing for a stand-alone charter school with only one campus. An urban charter school serving a high percentage of Hispanic and African American students whose parents were dissatisfied with the traditional public school their child attended may have a different mission and purpose than a rural charter serving a large geographic area. Differences such as these can be challenging in the development of a data analysis technique that allows the examination of causal-comparative relationships between common factors that can be linked to charter school failure (Grosskopf, Hayes, & Taylor, 2009).

Fortunately, Texas charters are linked to several robust sources of data, including state Academic Excellence Indicator System (AEIS) reports that are compiled annually, as well as evaluations of Texas charter schools conducted by the Program Evaluation Division of the Texas Education Agency (Texas Education Agency, 2012). Looking at current research involving charters, it is noteworthy that a number of studies have been conducted that compare common factors between public schools and charters schools, but not between charter schools themselves (Carpenter, 2006). Also absent from the research literature is a preponderance of studies that consider leadership experience as a factor related to charter failure, with the research instead focusing on a campus leader's knowledge in a specific area, such as special education rules and procedures (Estes, 2006). Burds (2008) suggested that there is a continuing need for descriptive, comprehensive research studies that thoroughly examine the factors impacting charter school failure, while Paino, Renzulli, Boylan, and Bradley (2014) declared that "there is a paucity of peer-reviewed research on charter school closures, closure being one of the most unique capabilities of a charter school" (Paino et. al, 2014, p. 501).

Purpose of the Study

The purpose of this causal-comparative quantitative study was to identify potential causal factors that have impacted the lack of success at open-enrollment charter schools that have ceased operations due to academic or financial failures (or a combination of both elements) when examined in conjunction with open-enrollment charter schools that are successful academically and financially. The successful schools identified were rated by the state of Texas as "Acceptable" or better academically and were are rated as "Met Standard" under the newest Texas measures for public school academic accountability and earned a "Standard Achievement" or higher achievement rating on the state's financial accountability system.

The causal-comparative approach was chosen because it enabled the researcher to examine independent variables chosen for analysis on an ex-post facto basis (Lunenburg & Irby, 2008). The research was guided by the need to identify causal factors that impacted the academic performance of students at academically and financially successful open enrollment charter schools when examined in conjunction with failed open enrollment charter schools. Identifying causal factors impacting charter school success is supported by broad scale research employing similar methodology such as studies by the national Center for Research on Educational Outcomes (CREDO, 2009, 2013) as well as Briggs (2009) which compared student performance measures between charters and traditional public schools.

A review of current research indicates that most prolific are charter effectiveness studies generally limited to a narrow emphasis on student achievement measures (Estes, 2006). The National Alliance for Public Charter Schools (NAPCS) in a 2009 analysis of existing charter research found that many state and national charter studies employ a "snapshot" approach, analyzing student achievement at a specific point in time, often looking at one year of testing data. The NAPCS analysis identified 210 charter achievement studies across the United States

and found that only 140 of those studies met their minimum criteria for research, which includes comparing the school achievement of charter students with students in traditional public school, the use of statistically reliable and verifiable research methods, and the inclusion of a significant portion of the charter sector in the study. The NAPCS analysis also concluded that a number of charter studies focus on a specific charter model or provider or are limited to one geographic region, while other studies tend to be descriptive, examining the number of schools or describing charter legislation but are lacking any real statistical analysis (NAPCS, 2009).

There are several Texas charter studies that have defined factors related to charter effectiveness. These include studies that have examined dimensions of charter leadership (Rider, 1999, Garza, 2011), student perceptions of charter education (Barrett, 2003), and characteristics of low-performing charters (Burds, 2008). With previous effectiveness studies in mind and considering the recommendations of Carpenter (2006) and Betts and Hill (2006) to utilize a broad number of stable, easily defined factors in any study of charter effectiveness, nine factors were identified that could potentially impact the probability that a charter school would remain academically and financially successful.

Research Questions

Research questions linked to the nine factors were developed to guide the study of the quantitative factors described and to answer the overarching research question relevant to the study; specifically: "What common factors impact the academic performance of students at academically and financially successful open enrollment charter schools when examined in conjunction with failed open enrollment charter schools?" In addition, nine null hypothesis statements were developed with a corresponding alternative hypothesis directly linked to the nine

research questions related to common factors considered to have a potential impact on the success or failure of a charter school.

The nine research questions formed the basis of accomplishing the purpose of this causal-comparative quantitative study:

1. Does the number of years a school is in operation have an impact on the probability of the school remaining academically and financially successful?
2. Does the number of enrolled students affect the probability of open-enrollment charter schools remaining academically and financially successful?
3. Does the percent of African American, Hispanic, White, and other (American Indian, Asian, Pacific Islander, and Two or More Races) students affect the probability of open-enrollment charter schools remaining academically and financially successful?
4. Does the percent of students who are economically disadvantaged affect the probability of open-enrollment charter schools remaining academically and financially successful?
5. Does the staff turnover rate affect the probability of open-enrollment charter schools remaining academically and financially successful?
6. Does the teachers' years of experience affect the probability of open-enrollment charter schools remaining academically and financially successful?
7. Does the level of administrative support; specifically, the number of campus and central office administrators as a percentage of full-time equivalent professional staff, affect the probability of open-enrollment charter schools remaining academically and financially successful?

8. Does the physical location of the school; specifically, whether the school is located in an urban or rural area affect the probability of open-enrollment charter schools remaining academically and financially successful?

9. Does the level of instructional support; specifically, the amount of money spent per student for instruction and instruction-related services affect the probability of open-enrollment charter schools remaining academically and financially successful?

Selection of Sample

To establish the basis of comparison for the study parameters, 291 Texas open-enrollment charter schools were initially selected for analysis using charter award and closure data from the Texas Education Agency (Texas Education Agency, 2013). Specific criteria was developed to determine what factors constituted successful and failed charters for the purpose of the study.

Factors used to select successful charters

For the purpose of this study, a successful charter school is described as having at least "Academically Acceptable" academic achievement under the state accountability system and at least "Standard Achievement" under the state financial accountability rating system for each school year 2008-2009 through 2012-2013. Open-enrollment charter schools selected as academically successful schools were schools in operation from at least the 2008-2009 school year through the 2012-2013 school year and achieved a rating of at least "Academically Acceptable" under the state of Texas academic accountability system for the school years 2008-2009, 2009-2010, 2010-2011, and 2012-2013. Ratings were not reported in 2011-2012 due to a change in the state's accountability rating system for schools.

In terms of financial accountability, a successful charter school selected for the purpose of this study achieved a financial accountability rating of "Meets Standard" for the 2008-2009 school year, a rating of "Standard Achievement" for the 2009-2010 and 2010-2011 school years, and a rating of at least "Standard Achievement" for the school years 2011-2012 and 2012-2013. Schools excluded from the successful schools group were those that did not meet the academic and financial ratings described in the selection criteria, those that did not have a rating for any of the years 2008-2009 through 2012-2013, schools that received a rating of "Suspended-Data Quality Issues" in any one of the years or areas identified for inclusion in the study, as well as schools that originally were evaluated under standard accountability measures but that transformed into alternative campuses and were evaluated under performance standards set for alternative charter schools. Using the time span described, 202 schools were examined for inclusion in the study. After excluding schools using the parameters described, 60 schools met the criteria defined and were included in the academically and financially successful schools group.

Factors used to select failed charters

Schools identified as failed charters for the purpose of the study were Texas open-enrollment charters in operation at least three years and whose charter was revoked, rescinded, denied for renewal, returned, abandoned, or expired between the years 2008 and 2013, resulting in the school's closure. Charter schools that merged with another charter school were excluded from the study. Using these criteria to identify failed charters, 103 open-enrollment charter schools whose charter was revoked, rescinded, denied for renewal, returned, abandoned, or expired between the years 2008-2013 were examined for inclusion in the study. Following the parameters described, 91 schools were excluded from the failed charter group, primarily because

the charter school merged with another charter school. Of the remaining campuses, 12 schools met the criteria for inclusion in the group of failed charter schools to be studied.

The primary source of data for this study was the Texas Education Agency Academic Excellence Indicator System (AEIS) reports, which provides districts and charter schools a summary of data reported into the Public Education Information Management System (PEIMS) database. PEIMS provides a rich source of information related to Texas independent school districts as well as charter schools. All public education data requested and received by the Texas Education Agency are contained in the PEIMS database, including student demographic and academic performance, personnel, financial, and organizational information. Using the collected PEIMS data, the Texas Education Agency issues Academic Excellence Indicator System (AEIS) reports were accessed for schools selected for the study.

Research Variables and the Relationship to AEIS Indicators

Five of the nine variables examined in the study, including the number of enrolled students, the demographic profile of enrolled students, the percent of students who are economically disadvantaged, staff turnover rate, and the teachers' years of experience are AEIS indicators and defined as such. Variable one, the number of years a school is in operation, quantifies the number of years a school has been in existence by calculating the number of AEIS reports available for the school, which are published for each school annually by the Texas Education Agency. Variable seven, the level of administrative support, uses a combination of AEIS indicators, combining the number and percent of campus and central office administrators (both separate AEIS indicators) as a percentage of full-time equivalent professional staff. Variable nine, the level of instructional support, is labeled in AEIS as the instructional expenditure ratio, or the amount of money spent per student on instruction and instruction-related

expenses compared to total expenditures. Variable eight, the physical location of the school, uses data from the 2010 United States Census report.

Method of Procedure and Design of the Study

The causal-comparative research design for the study was accompanied by the data analysis technique selected for the study, discrete-time survival analysis with logistic regression. This data analysis technique was chosen as the sample studied (in this case, charter schools) was evaluated to determine if the event (charter school failure) occurred, when it was most likely to occur, and the identification of variables that impacted the occurrence. The study compared data from academically and financially successful charter schools to academically and financially unsuccessful charter schools in Texas.

The decision to use logistic regression as a component of the discrete-time survival analysis data analysis technique was made as logistic regression works well with subjects that can be categorized; either the subject does or does not experience an event (in this case, school failure) during the data collection period. Field (2011) defines logistic regression as "a version of multiple regression in which the outcome is a categorical variable" (p. 789).

Willett and Singer (1993) describe the terms *survivor function*, *hazard function*, and *censoring* as keys to understanding discrete-time survival analysis and its use as a data analysis technique. The survivor function is described as "a chronologically arranged list of estimated survival possibilities- the proportions of the initial sample that do not experience the event through each of the successive time periods" (Willett & Singer, 1993, p. 953). While the survivor function describes the portion of the sample that does not experience the event, the

hazard function is useful in that it allows the researcher to compute the probability of subjects in a data set that actually experience the event; specifically, it is defined as "the proportion of the risk set who experience the event in that period" (p. 954). Censoring occurs when subjects do not experience the target event (for the purpose of this study, school failure) or where there is information that is incomplete in regards to event occurrence (Willett & Singer, 1993). Censored data for this study is considered to be right-censored, as while the school may not have experienced the event, the start date of the school is known.

Using the criteria established to describe successful and failed charters, 72 schools met the characteristics defined by the researcher for inclusion in the study. Singer and Willet (1991) provide information on the required number of subjects needed to detect differences in survival between groups, noting that target populations should be carefully selected and stringently sampled with the caution that "subtle variations in population definitions can inadvertently distort the distribution of time, the very quantity of interest" (Singer & Willett, 1991, p. 269). Taking this caution into consideration, 305 schools were originally considered for study, with 233 schools ultimately excluded because they did not meet the sample selection criteria outlined in the study. Based on the stringent criteria for selection, the remaining 72 schools were used to detect differences between schools that fail and those that remain successful.

In discrete-time survival analysis, the number of subjects studied is influenced by the length of the time of the study. According to Singer and Willett (1991), the number of subjects needed to gain a desired effect size can decrease as the length of the study increases, and additional statistical power is gained in discrete-time survival analysis by following subjects for longer periods of time.

Once the survival and hazard functions were identified, the analysis was based on logistic regressions, using the years of operation (e.g., year1 = 1, year2 = 1, etc.) as the baseline model, building additional models as needed including other predictor variables. In these models, the year1, year2, year3, etc. variables were dichotomous, while the remaining predictor variables were time-varying continuous (e.g., enrollment, percent of students of various ethnicities, percent of teachers with various levels of experience). Only one predictor variable, location, was categorical, and remained constant across the study time.

Logistic parameter estimates (the estimate of the population value for a given variable), standard error (the standard deviation of the sampling distribution) and various goodness-of- fit statistics were evaluated within the discrete-time survival analysis data analysis technique. A chi-square statistic (the test statistic used to determine the independence of two categorical variables), and the accompanying p-value (level of significance) were used to assess the improvement in model fit resulting from the addition of the nine predictor variables. The odds ratio was determined for each variable analyzed, which is the hazard probability (the percentage of subjects that will likely experience the event) presented as a ratio. The odds ratio was used as a measure of effect size, or the power or magnitude of the observed effect for each variable studied. The higher the odds ratio, the more likely the subject will experience the effect related to the variable studied. A low odds ratio is an indicator that the variable did not have an effect on the outcome (school failure).

The broad expanse of school years analyzed for successful and failed charters was important in this study as charter schools do not instantly fail (or improve instantly for that matter). Rather, it is assumed that failed charters fail over a long period of time (three to five years or longer) before their charter is revoked, so a shorter period of time studied could have

affected the quality and consistency of the variables studied. To provide another level of consistency in comparing between the two groups, the study only included open-enrollment charters, and only failed schools open for at least three years for analysis.

Singer and Willett (1991) addressed the importance of an adequate data collection period. Ideally, using discrete-time survival analysis data analysis, the data collection period should continue until all studied subjects have experienced the event (Singer & Willett, 1991). This broad expanse of time was not possible for a study of this type, as thirteen years was the maximum length of time a school in this study could be researched using the established criteria stated. Singer and Willett (1991) found that longer collection periods yield fewer censored results, a desirable result as censoring may be the undesirable outcome of information that is incomplete in regards to event occurrence.

Treatment of the Data

The Statistical Package for the Social Sciences (SPSS), Version 23, was used to perform the logistic analysis of the data collected for the nine variables. Using the data generated from the SPSS program, a quantitative data analysis model; specifically, a discrete-time survival analysis with logistic regression, was constructed to analyze the relationships among the nine variables for the target years 2008-2013. For ease of identification, each variable was labeled A through I, corresponding to variables one through nine identified in the study. Model A included only the variables indicating whether a school was in operation for each year, year 1 through year 13, to predict the event of failure in that year. Model A (years of operation) served as the baseline for the other variables analyzed. Parameter estimates were reported for each year of operation and significance of the parameter estimates for each year of operation as well as the

overall significance of the years of operation was reported. A significance level of .05 was used for each statistical analysis conducted.

Once the survival and hazard functions were identified, a logistic regression analysis was conducted, using the years of operation (e.g., year1 = 1, year2 = 1, etc.) as the baseline model, then building additional models including other predictor variables. In these models, the year1, year2, year3, etc. variables were dichotomous, while the remaining predictor variables were continuous time-varying, including the number of enrolled students, the student demographic profile, the student's economic status, staff turnover rate, teacher years of experience, the level of administrative support, and the level of instructional support for the charter schools studied. Only one predictor variable, location, was time-invariant categorical and remained constant across the study time.

Because some parameter estimates were significant for specific years but not significant in other years, the Wald statistic was employed in an attempt to further define the statistical values presented. Field (2011) defines the Wald statistic as "a test statistic with a known probability distribution (a chi square distribution) that is used to test whether the *b* coefficient for a predictor in a logistic regression model is significantly different from zero" (p. 796). Wald values and *b* coefficients (a measure of the strength of the predictor variable) were reported for each predictor variable.

The fitted hazard ratio and odds for the initial discrete-time hazard model were also determined for each of the nine predictor variables. The parameter estimates were expressed on a logit scale and "quantify the relative magnitude of risk in a given time period" (Singer & Willett, 2003, p. 387). The hazard ratio for each of the predictor variables identified the proportion of schools at each time period who were still successful, who had the possibility of

failure during the following time interval, and who did not experience failure during the preceding year (Hiemstra, Otten, & Engels, 2012).

Analysis was repeated separately for each of the nine predictor variables, including the variables indicating whether a school was in operation for each year, year 1 through year 13 (variable A), and the other eight predictor variables using letters to identify the variables, including (B) the number of enrolled students, (C) the student demographic profile, (D) the percent of economically disadvantaged students , (E) staff turnover rate, (F) teachers' years of experience, (G) level of administrative support, (H) location of the school, and (I) level of instructional support. Parameter estimates were reported for each year and for each of the predictor variables analyzed. The significance of the parameter estimates were reported by year and for the overall predictor variable. Wald values and *b* coefficients were reported for each predictor variable as well as fitted hazard probabilities and fitted odds. Based on the significance level determined through the analysis conducted, a determination was made to accept or fail to accept the null hypothesis linked to each of the nine predictor variables analyzed. Table 1 presents a summary of this analysis.