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A Measure Of Efficiency Between Charter Schools And Traditional Public Schools In Michigan

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A MEASURE OF EFFICIENCY BETWEEN CHARTER SCHOOLS AND TRADITIONAL PUBLIC SCHOOLS IN MICHIGAN

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DEDICATION

This dissertation is dedicated to my parents, Willie and Mollie Carrauthers who infused in me a love for learning and education, Ophalandus and Mamie Brasfield, my father and mother in-law, who supported my journey after the passing of my parents, Monica, Michelle and Ophalandus II, my sisters and brother in-laws, Samir Khalil, who gave me a chance when nobody else would, my sister Robin, who always looked up to me as a big brother, my son Brandon, who reminds me every day what perseverance is, and finally to my wife Wendy who has been by my side in all things for 32 years. I love you all.

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"If you want to go fast, go alone. If you want to go far, go together"

African Proverb

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CHAPTER 1: INTRODUCTION

The emergence and resultant growth in charter school expansion in Michigan has increased exponentially since the establishment of the first charter school in Michigan in 1994. Initially, charter school expansion was observed primarily in the larger urban areas of Michigan, however in the last few years, growth and expansion has been witnessed in rural, suburban, and urban communities in Michigan alike. Proponents of charter schools see this expansion as a positive impact on public school education (Freidman, 2011). The advent of choice, according to the supporters of this movement, allows for more efficient and effective schools for children. Opponents believe that the expansion of charter schools only serves to take resources away from traditional public schools, especially those schools located in areas with large ethnic and racial minority populations and children in poverty (Buckley & Schneider, 2007). In addition, opponents believe that it is too early to evaluate charter schools and their efficacy, let alone consider these schools as a replacement for traditional public schools (Ladd, 2008).

One of the central arguments that are held by proponents of charter schools is that the introduction of school choice will force traditional public schools (TPS) to operate more efficiently and effectively (Chubb & Moe, 1990). It is suggested that because TPS operate in almost a monopoly, the incentive to improve (because there is no competition) is almost non-existent. In addition, the bureaucracy that TPS encounter, with the hierarchy of "top down" supervision and leadership, inhibits new ideas and approaches that could dramatically change instructional delivery to improve student academic achievement (Chubb & Moe, 1990).

Those that are in the opposition of this belief hold that charter schools will not positively improve TPS simply because of increased competition. The belief here is that as charter schools

increase in numbers, these types of school will not force TPS to improve as much as they will draw high performing students away and leave TPS with large concentrations of underperforming students (Ladd, Bifulco, &Ross, 2008). Certainly, parents make decisions to remove their children from a particular school because of dissatisfaction with the quality of education their child is receiving, amongst other things. Additionally, parents who have the means and resources removed their children to attend a better quality school that may not be a public school. But the concern amongst opponents of charter schools is that these types of schools will receive the higher performing academic students and leave the underperforming students in a large concentration in the school that is "left behind" (Ladd, 2008).

As this occurs, TPS will spiral into further decline, as students whose families have the means will leave. The challenge here with schools in this situation is that as high performing students leave, larger concentrations of underperforming students will increase and be subject to negative peer effects (Ladd, Bifulco, & Ross,2008). TPS in these situations will have very little control in terms of making adjustments to the charter school competition because the negative peer effect will drive down student achievement, which in turn drives down student enrollment. As enrollment decreases, so will revenue for these schools, however, expenditures would not decrease at the same rate.

The problem with this process is that per pupil revenue for students will decline at a faster rate than per pupil expenditures. This would severely impact underperforming schools' ability to offer education at the same level (albeit poor), let alone improve educational services that students receive (Ladd, Bifulco, & Ross, 2008). As educational delivery and overall educational services at these schools suffer, schools would be forced to cut some programs that are offered to students.

As programs are cut, this would further accelerate the loss of students and begin a "death spiral" for schools that would be impacted with these types of challenges.

Statement of the Problem

The question of whether charter schools should continue expanding as an alternative to traditional public schools is significant because the State of Michigan is in the midst of an economic resurgence since the mid-2000's economic crisis. As the state makes its way back to economic prosperity, traditional systems in Michigan are being examined for efficiency. The State's public school system has been under scrutiny for change by the current governor in terms of cost outlay for service and overall academic results by schools in the state. New models for teacher efficacy, evaluation, and even alternative teacher retirement systems have been proposed to guard against Michigan going back into an economic downturn. There is also an initiative to ensure the financial stability of the various school districts across the state. Policy makers and the citizens of Michigan are concerned about efficiency in school funding and the quality of education for all of the state's children. If charter schools are more efficient than traditional public schools in terms of cost effectiveness and student achievement, should they replace traditional public schools?

Research Questions

This study examined charter schools and their efficiency when compared to traditional public schools. Specifically, the research questions that were examined are as follows:

1. Do K-8 charter schools in Michigan outperform traditional public schools on the 4th grade MEAP Reading Assessment with comparable attributes for total enrollment,

economically disadvantaged students, ethnicity, gender, and instructional expenditures?

2. Do K-8 charter schools in Michigan outperform traditional public schools on the 4th grade MEAP Math Assessment with comparable attributes for total enrollment, economically disadvantaged students, ethnicity, gender, and instructional expenditures?

Archived MEAP data from the years 2006-2007 and individual school data on student achievement was examined.

Theoretical Framework

Advocates of charter schools believe that these types of schools are more efficient than TPS because school funding is utilized more efficiently and student achievement is higher than TPS. Additionally, the belief held by advocates of charter schools is that market forces would actually assist in making TPS to become more efficient by the competition of charter schools (Chubb & Moe, 1990; Freidman, 2011; Hoxby, 1994). Hoxby, in particular, posits that charter schools are more effective concerning student achievement, are managed more efficiently than TPS, and spur competition and growth in TPS. She further suggests that market forces will require TPS to adapt, improve, or close (Hoxby, 1994, 2000, 2003, 2004, 2009). Hoxby also suggests that as more choice for education is available, parents will "self-sort" by preference and make choices based on their preferred type of schooling for their children (Hoxby, 2000).

For example, a school district "might end up with a combination of households" that may want to spend a portion of their income on education or with a group of households that want to pursue a "progressive curricula" for their children (Hoxby, 2000). Hoxby suggests through her

research that as there are greater choice options for parents, there will be more efficient matching of student needs and school offerings, which in turn would improve school quality and student achievement.

Chubb and Moe (1990), in similar fashion, suggest that market forces and parental choice will drive schools to become more efficient. They theorize that a new system of parental choice will drive underperforming schools to adapt or close (Chubb & Moe, 1990). Their research suggests that choice is the important factor in improving schools and drive them to become efficient. This research will examine these positions on charter schools through analysis of archived test scores and several variables.

For the purposes of this research, schools and school systems (TPS versus charter) were examined. Typically, in research to examine schools and programs and their impact on student achievement, individual student achievement data is analyzed. In this manner, the efficiency and efficacy of programs are analyzed, based on the resultant individual students' achievement data. This study examined the efficiency of schools from a school perspective as the unit to be examined. The rationale for this particular study was to examine student achievement from a school level because schools, both charter and traditional public, establish policies and programs to attract and educate students on a competitive basis, based on Michigan's school funding model. Because Michigan public schools are charged with the duty to educate all students enrolled in its school systems and it is important to complete this task in the most efficient manner, school level data will be examined

Purpose of the Study

Because of concerns with the drop in student achievement of Michigan students in comparison with students from other states, the resurgence and rebound of the Michigan economy, and the political pressure to examine Michigan's school instructional model, the researcher attempted to identify through data analysis which school model is more efficient on average. With the national political shift of states to operate more charter schools, it is important to examine whether these types of schools will allow for an expansion of choice in regards to quality education for children, as charter school advocates purport. Michigan, out of all the states in the United States, has the most lenient and flexible charter school rules in the country for establishing charter schools (MAPSA, 2015). With the resultant shift in funding in Michigan from traditional public schools to charter schools, it is important that these types of schools are examined to see if they are the "best fit" for children in the state of Michigan.

Because of the short time period of the existence of charter schools in the United States (25 years for charter schools versus almost 200 years for traditional public schools), some questions at this point cannot be answered. Career choices, housing, healthcare, and other issues seemingly not related to school play a role (but not exclusively) are determined by the educational experience of students. Highly effective schools help shape highly effective students who, for the most part, make choices for the abovementioned items based, in part, on their preparation in school. If one particular school model is more efficient in delivering instruction to all of Michigan's students, not just high performing students, then that particular model can inform educational delivery across the state. It is important, however, that whatever school model is utilized, empirical data should be

used to determine the best model for Michigan students, independent of what is politically expedient.

The overall purpose of this study was to examine the efficiency of charter schools and traditional public schools in Michigan as it relates to student achievement and educational spending. The objective concerning this research was to examine which school system is more efficient in terms of student achievement and financial expenditure. Additionally, several variables were measured to examine student achievement and performance, based on the two educational models.

The State of Michigan is in the process of examining all school districts in the state to measure student academic achievement and financial efficiency. Several school districts in the State of Michigan have been identified as underperforming in terms of student achievement as well as experiencing financial difficulties concerning school funding (MDE, 2016). For example, the largest school district in the state of Michigan, the Detroit Public Schools (DPS), has experienced a loss of almost 84,000 students during 2005-2012, with many of these students enrolling in charter schools within the city (Lake, 2015). The state of Michigan Legislature has granted DPS additional funding to exist in the future as the district has incurred a loss of students as well as low student achievement. During this time period, this loss of students in DPS was based, in part, on the dramatic increase in the number of charter schools in the city.

Some Michigan legislators are considering closing the district and turning over the responsibility of educating the children of Detroit to an all charter system, as one possible solution. Opponents believe that the charter school system cannot adequately educate all of Detroit's children, given the mixed results of charters in Detroit. This is just one example of the challenges

of this issue. Charter schools in Michigan have moved from an alternative from traditional public schools to direct competitors for Michigan educational funding. Because of this situation, it is important that educational policymakers for K-12 education in Michigan know and understand the efficiency and efficacy of the both traditional school districts and charter schools.

Schools and school districts, exhibit varying degrees of student performance, based on a number of factors but primarily focusing on standardized student assessments. Additionally, ancillary factors concerning students also influence both student achievement outcomes and school and district cohorts. Students who are from low income backgrounds or who require specialized student services receive funding from state and federal programs to ensure a fair and equitable education. Typically, Title I funding, combined with local and state funding becomes instrumental in addressing the financial needs of educating these students. However, when schools and districts have a disproportionally large number of these students, Title I funding, in many cases, is not able to make up for the deficiencies.

This problem is also exacerbated with the challenge of standardized test scores being used as the norm for examining and measuring for school efficiency. Schools and districts that have large numbers of low income and special needs students run the risk of demonstrating lower test scores than schools and districts that have a smaller number of these types of students (Hoxby, 2011). It is important that when examining and comparing schools and districts, comparable schools and districts with similar funding models and student cohorts are examined. Research indicates that funding utilized for early intervention pre-school programs and for special student services increases student academic performance for when compared to students who do not receive these resources (Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005).

Non-instructional funding (i.e. school and district operational spending) should also be examined because these factors can contribute to the efficiency of schools and districts. In examining this issue, it is important to review any available research that has been conducted on this subject concerning student academic achievement and the relationship of school funding. The existing research that is available and resultant review by the researcher will provide guidance to address the specific research questions in this study.

Limitations

There were limitations to this study. Specific school curriculums were not examined for efficiency. Teacher quality was not examined in this study. The cohorts did not contain the same students; obviously 4th grade students who are successful pass on to the 5th grade. Certainly, a study examining the progress of student achievement by following a specific cohort through advancing grades is laudable; however, for the purposes of this study, only achievement in one particular cohort was examined.

School curriculum, even though it is essential, was not examined. Because charter schools are more autonomous and have the flexibility of adapting specialized curriculums, it may be too difficult to measure curriculums between a charter school and public school comparison. Additional factors were considered when measuring between cohort sizes. The researcher is aware that the specific academic characteristics germane to cohorts may not necessarily be reflective of the efficiency of a particular school's instructional delivery. Some school cohorts may have more underperforming students than others in the same school and that may have nothing to do with the efficiency or lack of efficiency of instructional delivery.

The research contained in this study did not focus on a specific target for MEAP score achievement. Schools that have a large number of high performing students would fare better in adjustment than schools with a large number of underperforming students. The focus of this research was on overall student achievement based on test scores while controlling or adjusting for variables. The dependent variable for this study was 4th grade MEAP scores in reading and math.

The researcher also understands that characteristics of high performance or underperformance may not necessarily be a characteristic of a particular school's educational efficiency in the delivery of effective instruction. This may be a specific characteristic embedded within a particular student cohort. To put it plainly, some school cohorts may have more high or low performing students than others. This phenomenon occurs in both charter and traditional public schools and the researcher will assume that this occurs at the same rate in both systems. This study will serve as a contribution to the larger body of research in the analysis of the efficiency of charter schools.

CHAPTER 2: LITERATURE REVIEW

Introduction

A comprehensive review of the available literature regarding student achievement, educational financing, and the relationship of these factors within charter and traditional public schools and their efficiency to manage these factors will be examined in this chapter. The Literature Review will be organized to address the research questions indicated in the study.

For the purposes of this review, several topics were examined concerning charter schools in Michigan. The first was the overall concept of the charter school system and its inception in American public school education. The second area was school funding and how both charter schools and traditional public schools in Michigan are specifically funded. The third area was student achievement within charter schools and traditional public schools in Michigan and the fourth and final area was the competition between charter schools and traditional public schools in Michigan for both students and school funding. The last topic is crucial because this illustrates the purpose of the present research questions in this study and provides a context for the approach used to answer this study's research questions. Charter schools in Michigan have moved from an alternative form of public school education for those who seek choice to direct competitors with traditional public schools for educational funding, and the essential question is which system is the most efficient on average when measuring for student achievement and funding spent on the educational process to garner that achievement?

Beginning with the theoretical framework that conceptualizes the current research, the following topics will be examined: School Choice, Charter Schools, Charter Schools in Michigan,

Proposal A and School Funding, Efficiency between Student Achievement and School Funding, Competition between Charter Schools and Traditional Public Schools.

Theoretical Framework

There is some research available when comparing student academic achievement between the different types of schools; however, the focus is on student achievement and not necessarily on financial efficiency in relationship with student academic achievement. Charter schools are increasing in number across the nation. There are a finite number of students and funding that is available for these students and communities across the country are placed in a position to choose between charter and traditional public schooling for children. One reason is that charter schools are a relatively new type of public school model (in comparison to public schools) that has expanded in large enough numbers to compete with traditional public schools for students in some areas in the United States. Charter schools are established typically in areas that are targeted for a specific group of students (Glomm, Harris, &Lo, 2005). Because charter schools may target a specific group of students (e.g. underperforming students, high performing students, urban minority students), there is a possibility of selection bias when it comes to examining efficiency.

American public schools have experienced significant changes in the last three decades in regards to the structure of schooling and school efficacy. Since the publishing of *A Nation at Risk* (United States, 1983), politicians, stakeholders and educational policy makers have been concerned about the efficacy of instruction in American public schools when American K-12 students are compared with students from around the world. *A Nation at Risk* was published during the Reagan Administration by a commission of 18 members drawn from the public, private, and higher education setting, and chaired by David Pierpoint Gardner, whom at that time, was the

president of the University of California. This commission also included Secretary of Education T. H. Bell. The publication of this document in April, 1983, contributed to a longstanding and ever growing concern that the decline in productivity amongst businesses and manufacturing in the United States was the result of inadequate or failing schools (United States, 1983).

The publication of this document and the resultant information that it contained, began a movement of educational reform efforts in local, state, and national sectors. Amongst the information that was contained in the documents were the assertions by the then US Secretary of Education T.H Bell that American public school students lacked a competitive edge when compared with students from countries around the world and more importantly, this problem was the fault of inadequate education in American public schools (United States, 1983). The publication suggested that substantive changes needed to be made in K-12 American public schools and schools of higher education if the United States were to keep a competitive edge in production when compared to other countries.

School Choice

One of the suggested solutions of reform to the problems of declining achievement in K-12 public school education brought to light by *A Nation At Risk* has been the strategy of school choice, particularly focusing on charter schools (Horne, 2011). School choice presents itself in many different forms: school vouchers, tuition tax credits, magnet schools, homeschooling, inter-district schools, intra-district school, and charter schools (Miron, 2008). For some, the advent of school choice allows flexibility and a greater degree of control for parents who are trying to find the best schools and school environments for their children (Freidman, 2011). Parents and stakeholders across the country have pressured policymakers and politicians to address the issue

of public school reform. Because of the complex problems surrounding some of the organizational structure of public school systems, many policymakers have declined to "tweak' the traditional school model for improvement and have opted for an entire replacement of the model itself (Horne, 2011).

Proponents of school choice suggest that market forces could be brought to bear and require bad schools to improve or to close. Schools that are effective would recruit more students and schools that were not effective would not. The proponents of this model also believe that innovation and autonomy (i.e. curricula, human resources, decision making process), are the keys to effective instructional delivery and student achievement. The belief here is that some TPS have large, inflexible bureaucracies that do not allow for change and flexibility and charter schools will allow for these necessary changes (Chubb & Moe, 1990; Hoxby, 2003). Many who believe in the school choice model insist that market forces alone will improve student achievement and no one model should be implemented for all students (Wolf, 2006). There are many different forms of school choice in the United States and the variety of choice has proliferated in the last 15 years (Stoddard & Cochran, 2007). However, for the purposes of this study, only the charter school model will be examined

Charter Schools

Charter schools are broadly defined as independently managed public schools that operate under a contract (or "charter") with an authorizing body such as a local school district, state educational agency, or university. Charter schools are entitled to public funds, yet are free (in varying degrees) from traditional district policies and state laws, including policies on hiring and firing, collective bargaining, curricula, and resource allocation (Stoddard & Cochran, 2007).

Charter schools have the flexibility to draw students from outside of a local school area, however, because they are considered public schools (they receive public funding), they are not allowed to charge for tuition. In addition, charter schools are not allowed to set restrictive criteria for admission (like private schools) and must adhere to local and state accountability standards or face revocation of the charter (Stoddard & Cochran, 2007).

The traditional public school model does not always allow for this kind of flexibility in operation (CREDO, 2009). Certainly there are some public schools that employ site-based management to allow for flexibility in the decision making process, but most public schools and public school systems are bureaucratic in structure. Information and directives are given in a "top-down" approach, with superintendents, educational leaders, or school boards making decisions regarding everything from budget, hiring, and curriculum.

This kind of administration for schools has positives in that it sets a standard for performance and procedures, however, it does not allow for quick decision making in an ever changing instructional environment. The traditional public school model does, however, allow for community input by utilizing an elected school board drawn from residents in the community in which the schools and school districts are located. In this manner, the public democratic voice of the citizenry has an opportunity to participate in the decision making process.

One major operational difference between charter schools and traditional public schools is the administration and management of charter schools and the flexibility on hiring, firing and collective bargaining for staff. Advocates of the charter school model point out that this flexibility allows for charter schools to operate with more flexibility without being burdened by school district bureaucracy to make curriculum changes and does not burden schools with excessive union

collective bargaining agreements when hiring staff (Miron, 2008). In addition, this ability allows for flexibility on other aspects of the human resources side of schools' management in terms of teacher salaries, compensation, teaching assignments, and other HR details. Advocates of charter schools also believe that this can be accomplished while improving student academic achievement in comparison to public schools (Freidman, 2011).

Some proponents of charter schools go even further and believe that charter schools can educate students more efficiently than traditional public schools and the charter school model should replace traditional public schools, especially in urban areas (Friedman, 2011). Some believe that charter schools can improve American public school education by bringing market forces in business to the forefront. The generalized belief is that school choice will allow strong schools to flourish and weaker schools to adapt or be closed.

The idea of charter schools was first proposed by Ray Budde (1974). Budde, a professor at the University of Massachusetts, initially proposed a restructuring of school districts, with a two-step system of school boards granting schools directly to instructors with resources and opportunities to improve student achievement in an unencumbered process. Budde's theory was that instructors, who knew the students the most, could devise an instructional system that fit the needs of all children. His concept was devised as a ten-year plan to turn entire districts into "charter districts" (Budde, 1974).

In 1988, Albert Shanker, then national president of the American Federation of Teachers, made a similar proposal but expanded on the idea of Budde. Speaking at the National Press Club in 1988 in Washington D.C., Shanker proposed an innovative model for schools that incorporated students, parents, teachers, and teachers unions that he would call charter schools. Shanker's

proposal, unlike Budde's, addressed *individual* schools, not entire school districts. Shanker's concern was that traditional public schools were in a rigid fashion with little input from instructors. He thought a new system of schooling should be created in collaboration with teachers and parents to ensure effective instructional delivery for all students (Kahlenberg, 2009).

Shanker's vision for charter schools was that these schools would utilize innovative instructional delivery techniques and methods to improve student achievement. His belief was that these schools should be run by teachers who would be free from traditional bureaucratic management to run independently to improve educational resources, particularly for students in poverty and for students of color. Shanker believed that these schools, managed in a collaborative approach with parents, teachers and teacher unions, would achieve substantial student achievement growth. Shanker believed that with traditional schools having to operate with bureaucratic constraints within their own particular systems, charter schools would be able to navigate through these issues and produce a better educational product for all children involved (Kahlenberg, 2009).

The expansion of charter schools across the United States also incorporated a change in the original philosophy and vision of Albert Shanker concerning charter schools. In Shanker's vision, charter schools would be created by a coalition of teachers, parents, students, and other community stakeholders to produce new and dynamic curricula to better educate students (Kahlenberg, 2009). Shanker envisioned flexibility in charter schools to devise curricula based on the needs of the students; however, this flexibility would not be at the cost of jeopardizing the rights of unionized teachers. In addition, he envisioned that charter schools would act almost as "laboratories" to traditional public schools to develop cutting edge curricula that could be formatted into mainstream traditional public school systems (Kahlenberg, 2009).

What has evolved for charter schools, for the most part, has been almost the exact opposite. As charter schools have grown, the vision that Shanker held for these schools has been altered. As more groups, both conservative and liberal, have been attracted to the charter school movement, shifts in philosophy have moved from flexibility in curricula to flexibility in school management (Chubb & Moe, 1990). Proponents of charter schools have moved away from the belief that charter schools should serve as "laboratories" to create dynamic curricula for traditional public schools to model, to educational systems that would compete directly for traditional public school students. The belief has moved to one of market forces to determine which schools and school systems would survive and thrive and which would adapt, change, or close (Chubb & Moe, 1990; Freidman, 2011; Hoxby, 1994). Certainly, legislative decisions in a number of states have also contributed to the advancement of charter schools as well.

As conservative groups adopted the idea of charter schools, flexibility in management of these types of schools superseded flexibility in instructional delivery. Many charter schools adapted a system of flexibility of hiring teachers that were not certified, which meant less personnel expenditures but was in direct opposition of Shanker's belief of the most qualified instructors delivering instruction. Towards the end of his life, Albert Shanker became an opponent of charter schools, as he saw that the initial idea had evolved into something that was counter to his vision.

Taking the lead from Shanker, in 1991, the Minnesota State Legislature passed the first charter schools bill in the United States (Minn, 1991). The law allowed for the establishment of eight charter schools in the state. The first, City Academy, was established in St. Paul, Minnesota and is still in existence today. Currently, Minnesota has 150 charter schools operating in the state. Since the establishment of the nation's first charter schools, the number of charter schools in the

United States has grown steadily across the country. In some areas in the United States, charter schools have moved from being a system of schools as an alternative to traditional public schools to, in some geographical areas, directly competing with traditional public schools and systems for students and funding (Miron, Evergreen & Urshel, 2008). Currently, there are over 6000 charters schools in the United State, with approximately 2.1 million children enrolled (NCES, 2015).

It is important to understand the establishment and evolution of the charter school movement because charter schools were initially viewed as an innovative approach to address educational disparity amongst students, especially urban students, by the educators who were in the profession. At its establishment, the idea of charter schools was controlled by primarily educators who were connected or associated with teacher unions (Kahlenburg, 2009). The charter idea was adopted, however, by businesses, policy makers, and market forces that wanted to subvert the strength of the teacher's union and incorporate a different philosophy on the charter school model. As charter schools expanded with the latter group's philosophy for implementation, the initial group of teachers associated with charter schools began to view these types of schools as a threat or counterintuitive to the work of traditional public schools and teacher's unions in particular (Kahlenburg, 2009).

The challenge for both groups in the initial development of charter schools was that there was no large national study of the overall effectiveness of charter schools. This was in part because during the early stages of the development of charter schools, there were not a lot of these types of schools in the United States to complete a comparative study on student achievement. Some research was available on one or a small group of charter schools in operation in specific

geographical areas of the United States but there was not a large study available on how charter schools operated on a national basis until the publication of the 2009 CREDO study.

The CREDO study examined 2403 charter schools and student performance in 16 states in comparison to their traditional public school counterparts. The Center for Research Outcomes (CREDO) partnered with 16 states to consolidate longitudinal student achievement data for the purpose of creating a national pooled analysis of the impact of charter schools on student achievement (Credo, 2009). The study pools results for over seventy percent of the students currently enrolled in the United States. The results indicated that overall charter schools demonstrated no significant gains or growth that was distinguishable from traditional public schools that were studied.

The results of the study also indicated that seventeen percent of students enrolled in charter schools received a superior education, while nearly half of the charter schools recorded results that were no different from the public schools options, and over a third (thirty-seven percent) delivered learning results that were significantly worse than education received in traditional public schools (CREDO, 2009).

Data from this study was also used to measure how students faired when compared to national standardized tests. Average charter school gains were plotted against 2007 4th grade NAEP score averages for the states (CREDO, 2009). The contrast of the scores against the state averages on this particular test illustrated the variation in the state results. The analysis of total charter school effects, pooled student-level data from all of the participating states and examined the aggregate effect of charter schools on student learning (CREDO, 2009). The national pooled

analysis of charter school impacts in many areas of analysis showed mixed results in many areas (CREDO, 2009).

The CREDO Study showed that Black and Hispanic students overall demonstrated lower growth rates than their traditional public school counterparts, however, students in poverty demonstrated higher academic gains in charter schools. The study also revealed that students who stayed enrolled in charter schools over time demonstrated significantly higher gains than students who left after the first year of enrollment. Special needs students performed worse in charter schools than in traditional public schools (CREDO, 2009). The reason why the information in this study is important is because the argument that proponents of charter schools promote is that charter schools give students a significantly better educational experience than traditional public schools.

It is important to note that this study did have its limitations. This research focused primarily on achievement in reading and math and did not measure any data in other core subject areas. Additionally, the research did not address the achievement gap between Black and White students nor did it examine any specific curriculum or school model (CREDO, 2009).

A follow-up study in 2013 by CREDO examined the same charter schools in the original 2009 with the addition of schools in Michigan and Detroit. The study examined on a longitudinal level the schools progress from the original study. The research found that students enrolled charter schools in Michigan and Detroit in particular, demonstrated 2 months additional growth in student achievement when compared to students in traditional public schools. Even though the study indicated 2 months of growth, the traditional schools exhibited larger overall student achievement. In an additional study of urban charter schools, CREDO (2015) found that students

enrolled in charter schools in urban areas demonstrated higher growth in math and reading than their TPS counterparts. Additionally, Black, Hispanic, low income, and special education students all experienced higher growth than their TPS counterparts, however charter school lag in overall gains when compared to their TPS counterparts.

Summary

The information outlined in the previous section illustrates a chronological approach as to how charter schools were developed from issues concerning student academic achievement in American public schools to the publication of *A Nation at Risk,* to the works of Ray Budde and Albert Shanker concerning the development of charter schools. As charter schools developed and were infused into the traditional American educational system, concerns over the efficacy of these type schools arose amongst parents, stakeholders, and educational policymakers. There was not a large comprehensive study of exactly how these schools operated on a national scale until the advent of the 2009 CREDO Study. This study illustrated an insight on the effectiveness of charter schools in the United States and ignited a discussion on their effectiveness overall. The next section of this review will examine charter schools in Michigan and their growth and development.

Charter Schools in Michigan

To address the research questions concerning the efficiency between charters schools and traditional public schools in Michigan, it is essential that the growth and development of the charter school movement in Michigan is examined. As stated earlier in this study, the initial development of charter schools was connected to teachers and teachers unions but through its development, businesses and educational policymakers began to become involved in the charter school movement. As these forces began to control the evolution of this process, teachers, teacher's

unions, and public school districts in Michigan began to advocate against this process, as these groups viewed charter schools as counter to the traditional public school system. It is also important to understand the political climate during the growth of these schools in Michigan, which found the addition of charter schools favorable.

The State of Michigan has possibly the most lenient charter school policies in the United States (Miron, 2011). Even charter school advocates raise concerns about the policy for charter schools in Michigan (MAPSA, 2014). Currently there are 232 charter schools in Michigan with approximately 100,000 students enrolled in charter schools (MDE, 2015). Under Michigan law, charter schools can be authorized by a governing board of a public body. These entities include the following: a state public university, a community college, a traditional Michigan school district, two or more public entities enjoined under an inter-local agreement (MDE, 2014).

Legislation was enacted in 1993 to establish charter schools in the state of Michigan, with then Governor John Engler signing the charter school bill on January 14, 1994. Later that year, nine charter schools were established in Detroit in the fall of 1994 (Ni, 2008). Originally, there was no cap imposed on the number of charter schools; however, a cap that limited the establishment of charter schools was imposed in 1996. This cap was only imposed on charter schools that were authorized by public universities; it did not limit the establishment of charter schools by other authorized entities (e.g. traditional public school districts, local educational school entities, and community colleges). In 2011, a vote by the Michigan Legislature lifted the cap on charter schools in Michigan. Approximately nine percent of students in Michigan are enrolled in charter schools (MDE, 2015). Michigan is ranked fifth for the number of charter schools by state (NAPCS, 2015).

Charter schools in Michigan are defined as Public School Academies pursuant to the Revised School Code [RSC380.504 (2)] of Michigan. Any parent, group, or entity may apply for a charter school through any authorizing agency approved through the Michigan Department of Education (MDE, 2014). The application process and resultant contract (charter) requires that the applying entity clearly define to the agency exactly what the academic goals that the proposed charter school will accomplish within the first seven years of its existence (Bettinger, 2005). Michigan school code allows for charter schools to have flexibility in curriculums and a mixture of grades between K-12 grade systems.

In addition to the schools contained in the initial act, there have been three additional categories added for charter schools. They are as follows:

- Urban High School Academies (UHSA). Authorization is limited to state universities.
- Schools of Excellence (SOE). A high performing academic school or cyber school.
- Strict Discipline Academies (SDA). School for suspended, expelled, or incarcerated students (MDE, 2014).

Charter schools in the State of Michigan have experienced unprecedented growth since 1994. A number of communities in Michigan that were historically served by traditional public schools and systems have experienced what some believe a permanent altering of these types of traditional public school systems. In Detroit, for example, charter schools account for 51% of the students enrolled (MAPSA, 2015). In 2012, the supervision of both the Muskegon Heights Public Schools System and the Highland Park Public Schools System was transferred from a traditional superintendent to emergency manager under the authority of the state of Michigan. The emergency

manager, by state authority, transferred the management of these districts to two for profit charter schools management companies, Mosaica and The Leona Group (Spaulding, 2013).

In 2015, The Leona Group closed all Highland Park Schools because of declining enrollment. Highland Park citizens were left with no public schools to send their children to in the city. These students were given options of enrolling into the Detroit Public Schools, schools in the Education Achievement Authority, or other charter schools. The Muskegon Heights School District removed Mosaica in 2014 and moved to a self-charter model.

In 1996, the Michigan Legislature adopted legislation to allow for students to attend school across districts with no penalty. This legislation allowed for school districts to accept students outside of their home school district on a voluntary basis. The legislation also prohibited school districts from prohibiting students from attending schools outside of their home district (Ni, 2008). This further allowed students to attend schools that they otherwise would not have an opportunity to attend.

Proposal A and School Funding

Additional legislation enacted in 1994 by the Michigan Legislature was of great benefit to the establishment of charter schools in Michigan. In 1993, the Michigan Legislature cut approximately 64 percent of the ten billion dollar statewide school budget. In its place, the legislature approved Proposal A, which restored the funding albeit with specific changes that the previous statewide school funding model (Addonizio & Kerney, 2002). Under Proposal A, school funding for public schools was altered in the following manner:

- Local property taxes as a source of funding were eliminated and in its place, a state school education tax was established. School funding was given to schools and school districts directly from the state.
- The state sales tax on goods was raised from four percent to six percent. The additional two percent went into the state school fund.
- The state's lowest schools and districts (in terms of funding) were given an increase in funding and provided a basic allowance for these districts that sought to close the gap between lower funded and higher funded schools and districts (Addonizio &Kearney, 2002).

Under this new state school funding system and with the exception of state and federal categorical aid (e.g. 31A funding for at risk students, Title I funding, funding for ELL students), school districts now received funding directly from the state of Michigan. In addition, approximately 50 wealthy school districts were designated "hold harmless districts", which allow them to continue to assess local property taxes that exceeded their state per pupil funding allowance on a voluntary basis to contribute to their educational funding. This designation allowed these districts to continue funding on their level without making cuts to school aid to match the state per pupil funding allowance (Addonizio &Kearney, 2002).

This funding also allowed for charter schools to receive per pupil funding that is on par with the traditional school district geographical in which they are located. Thus a charter school located in the Kalamazoo Public School District (KPS) would receive per pupil funding on the level of that district, a charter school located geographically in the Grosse Pointe School District (GPS) would receive per pupil funding on the level of that district (Addonizio & Kearney, 2002).

However, Proposal A did not allow for charter schools to receive any school aid via local property taxes. In addition, schools receive the per-pupil funding allowance based on the number of students enrolled in the school or school district (thus the designation "per pupil" funding). A school or school district can only receive additional funding if it increases the number of students that are enrolled. This illustrates a situation of competition for charter schools and traditional public schools and highlights the dynamics of the public school funding system in Michigan. Charter schools can access federal funding (e.g. Title I, ESEA) for operational purposes.

Even though the presence of charter schools is increasing in the state of Michigan, research shows mixed results for charter schools in terms of student achievement (CREDO, 2013). Certainly, there are charter schools that are high performing and demonstrate outstanding student achievement; but for the most part, a significant number of charter schools are not outperforming traditional public schools. This point is significant because advocates for charter schools have touted this form of school governance to outperform and eventually replace traditional public schools and public school districts (Freidman, 2011).

Efficiency between Student Achievement and School Funding

The issue of the correlation between school funding and the connection with academic achievement has been debated long before the advent of charter schools. A number of researchers have addressed this issue with varying results. In his research Hanushek (1989) found that there was no strong or systemic relationship between student achievement and expenditures on education. In fact, he cites educational inputs and student family background are more determinant factors for student achievement than per pupil expenditures (Hanushek, 1989**).** Countering his research, Hedges, Lane, and Greenwald (1994) utilizing the same data and studies employed by

Hanushek found a positive relationship between education expenditures and student achievement. In his counter, Hanushek disputed the findings of Hedge, Lane, and Greenwald and emphasized that the amounts of funding schools receive in per pupil spending is not as important as the efficiency on how this funding is spent (Hanushek, 1994).

Utilizing a different methodological approach and using information from the National Center for Educational Statistics, Wenglinsky (1997) organized student expenditures into four categories: instructional, central administration, school administration, and capital outlays. Wenglisnky's research suggested that central office administration spending per pupil has an indirect relationship concerning student achievement. Hill and Welsch (2009) conducted a study of Michigan based schools that examined for-profit charter schools versus not-for-profit charter schools and student achievement. Their study examined fourth grade and eighth grade math scores for students who took the MEAP Test utilizing a random effects model for examination. The range of the study was a four year period, from 2001-02 through 2004-05. The results of the study, based on the examination of the MEAP data suggested that there was no difference in efficiency between for-profit and not-for-profit charter schools. The study did find evidence of a difference between small for-profit schools and large for-profit schools.

Charter schools also have the flexibility of establishing school locations in areas that are advantageous to the schools themselves. Research has suggested that charter schools establish themselves in communities and areas that are targeted for specific students, or in areas that have more stable community economics amongst the residents, or in areas that have higher state per-pupil funding (Bifulco, 2014; Ladd, Bifulco, &Ross, 2008; Miron, Urschel, & Saxton,2011; Ladd, Stoddard & Cochran, 2007). This plays to an advantage against TPS as they typically have been

long established in communities and are required to serve students within the community, even if the communities experience a decline in economics, per capita income, or housing values, as in the case of many urban communities. Charter schools have the advantage of even placing themselves in more stable communities within distressed cities (e.g. Detroit, Chicago, New York) to attract students.

Bifulco and Buerger (2015) examined this phenomenon in a study of New York charter schools (with the exclusion of charter schools located in New York City). The researchers measured charter schools in the State of New York and compared schools between and within school districts. Their research suggests the following:

- Charter schools in the study tended to locate in school districts with higher per-pupil spending.
- Charter schools tended to locate in areas with higher levels of adult education amongst parents with the result to attract higher achieving students.
- Charter schools tended to serve less high or special needs students than the nearby TPSs, thus targeting lower-cost students (Bifulco & Buerger, 2015).

In this targeted example, charter schools have the ability to attract high achieving students from more stable family backgrounds and enrolled lower numbers of special needs students than their TPS counterparts. This strategy almost ensured success concerning student academic achievement. In an atmosphere of high stakes testing and end-of year student outcomes as measure of school efficiency, charter schools are at an advantage when compared to TPS (Miron, 2008). In this particular comparison, it suggests that when comparing charter schools to TPS, charter schools are achieving more in terms of student academic achievement when the reality is that there

is a strategy to control the student population pool for academic success that TPS do not employ (Bifulco, 2014; Ladd, 2008; Miron, 2008).

Similar to the results concerning school funding and academic achievement, there are mixed results on evidence concerning students who attend charter schools. In a study of charter schools in California, Zimmer's examination revealed mixed evidence concerning student achievement (Zimmer, 2003). He found that some charter school students in specific circumstances outperformed students in traditional public schools, other students fared just as well, and other students underperformed in academic achievement when compared to traditional public school students (Zimmer, 2003). In the Chicago International Charter School System, Hoxby and Rockoff (2004) found that students who attended elementary grades in charter schools displayed greater academic achievement when compared to students who applied to the same schools but were not accepted.

One of the factors of importance is the infrastructure of both charter and traditional public schools and the fiscal model that drives both entities. By definition, TPS deliver a service to the region that they exist in to serve the common good of the citizens that utilize the service (Danzberger, Carol, Cunningham, Kirst, McCloud, & Usdan, 1987). Both types of school systems, because they are funded by public financing, must operate in a fiscally sound manner. School districts across the United States are required to hold public meetings, enact and execute sound financial practices and publically disclose budgets to the general public (Addonozio & Kearney, 2002). Decisions concerning the operation of TPSs from a financial perspective are typically made by publically elected school board members with the school district central office administration

staff making educational decisions, based on financing received from public funds (Miron, Mathis, &Welner, 2015).

Both school systems utilize established accounting protocols concerning money management and many states require that both charter and traditional public schools establish budgets that must operate "in the black" as opposed to expenditure overruns. TPS have operated "in the red" in some states when school board members, district managers, or superintendents devised a financial plan to allow school districts to "emerge" out of deficit within a specific time period. In addition, laws in many states across the country mandate that TPS educate all eligible students within their district boundaries that attend, regardless of cost.

Some charter schools, however, operate differently than TPS regarding fiscal management. Charter schools, even though they are publicly funded, can be managed by private companies (Freidman, 2011; MAPSA, 2015). This point is a concern to TPS advocates because they believe the "for profit" structure of charter schools is paramount to the decision-making process concerning students and programs. The belief is that charter schools, because of their flexibility in management as opposed to TPS, make decisions on profitability as opposed to decisions in the best interests of students. Gronberga and Taylor, (2012), measured the efficiency of charter versus TPS, utilizing a cost frontier method. Their research suggests that charter schools are able to produce educational outcomes at lower cost than traditional public schools; however, this may be due to less regulative restrictions than TPS. They also assert that charter schools are not systemically more efficient than TPS when compared using cost frontier analysis. Research by Flaker (2014), however, reached a different conclusion. Her work suggests that charter schools outperform TPS in reading and math at a lower cost, particularly in urban communities. Further,

her research suggests that one of the factors that may be attributed to this phenomenon may be due to selection bias concerning student enrollment when comparing charter schools and TPS.

Hoxby and Murarka (2009) examined 47 charter schools in New York during the 2005-06 school year to examine the efficiency of using the lottery system and the effects on student achievement. Their study found that controlling for variables such as curriculum and teacher turnover, students in the charter schools fared better than their counterparts in neighboring public schools. Hoxby (1994) also cites in another work that suggests that competition in the public school market is beneficial to the overall performance of all schools. The evidence in her work suggests that expanded school choice leads to lower per pupil spending, lower teacher salaries, and improved student achievement. Hoxby also suggests in this article that the academic performance of Black and Hispanic students is not adversely affected, when comparisons are made between charter and traditional public schools.

There are some scholars that do not attribute improved student achievement and efficiency between traditional public schools and charters on market forces alone. In addition, the idea of flexibility in curriculum and design, the argument of charter school advocates may not be evidenced at all. Lubienski's (2003) research suggests that even though there is some evidence in organizational strategies to improve educational delivery, classroom instructional strategies tend to move towards similar strategies that are already being used in traditional public schools. Lubienski also suggests that contrary to widely held beliefs concerning innovation, choice and competition can potentially lead to constraining innovation and forcing conformity concerning curriculum and established pedagogical methods (Lubienski, 2003).

The studies cited demonstrate a mixed review of the efficacy of charter schools across the nation. Hanushek (1989) suggests that there is no correlation between student achievement and per-pupil funding while Hedges, Lane & Greenwald (1994) counter that there is a relationship between these two entities. Wenglinsky's research (1997) suggests that findings similar to those of Hedges, Lane, & Greenwald (1997) as well. The research also suggests that charter schools, unlike established public schools, tend to locate themselves in geographical areas that yield higher per pupil funding (Bifulco, 2014; Ladd, Bifulco, & Ross, 2008; Miron, Urshel, & Saxton, 2011; Ladd, Stoddard, & Cochran, 2007), or in areas of high achieving students (Bifulco & Burger, 2015).

These studies are significant to the research questions because they address the research questions of student achievement and financial efficiency. If charter schools are positioned so that they serve high performing students who require less educational funding than underperforming students, or if they position themselves to serve in geographical locations that garner higher per-pupil funding, then charter schools may not be proficient in servicing all students. The next section of this review will address how charter schools compete with traditional public schools.

Charter School Competition with Traditional Public Schools

Studies have shown mixed results concerning competition from charter schools and whether their impact has a positive result for students who remain in public schools. Some studies indicate that there is a small positive impact on student achievement for students in at least one subject area (Blazer, 2010). Other studies suggest that there is a negative impact concerning student academic achievement with students who are left behind (Ladd, 2008).

The differences in student achievement may be attributable not to school efficiency but peer quality. Schools may experience an increase or decrease in student achievement, based student mobility. If, for example, a large number of high performing students leave a TPS and transfer to a charter school, the resultant lower student achievement in the first may be due to a larger concentration of underperforming students and not necessarily to instruction (Ladd, 2008).

An examination of effectiveness between charter schools and traditional public schools has shown mixed results, depending on the methodology used by researchers. Certain states, including Michigan, Texas, Arizona, New York, North Carolina, Ohio, and Florida have experienced research to study charter schools, as these states have had charter schools in place longer than most other states in the country (Ni, 2008). The results have been mixed.

In a study by the United States Department of Education (USDOE, 2004) that examined NAEP scores, it found that over fifty percent of the charter schools in Texas, Colorado, Illinois, Massachusetts, and North Carolina were meeting performance standards. Additionally, findings from study of Ohio schools suggest that both charter school and traditional public schools in Dayton performed almost identically concerning student achievement (Porch, Phillips-Schwartz and Ryan, 2005). Booker and colleagues found that charter school competition has had a positive impact on traditional public schools in Texas (Booker, Gilpatric, Gronberg, & Jansen, 2005), Florida (Sass, 2006), and New York, (Hoxby, 2009). These studies employed the use of regression analysis to determine their findings, using student level, school, or district level data.

In California, there was no significant effect discovered in charter versus TPS competition (Buddin & Zimmer, 2005), North Carolina;(Bifulco & Ladd, 2006). Other studies, suggest different results when comparing different effects. Ladd, Bifulco, and Ross (2008) in a study in

Durham, North Carolina, suggest that students who were "left behind' in traditional public schools as a result of students leaving via school choice initiatives and resources, performed worse than their counterparts in other schools. In Ohio, Carr and Ritter (2007) found negative effects of traditional public schools, based on school and district level data employing multiple regression analysis. In a study that included schools in eleven states, Greene, Forster, &Winters (2003) compared student academic achievement between charter schools and traditional public schools. They found that math and reading scores improved more for students in charter schools than for students in traditional public schools.

Analysis in Michigan also displayed mixed results, Bettinger (2005) found that when comparing for location, charter schools had no effect on student achievement when compared to traditional public schools in neighboring communities (Bettinger, 2005). Hoxby, on the other hand, reached a different conclusion. In a study completed by Hoxby (2003), she examines charters schools in Michigan and concludes through her findings that the addition of charter schools does increase productivity in neighboring public schools.

Another study of significance is one completed by Helen Ladd (2008). In this study, Ladd examined the impact of school choice among students in Durham, North Carolina. Specifically, she examined whether students who “opted out” of their geographically located school and enrolled in a charter fared better than those students who remained in those schools. Ladd’s study involved two hypotheses: a) Students who were high achieving and had involved parents would utilize school choice more than the parents of disadvantaged students who were less active, and b) Students who were high achieving and had highly involved parents would opt out of low performing schools that had a large number of underachieving students (Ladd, 2008). Ladd’s

premise was that high student achievement in the choice school was a result of what she termed "cream-skimming" of top level students as opposed to academic rigor of instruction in these schools.

Ladd's findings revealed that the parental educational level was a significant factor in whether students participated in school choice. Ladd found that parents who had a college degree or some college education typically opted for school choice and those parents with a high school education or less did not participate in school choice on the level of college educated parents. In addition, Ladd's study also revealed that schools that lost high achieving students experienced a profound effect on academic achievement than schools that received students. In addition, Ladd found that as students left an underperforming school, there was a larger concentration of underperforming students.

A recent study by Miron (2011) on the Kipp Schools program observed a similar situation. Miron noted that the success of Kipp Schools was not entirely attributed to curriculum or pedagogy but on the selection process of students who initially enroll and the selective attrition of underperforming students. Miron found that the Kipp schools, even though they were required to enroll students of all achievement levels, had a low percentage of English Language Learners (ELL) and special needs students. According to Miron, this allowed the Kipp Schools to have an advantage over public schools because the absence of these students in large numbers presented a more homogenous school environment (Miron, 2011). In addition, because these kinds of students require additional resources and funding, the burden of educating these students fell primarily to the public schools, giving the Kipp Schools both an academic and funding advantage.

Miron (2011) also reported that the Kipp charter schools also benefited from the select attrition of underperforming student. Miron's study revealed that as underperforming students left Kipp schools, they were not replaced, which by subtraction, improved student academic performance. In addition, these same underperforming students returned to the local public school district, further widening the gap of student performance between the neighboring public school and the Kipp School. Miron also reported that Kipp schools retain funding for students who leave after the autumn count period (typically the 4th week of school; called Count Day for Michigan Public schools). When this occurs, typically students report to another charter school or neighboring public school which must enroll the student and educate them without the funding. This additional funding allows for Kipp schools to further improve educational resource at the disadvantage of the school that is required to enroll the students who has left.

One community that has seen an explosive growth in the charter school movement has been the city of New Orleans. In a study by Horne (2011), over 70 percent of the public school in New Orleans are currently administered by chartering agencies. New Orleans Public Schools had been suffering with low student achievement but that was all exacerbated with the natural disaster of Hurricane Katrina. During the storm, many schools were damaged or entirely destroyed. Policymakers who always wanted to address the issue of student achievement in NOPS saw an opportunity to change the face of public school education by allowing for charters in New Orleans.

Many schools were built and many teachers were displaced upon the return of education after the storm. After several years, however, the charter schools in New Orleans have not lived up to the promise of improved student achievement. Schools have only made modest gains in student achievement overall in relation to the public schools that they have replaced. In addition,

New Orleans students have not made significant learning gains in standardized tests. Many New Orleans schools have not achieved AYP status, which is the minimum standard for achieving schools according to the US Department of Education. Even though charter schools now make up 79% of New Orleans Public Schools, the effect of charter schools is mixed. The challenge here is that because of the fundamental shift in education policy (moving from traditional public schools to charter schools), the funding, by fiat, has shifted as well. Funding for traditional public schooling in New Orleans now is directed, in part, to for profit charter schools. The anticipated growth in student achievement, as touted by charter schools supporters, has not materialized, according to the opponents of charter schools.

Another study that is significant to examine is a 2003 pilot study of 150 charter schools by the National Assessment of Educational Progress (NAEP). The NAEP Assessment is a standardized test that is administered and national student averages are pooled to identify student achievement. The NAEP measures student achievement in English and math for 4th and 8th graders. According to the 2003 pilot study, charter school compared to their public school counterparts achieved students gains that were not significant when compared to public schools. In some areas, charter school scored below public schools in student achievement (NAEP, 2003).

Because of the flexibility of the charter school curriculum composition and structure, it is difficult in some cases to make direct comparisons to their efficiency when compared to TPS. One of the challenges of examining the efficiency of charter schools in relation to public schools is the nature of the structure of charter schools. The design of the charter school programs and their implementation in the various states, based on the particular states requirements for operation, pose a challenge to an "apples to apples" comparison. This factor is exacerbated in the state of

Michigan, which has some of the most lenient charter school laws in the United States (NACSA, 2014). In addition, when concerning the different research studies examined in this literature review, different research methods and techniques may account for the differences in outcomes, even with research in the same states.

Advocates for charter schools have long held that charter schools not only improve student academic achievement for the charters but also improve neighboring TPS because of the competition for students. The belief among advocates is that charter schools, because of competition and introduction into a formally monopolized education market, incite or spur growth amongst TPS in several areas. Advocates suggest that charter school competition allow for an increase in efficiency amongst TPS in terms of instructional delivery, student achievement, and efficient allocation of resources. The available research in this regard has been mixed.

Linick and Lubienski (2013) postulate that charter schools that compete with TPS motivate TPSs to change their organizational structure to address the competition for students and public funding. These researchers cite studies that indicate that TPS improve in instructional delivery and student achievement when charter schools compete for the same population of students within a given district. Additionally, the researchers suggest that market forces based on competition from charter schools, drive TPS districts to improve or close existing TPS, thus improving schools for the overall student population in affected districts (Linick & Lubienski, 2013).

Ni and Arsen (2011) found that increased competition from charters doesn't necessarily translate into improved efficiency amongst TPS. These researchers examined charter schools and neighboring TPSs in Michigan from a period of 1996-2005, utilizing fourth grade MEAP data acquired from the Michigan Department of Education Bureau of Assessments and Accountability.

They utilized a research model of fixed-effects regression analysis to analyze school effectiveness, based on school choice and charter school competition. Their results found that competition from charter schools had no effects on enrollment or participation rates for poorly managed schools but there were effects for schools that were underperforming.

A study completed by Davis (2013) also examined improved student achievement in TPSs based on competition with local charter schools. Davis examined whether charter school competition had an effect on improved student achievement in nearby TPS. Her results suggested that charter schools have little to no effect on improving student achievement in neighboring TPS. Hess (2001) suggests in his studies that there aren't any mechanisms in place for charter schools and TPS to even communicate and share best practices. He suggests that even though charter schools advocates suggest that charter schools can improve student achievement, they rarely share ideas or practices with TPS because in many school districts, both charter schools and TPS are actually competitors (Hess, Maranto, & Milliman, 2001).

The above-mentioned studies reveal mixed results concerning charter school competition between traditional public schools. Blazer (2010) suggests that there is a small but positive impact on students who remain in traditional public schools who schools are in competition with charter schools. Research by Porch, Philips-Swartz & Ryan (2005), Sass (2006), and Hoxby (2009), all suggest that competition from charter schools increase student achievement in traditional public schools. This factor supports the original belief of Albert Shanker. Research by Ladd (2008), Buddin & Zimmer (2005), Carr & Ritter (2007), and Ladd, Bifulco & Ross (2008) however, offers a counter position in that students who remain in traditional public schools which come under charter school competition experience either no impact or a negative impact.

Summary

The studies reviewed indicate that a small portion of charter schools in the United States achieve learning gains on par with traditional public schools. Only a small percentage of charter schools show gains significantly higher than their public school counterparts. Some researchers attribute their success to selective student choice, parental resources and choice, and selective student attrition. Proponents attribute their success to flexible decision making and curricula. What is clear is that the charter school movement is growing across the country. Because of the increased competition for both students and dollars between charter school and traditional public schools, the challenge is to examine which school system is more efficient at delivering instruction? If charters on the whole, are able to deliver educational services that foster students' achievement on par with traditional public schools in comparison, then charters schools would be the more efficient system. However, when adjustments in variables such as student poverty level, ELL students, a high concentration of underperforming students, and special needs students, the answer of efficiency between the two school systems is not as clear.

It is evident that charter schools have made an impact on American public school education. What is not clear is whether that impact is substantial enough to allow charter schools to replace public schools, as charter school advocates claim they can do. The studies cited in this paper all show some charter schools making significant students achievement gains. For the most part, however, many charter schools are performing at levels equal to public schools or below. In addition, Black, Hispanic, and students in poverty as a whole are achieving at lower learning gains in charter schools than in public schools (CREDO, 2009).

Even though charter schools have existed in their current form for approximately 25 years, there are still many unanswered questions concerning their viability. Many of the studies cited have primarily focused on student achievement; however, there are non-academic factors that are as important. More longitudinal studies are needed to measure how charter schools affect college choice, salary levels, career choices and quality of life.

Some researchers, such as Miron and Ladd, believe that in addition to longitudinal studies and outcome studies, more focus should be brought to bear on inputs and curriculum development for charter schools (Ladd, 2008; Miron, 2008). Both of these researchers believe that charter schools control the admission process of enrolling high achieving students and this strategy, as opposed to a sound pedagogical approach, has an influence on student outcomes. Buckley and Schneider raise the question of whether charter schools live up to their own hype and whether parents perceptions rather than sound achievement data, drive parents to enroll their children into charter schools.

One important factor concerning the evolution of charter schools is whether a standard curriculum model can be created to serve a wide range of students with varying abilities. Charter schools, in their current forms, are organized utilizing several themes, strategies and curricula. Long term studies of these various forms will define whether they are viable or not. Educators, politicians, and policymakers who have the responsibility to direct funding to specific school designs must take this fact into account.

Even though the presence of charter schools is increasing in the state of Michigan, research shows mixed results for charter schools in terms of student achievement (CREDO, 2013). Certainly, there are charter schools that are high performing and demonstrate outstanding student

achievement; but for the most part, a significant number of charter schools are not outperforming traditional public schools. This point is significant because advocates for charter schools have touted this form of school governance to outperform and eventually replace traditional public schools and public school districts (Freidman, 2011).

The examination of these studies answered some questions about charter schools but many more questions exist. How will charter schools address the achievement gap in ways that public schools have not? How will charter schools address the need for educating special need students who typically require more resources and funding than regular education students? These and other pertinent questions are areas that need to be addressed in further studies.

CHAPTER 3: METHODOLOGY

The methods and procedures that were utilized to obtain and analyze the data for the research questions that were formulated for this study are described in this chapter. The topics are outlined in the following order: restatement of the problem, research design, population and sample size, method of analysis, Michigan Educational Assessment Program, dependent variables, independent categorical variables, statistical model for analysis.

Restatement of the Problem

Schools districts in the United States have been inundated with plans and strategies concerning school choice. Parents and stakeholders who have not been satisfied with traditional public school education have turned to school choice as a vehicle for improving educational experiences for their children. School choice and charter schools in particular, have been viewed, by some, as a panacea to cure the ills of what students experience when receiving education and schooling in traditional public schools. The perception is that school choice would allow for high performing schools to thrive, with underperforming schools to adapt or close (Freidman, 2011). The current research, in some respects, speaks otherwise. Charter schools have received mixed reviews in terms of performance and student achievement (CREDO, 2009). The challenge here is that even though charter schools have mixed results, they are still viewed by some politically as a better choice than traditional public schools. There have been some studies that have examined the efficiency of charters in comparison to traditional public schools; however, these studies have been limited to individual student achievement. Certainly, individual student achievement is important, however, this research will be to examine the efficiency of charter schools and traditional public schools from the school level.

The scope of this research examined whether charter schools or traditional public schools were more efficient in delivering education by producing higher levels of student achievement as assessed by examination of 4th grade reading and math score proficiency rates on the Michigan Educational Assessment Program (MEAP). In addition, the research examined economic variables at the community level and school expenditures to identify whether these characteristics had an impact on student achievement and efficiency of delivery of instruction. The scope of this research design utilized the methods and research procedures established by Maranowski (2012).

Research Design

This research is a quantitative study incorporating regression analysis that examined archived MEAP Assessment Data from K-8 charter and traditional public schools in the state of Michigan. The purpose of utilizing regression analysis for this study was to examine the association between student achievement and educational funding. Specifically, this study examined 4th grade MEAP scores from charter and traditional public schools in Michigan during the 2006-07 school year as well as educational funding data to examine whether there is a relationship between school funding and student achievement. In addition, demographic and test data was acquired from the Center of Educational Performance and Information (CEPI). Per pupil allotments for each school district was obtained from the Michigan Department of Education, economic levels and income was taken from U.S. Census Department database.

The rationale for choosing K-8 schools is significant as almost seventy percent of charter schools created in Michigan are K-8 schools (MDE, 2015). The reason why there are more K-8 charter schools than charter high schools is because K-8 schools are cheaper to establish and manage. This research examined, from a school level, whether charter schools were more efficient

than traditional public schools in delivering education, based on 4th grade reading and math scores taken from the MEAP Assessment. The population of schools that was examined were K-8 schools in the state of Michigan. Approximately 1,628 elementary and elementary/middle schools were examined in the state of Michigan that administer the 4th grade MEAP Assessment.

Method of Analysis

Regression analysis was implemented to examine any differences in means between and within subjects to establish a correlation between the following variables: enrollment, economically disadvantaged students, ethnicity, male students, average total educational expenditures, charter schools. The dependent variable was fourth grade reading and math scores from the MEAP Assessment located within the Michigan Department of Education. Because this was school data and not individual student data, IRB requests for minor student subjects was not necessary. The regression analysis was conducted through the Statistical Package for Social Sciences (SPSS) software. SPSS is acceptable and widely used software package that is utilized for the examination of statistical data in the social sciences. For the purposes of this study, the level of significance, or alpha level (α) is established at 0.05.

Dependent Variables

Archived fourth grade reading and math data from the 2006-07 MEAP Assessment for K-8 schools in Michigan, both charter and traditional public that administered the MEAP Assessment during the 2006-07 school year were examined. Fourth grade reading and math scores for K-8 schools were examined as well as school financial data to observe if there is correlation between school funding and student achievement.

Independent Categorical Variables

Dummy variables were used to sort each school by type. Data from the Michigan Department of Education and the U.S. Department of Education that defines and identifies schools by type, charter or traditional public school, was employed.

Total Enrollment

Enrollment data for each district were utilized to calculate the multiple regression analysis to predict associations between the dependent variables and the independent variables. Larger student enrollment numbers in charter and traditional public school in urban areas may affect the variance in observations as opposed to smaller student enrollment number in smaller communities.

Economically Disadvantaged Students

This information was extracted from a report in the Center for Educational Performance and Information (CEPI) under Free and Reduced Lunch Counts, District Summaries for Fall 2006 and Spring 2007. This measure was calculated by adding the number of free lunch students plus the number of reduced lunch students divided by the number of total number of students enrolled per district and multiplying this number by 100 to gain the percentage (Maranowski, 2012).

[(free lunch students + reduced lunch students) /total number of students)]× 100

Students who receive free and reduced lunch are acceptable indicators of students in poverty for schools and school districts. Schools receive additional funding for these students through U.S. Department of Education Title I funding.

Ethnicity

Students were identified (as a percentage) in each school, based on their ethnicity. This is a practice that is long-standing concerning standardized testing in Michigan. Identifying students

by ethnicity allows for the measurement of the effective instruction for students in lowering the Achievement Gap between White students and ethnic minorities

Gender

Students enrolled in each school were identified (as a percentage) by gender concerning the percentage of students who achieve proficiency on the MEAP Assessments.

Expenditures for Student Instruction

The percentages for operating expenditures used exclusively for student instruction during the 2006-2007 fiscal year for each school district were obtained from the Michigan Department of Education *2006-2007 Bulletin 1014: Michigan Public School Districts Ranked by Selected Financial Data* report published in May 2008. This study used the total per-pupil instructional expenditures and divided each by the per-pupil C.O.E., also obtained from *2006-2007 Bulletin 1014*, and multiplied each by 100 to obtain the percentage of operating expenditures used exclusively toward student instruction in each school district during the 2006-2007 school-year:

[(Total per-pupil instructional expenditures ÷ C.O.E. per pupil) × 100] =

% operating expenditures for instruction.

The following is both the statistical formula for both reading and math that will be utilized to complete the study:

Statistical Model for Proficiency Rates on the MEAP in Reading

MEAP Reading Proficiency = b_0 + b_1 total enrollment + b_2 economically disadvantaged students + b_3 ethnicity + b_4 male+ b_5 + average total instructional expenditures +b_6 charter schools.

Statistical Model for Proficiency Rates on the MEAP in Math

MEAP Math Proficiency = b_0 + b_1 total enrollment + $b_2$economically disadvantaged students + b_3 ethnicity + b_4 male+ b_5 average total instructional expenditures + b_6 charter schools.

CHAPTER 4: ANALYSIS OF DATA

The purpose of this study was to examine the efficiency of charter schools in comparison to traditional public school in Michigan. A quantitative analysis was completed of 1,628 individual elementary schools in Michigan utilizing archived 2006-07 school level MEAP Assessment Data in the areas of Reading and Math. Additionally, total expenditures, and instructional expenditures were also acquired and examined. The intent of this study was to identify, based on the comparison of acquired financial data and school-level MEAP Assessment Data, which school systems were more efficient in delivery of education, based on funding and assessment outcomes.

Results of the Data Analysis

Descriptive Statistics

For the purposes of this study, schools were examined based on financial data and individual school MEAP Score Assessment Data. Initially, 1,818 schools were chosen for the study. Of the 1818 schools that compromised the initial study, 97 schools were removed because no assessment data was reported for the 2006-07 school year. Additionally, 92 schools were removed because no financial data was reported for the 2006-07 school year.

Additionally, the variable for special needs was removed. A significant portion of the schools that were to be examined reported less than 10% of their student populations represented special needs students and, according to the reporting policy of MEAP, their scores were not recorded on the school data. When the initial analysis was run that included school financial data and school assessment data, one particular school, Trillium Academy, was removed. Trillium Academy reported a very large number for the total expenditures variable that was larger than all

of the other schools. It was, in essence, an outlier. The final total for schools that were included was 1,628 schools.

Of the total amount of schools included in the study, 151 or 9.28% of the schools were charter schools, while 1,477 or 90.72% of the schools were TPS. A total of 643,273 students enrolled in the schools that were included in the study, with 58,668 or 10.68% of the students enrolled in charter schools while, 574,605 or 89.32% of students were enrolled in TPS.

Table 1. Descriptive Statistics of District Enrollment

School Category	N	% of Total N	Sum of Enrollment	%Sum of Enrollment
Charter	151	9.28%	58,668	10.68%
TPS	1,477	90.72%	574,605	89.32%
Total	**1,628**	**100%**	**643,273**	100%

Pearson Correlation Coefficients of Independent Variables

Prior to running a regression analysis with the independent variables, correlations were run for all of the independent variables to identify any problems with collinearity between each of the variables. One set of variables was found to have a high probability of collinearity. Average total revenue and average total expenses were found to have a high correlation of 0.978. Average total revenue and average total expenses were removed from the regression analysis models. Additionally, the correlation between average total expenditures and average total instructional expenditures was high, so only the average total instructional expenditures was left in the model. The remaining variables are as follows: total enrollment, percentage of economically

disadvantaged students, percentage white students, math proficiency, reading proficiency, charter schools and average total instructional expenditures.

Table 2. Correlations of variables

		TOTAL_ENROLLMENT	pct_econdvg	pct_white	pct_male	math_prof	read_prof	charter	AVG_TOTREV	AVG_ITOT	AVG_TOTEXP
TOTAL ENROLLMENT	Pearson Correlation	1	-.165**	-.046	-.081**	.076**	.064**	.129**	-.090**	-.137**	-.096**
	Sig. (2-tailed)		.000	.063	.001	.002	.010	.000	.000	.000	.000
pct_econdvg	Pearson Correlation	-.165**	1	-.663**	-.037	-.658**	-.674**	.114**	.285**	.112**	.289**
	Sig. (2-tailed)	.000		.000	.136	.000	.000	.000	.000	.000	.000
pct_white	Pearson Correlation	-.046	-.663**	1	.097**	.657**	.646**	-.276**	-.494**	-.175**	-.485**
	Sig. (2-tailed)	.063	.000		.000	.000	.000	.000	.000	.000	.000
pct_male	Pearson Correlation	-.081**	-.037	.097**	1	.018	.006	-.173**	-.006	.101**	.007
	Sig. (2-tailed)	.001	.136	.000		.480	.795	.000	.802	.000	.780
math_prof	Pearson Correlation	.076**	-.658**	.657**	.018	1	.852**	-.220**	-.305**	-.045	-.292**
	Sig. (2-tailed)	.002	.000	.000	.480		.000	.000	.000	.071	.000
read_prof	Pearson Correlation	.064**	-.674**	.646**	.006	.852**	1	-.253**	-.316**	-.030	-.302**
	Sig. (2-tailed)	.010	.000	.000	.795	.000		.000	.000	.233	.000
charter	Pearson Correlation	.129**	.114**	-.276**	-.173**	-.220**	-.253**	1	-.070**	-.580**	-.115**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.005	.000	.000
AVG_TOTREV	Pearson Correlation	-.090**	.285**	-.494**	-.006	-.305**	-.316**	-.070**	1	.697**	.978**
	Sig. (2-tailed)	.000	.000	.000	.802	.000	.000	.005		.000	.000
AVG_ITOT	Pearson Correlation	-.137**	.112**	-.175**	.101**	-.045	-.030	-.580**	.697**	1	.743**
	Sig. (2-tailed)	.000	.000	.000	.000	.071	.233	.000	.000		.000
AVG_TOTEXP	Pearson Correlation	-.096**	.289**	-.485**	.007	-.292**	-.302**	-.115**	.978**	.743**	1
	Sig. (2-tailed)	.000	.000	.000	.780	.000	.000	.000	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 provides descriptive statistics for all schools that indicate the minimum, maximum, mean and standard deviation for each of the variables. As this table indicates, schools on average serviced a large portion of white students. The percentage of male students was slightly over half

of the population, with a significant portion of students being economically disadvantaged students. In terms of academic achievement, schools on average had over 80 percent of their students score proficiently on the math and reading scores on the MEAP Assessment. The mean for total revenue per student was almost $9,000 while instructional expenditures were little over half of all total expenditures.

Table 3. Descriptive Statistics of Variable Means and Standard Deviations (N=1,628)

Variable	Description	Mean	SD	Min	Max
Enrollment	Total school enrollment	395.13	148.249	38	1266
Economically Disadvantaged	Percent of students who were economically disadvantaged	41.86%	.27672	0%	100%
White	Percent of students who were white	69.07%	.32841	0%	100%
Male	Percent of students who were male	51.32%	.03130	37.38%	84.21%
Math	Percent of students proficient on math section of MEAP	84.72%	13.877	7.1	100.00
Reading	Percent of students proficient on reading section of MEAP	83.44%	13.226	23.80	100.00
Inst Expend	Average total instructional expenditures per student	$5,153.88	$806.87	$2,084	$8,330

Table 4 provides descriptive statistics for both charter schools and TPS. As this table indicates, charter schools served a larger portion of disadvantaged students than TPS. Over half of the students enrolled in charter schools, were economically disadvantaged. Over 70% of the students enrolled in TPS were white, while only about half of the students enrolled in charter schools were white. The percentage of male students enrolled in both charter and TPS were about the same, almost half of the student population for both systems.

There was a significant difference concerning academic achievement between charter schools and TPS. The mean for math scores on the MEAP Assessment for TPS was over 85%,

while the statistic for the same scores in charter schools was around 75%. The mean for reading scores on the MEAP Assessment for TPS was around 85%, while the mean for the same scores for charter schools was around 75%. The average total revenue for TPS was slightly higher than the revenue for charter schools, while instructional expenditures for TPS was around half when comparing revenue. The instructional expenditures for charter schools was less than half when compared to revenue received. The average total expenditures for TPS was about $9,000, while charter schools demonstrated an average total expenditure of around $8,545.

Table 4. Comparison of means between TPS and charter schools

Variable	TPS	Charter	P>|t| of difference in means
Total Enrollment	389	454	**
% Economically disadvantaged	40.85%	51.76%	**
% white	71.97%	40.71%	**
% male	51.49%	49.63%	**
Math proficiency	85.69%	75.15%	**
Reading proficiency	84.51%	73%	**
Avg. Total Instructional Expenditures	$5,303.43	$3,691.07	**

Note: **p<.01, *p<.05

When comparing the data from Tables 3 and 4, a picture of how each system operates, is clearer. Charter on average have higher student enrollment and serve more economically disadvantaged students than TPS. Additionally, charter schools serve more non-white students than TPS. On average, charter schools have lower revenue and spend less than TPS on both overall expenditures and average instructional expenditures. Finally, students in charter schools, on average, school lower on MEAP tests than TPS students.

Research Question One - Reading Proficiency

Do K-8 charter schools in Michigan outperform traditional public schools on the 4th grade MEAP Reading Assessment with comparable attributes for total enrollment, economically disadvantaged students, ethnicity, gender, and expenses towards student instruction?

In examination of the regression analysis for reading proficiency and financial efficiency, all of the coefficients were statistically significant ($p<0.01$), with the exception of the total student enrollment and average instructional expenditures coefficients. Schools with higher percentages of economically disadvantaged students and non-white students were associated with lower student achievement. When comparing charter schools and TPS, charter schools were associated with lower student achievement in reading scores. Charter school students scored approximately 5 percentage points lower than their TPS counterparts. The coefficient concerning average total instructional expenditures was found to be not statistically significant. Overall the model accounted for 54 percent of variation on the reading proficiency scores.

Research Question Two - Math Proficiency

Do K-8 charter schools in Michigan outperform traditional public schools on the 4th grade MEAP Math Assessment with comparable attributes for total enrollment, economically disadvantaged students, ethnicity, gender, and expenses towards student instruction?

In examination of the regression analysis for math proficiency and financial efficiency, all of the coefficients were statistically significant ($p<0.01$). Similar as the reading model, schools with higher percentages of economically disadvantaged students and non-white students were associated with lower student achievement. Male students also scored significantly lower on math proficiency. When comparing charter schools and TPS, charter schools were associated with lower

student achievement in math scores. Charter school students scored approximately 2.3 percentage points lower than their TPS counterparts. Concerning average total instructional expenditures, a one standard deviation increase in average instructional expenditures (approximately $800) is associated with an approximate 1/50th standard deviation increase in math proficiency, while holding all other variables constant. Overall the model accounted for 54 percent of variation on the reading proficiency scores, 52 percent of the variation for the math scores.

Table 5. Estimates of School-level Student Proficiency Rates and Financial Data.

Variable	**Reading (1)**	**Standardized Estimate**	**Math (2)**	**Standardized Estimate**
Intercept	94.349 (4.614)	0	85.675 (4.903)	0
Charter	-4.990 (1.082)	-0.109**	-2.305 (1.149)	-0.048*
Enrollment	.002 (.002)	0.018	.004 (.002)	0.041*
Econ Dis	-21.178 (1.124)	-0.443**	-.19.308 (1.194)	-0.385**
White	13.394 (1.044)	0.333**	17.078 (1.109)	0.404**
Male	-26.233 (7.242)	-0.062**	-20.502 (7.696)	-0.046**
Avg. ITOT	0.000 (0.000)	0.023	0.001 (0.000)	0.051*
N	1628		1628	
R^2	0.541		0.529	

* $p< 0.05$, **$p< 0.01$.

Regression Analysis with the Interaction Variables

Further analysis was conducted to examine to what extent the association between the coefficients of average student instructional expenditures and student achievement varied across the school models. The rationale here was to examine whether the association between average student instructional expenditures and student achievement was significantly different in charter schools when compared to TPS. Two approaches were implemented to address this issue. First

regression analysis was competed utilizing an interaction term between charter schools and average total instructional expenditures. Second the data was divided into subsets of charter schools and TPS and separate regressions were run for each of these subsets.

Table 6 reports the results from estimating the model that included the interaction term between charter status and average instructional expenditures. As shown, all of the original variables, with the exception of enrollment in the model for reading proficiency, were statistically significant at the traditional levels ($p<0.05$). Additionally, the coefficients for all of the control variables were in the expected direction and of similar magnitude compared to the results of the original models. After the inclusion of the interaction terms, the magnitude of the coefficient for charter school increased, but was statistically significant at a lower threshold compared to the original models.

The coefficient for average instructional expenditure remained in the same direction and of relatively similar magnitude. The coefficient for the interaction term was not statistically significant by traditional standards; therefore, the association between this variable and the outcome was indistinguishable from zero. It was in the expected direction though; suggesting that it is possible that average instructional expenditures matter more in a charter setting, on average. The R^2value for both models were similar to the original models, accounting for approximately half of the variation in the outcomes variables.

Table 6. Estimates of School-level Student Proficiency Rates with variable interactions.

Variable	Reading (1)	Standardized Estimate	Math (2)	Standardized Estimate
Intercept	95.405 (4.666)	0	86.971 (4.957)	0
Charter	-11.567 (4.458)	-0.254*	-10.386 (4.843)	-0.217*
Enrollment	0.002 (0.002)	0.021	.004 (.002)	0.044*
Econ Dis	-21.190 (1.123)	-0.443**	-.19.323 (1.194)	-0.385**
White	13.236 (1.049)	0.329**	16.883 (1.114)	0.399**
Male	-26.169 (7.183)	-0.062**	-20.424 (7.692)	-0.046**
Ave. ITOT	0.000 0(.000)	0.011**	.001 (.000)	0.037
Charter ITOT	0.002 (0.001)	0.138	0.002 (0.001)	0.086
N	1628		1628	
R^2	0.542		0.530	

* $p< 0.05$, ** $p< 0.01$.

Regression Analysis with the Charter School and TPS Subsets.

A regression analysis model was run for both reading and math scores and financial data for the subsets of charter schools and TPS. The challenge here, however, is that the smaller sample size, especially with the charter school subset (151 charter schools versus 1,477 TPS and 1,628 for all schools) demonstrated skewed data and could lead to some inaccurate conclusions.

Table 7 and 8 report the results from estimating the model that included running a regression analysis on the charter school and TPS subsets. When regression was run with the charter school subset, enrollment, economically disadvantaged, and white students were statistically significant ($p<0.01$). Male students in this model were not statistically significant, additionally, the coefficients for all of the control variables were in the expected direction and of

similar magnitude compared to the results of the original models. When regression was run with the TPS subset, enrollment (for reading only), economically disadvantaged students, white students, and male students (math only p<.0.05), were statistically significant.

The coefficient for average instructional expenditure demonstrated different results when examining the outcomes. In the charter school subset, the average instructional expenditures were larger in magnitude than in the other models and were statistically significant. This suggests that it is possible that average instructional expenditures matter more in a charter setting, on average. In the TPS model, the outcomes were not statistically significant but were in a similar direction as the previous models. The R^2values for the charter school's subset model was smaller than the original models, accounting for approximately less than half of the variation in the outcomes variables.

Table 7. Estimates of School-level Student Proficiency Rates with Charter School Subset

Variable	**Reading (1)**	**Standardized Estimate**	**Math (2)**	**Standardized Estimate**
Intercept	59.915 (18.328)	0	55.115 (16.046)	0
Enrollment	0.018 (.005)	0.248**	0.022 (.004)	0.324**
Econ Dis	-21.528 (4.347)	-0.371**	-.14.720 (3.805)	-0.275**
White	15.547 (3.520)	0.331**	19.444 (3.082)	0.448**
Male	-3.710 (33.594)	-0.007	-12.116 (29.411)	-0.025
Ave. ITOT	0.003 (0.002)	0.133*	0.004 (0.001)	0.182**
N	151		151	
R^2	0.422		0.480	

* $p< 0.05$, **$p< 0.01$.

Table 8. Estimates of School-level Student Proficiency Rates with TPS subset

Variable	Reading (1)	Standardized Estimate	Math (2)	Standardized Estimate
Intercept	100.419 (4.571)	0	92.029 (5.065)	0
Enrollment	-0.003 (0.002)	-0.037*	-.002 (.002)	-.0018
Econ Dis	-21.817 (1.138)	-0.486**	-.20.730 (1.260)	-0.426**
White	12.624 (1.084)	0.320**	16.126 (1.201)	0.377**
Male	-29.297 (7.062)	-0.007	-22.740 (7.823)	-0.053*
Ave. ITOT	0.0006 (.000)	0.003	0.001 (.000)	0.027
N	1477		1477	
R^2	0.543		0.524	

* $p< 0.05$, ** $p< 0.01$.

Summary of Regression Analysis

The various models for student achievement and financial data demonstrate substantial evidence to explain the association between both factors. Over 50% of the outcomes concerning student achievement and the financial efficiency of schools could be explained within the data analysis in all of the models with the exception of the model utilizing the charter school subset. The strongest predictor of student achievement was the percentage of white students within a school. This factor had the most direct and positive indicator of student achievement. The next most powerful indicator was the percentage of economically disadvantaged students in all of the models. Controlling for the other variables, schools with a large percentage of economically disadvantaged students underperformed other students in both reading and math in both school systems. In addition, charter schools exhibited more of these types of students than TPS. The only other variables the represented positive rates were the average total instructional expenditures.

Each of the other variables exhibited negative coefficients concerning student achievement and school efficiency. The most significant variable was demonstrated in the examination of the reading scores. The data suggests that there is an effect on student achievement in reading between charter schools and TPS. The data gives an indication that 4th grade students enrolled in TPS faired significantly better on the MEAP reading assessment than students enrolled in charter schools. When the interaction model was run the analysis for the "charter school effect" in reading was even higher. The effect on math scores did exhibit similar results as well, however, the data was not as large as in the reading data concerning the all schools model. Math scores for all school demonstrated -0.048 for charters, however with the interaction model, that number increased significantly to -0.217.

The financial data also suggests that charter schools spend less on instructional delivery than TPS. When measuring for all school systems, each system spent on average around half of what was received in funding on instruction. TPS spend slightly higher than charter schools. It must be noted, however, that charter schools, according to the Michigan Department of Education funding formula, does not receive as much funding as TPS concerning property taxes (MDE, 2015). Michigan law does allow for charter schools to levy property taxes as TPS with that ability.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to examine whether charter schools, on average, are more efficient than traditional public schools when measuring for student achievement. Specifically, this study measured archived4th grade reading and math scores on the MEAP Assessment during the 2006-07 school year; 1,628 K-8 schools in Michigan, both charter and traditional public schools, were included in this study. In addition to measuring student academic achievement data, financial data and other student-related data concerning schools was also included in this study and examined.

The rationale for including these variables was to examine whether financial resources given to individual schools were a factor in student achievement. Additionally, this study examined whether school expenditures were factors in student achievement. The objective here was to examine whether there was a correlation between overall school financing and student achievement and how this varied across school sectors. As this research alluded to earlier, researchers such as Hanushek (1989) have indicated that that there is no correlation between student achievement and per-pupil expenditures. Hedges, Lane, and Greenwald (1994) however argue that there is a positive relationship between education expenditures and student achievement.

Studies of this type usually examine student achievement at the student level to view a picture of student achievement and progress. The intent of this study, however, was to model educational achievement and financial efficiency at the school level, as schools are directly responsible for instructional delivery of education. In some areas in Michigan, students are regulated to only one school to receive educational opportunities. Even with the advent of choice

and cross district admission policies in Michigan, many Michigan students cannot take advantage of these options because they simply do not have the resources to attend better schools. They are, in essence, landlocked by geographical location into poor or underperforming schools. These schools represent the only opportunity these students have available for their educational experience. Thus, the rationale for completing a school-level study.

The school financing formula for Michigan provides a minimum allotment of per-pupil funding for students enrolled in the Michigan public school system, regardless of the financial wealth of the residents of the community where the school resides (Addonizio & Kearney, 2002). This allotment, called the minimum foundation allowance, provided Michigan public schools an average allotment of $7,108 per pupil in the 2006-07 school year (Maranowski, 2012). For this reason, studying this issue on a school level was a good choice to examine the financial correlation of student achievement and financial efficiency. Additionally, utilizing MEAP Assessment data for school performance is also acceptable, as this data is used by the state on Michigan and the U.S. Department of Education to determine the effectiveness of instructional delivery and student achievement in Michigan schools (MDE, 2011).

Results

The results of the regression analysis of student achievement based on 2006-07 4th grade MEAP scores found a statistically significant difference in student achievement for students enrolled in charter schools. On average student achievement in charter schools, when compared to TPS for both reading and math, was significantly lower than student achievement in TPS.

There were differences within the group of independent variables within the study. When examining the data amongst the different models, schools with high percentages of economically

disadvantaged students and males scored poorly on the MEAP math and reading tests in both charter schools and traditional public schools. Conversely, white students scored high on the MEAP math and reading tests. When the financial data was examined concerning the association of student achievement and educational financing, a different picture emerged.

The research indicated that there was collinearity between average total revenue, average total instructional expenditures, and average total expenditures. In essence, the presence of all three of these variables together within this study would have a strong influence on the outcomes which would skew the results. This would occur by possibly overstating the magnitude and significance of the association between the predictors and outcome variables. Because of these phenomena, these two variables were removed from the study. What remained was the variable for average total instructional expenditures.

Conclusions

This study examined whether charter schools, on average, were better at delivering student achievement, and financially more efficient concerning student achievement than traditional public schools. Based on the findings, charter schools are not more efficient at delivering instruction than TPS. Additionally, this study finds that average instructional expenditures does impact reading and math proficiency amongst 4th grade students, even though charter school receive less funding than TPS, as stated earlier in this study. These findings are inconsistent with the findings by Hanushek (1989) but are consistent with the findings of Hedges, Lane, and Greenwald (1994).

Implications

The results of this study suggest that improving student achievement and schools being more financially efficient may have more to do with the quality of instructional programs,

curriculum, teacher service, and other instructional aspects of education than issues with funding. This study found that charter schools, on average, spend less on instructional expenditures than their TPS counterparts. One factor for this may be because charter schools receive less funding from the state of Michigan for operational purposes. Michigan school finance policies do not allow for charter schools to levy property taxes as per their TPS counterparts, so charter schools that do not have any additional funding source (charitable foundation, contributions from the business sector, as examples) do function with less funding than TPS.

Another factor that should be considered is the actual formula on how instructional expenditures are calculated per school and school district. Wages are a significant factor in instructional expenditures and, on average, teacher compensation is larger in TPS than in charters school. This factor may not necessarily indicate that teachers employed in TPS are more effective in delivering instruction than teachers in charter schools, however, higher compensation may drive more effective teachers into TPS. Additionally, some charter schools are *for profit* schools in that financial decisions may be driven in these schools based on profitability than for educational purposes.

There are some historical and contextual vestiges that still linger from segregation that impact how school finances affect the overall educational system. This is readily observed between school districts in urban areas that are surrounded by school districts in suburban areas. The historical and socially geographical implied boundary lines that existed in these areas for residency also were applied for schools and school financing as well. This phenomenon has been readily documented in educational research and has had a direct impact on many educational systems, particularly concerning traditional public schools. Future studies should examine how

the role of institutionalized racism and segregation and resultant de-segregation has impacted public school financing.

Recommendations

There should be a concerted effort to identify exactly why some schools lag behind in student achievement while other schools seem to excel in this area to fully understand which model, charter or traditional public schools, are the best fit for school children in the state of Michigan. Charter schools certainly provide choice to students and parents when it comes to making choices for a quality school. The challenge here is that there are good and bad schools in both charters and traditional public schools. It is essential that good schools, whether charter or traditional public, be examined to see exactly how they function, and more importantly, be replicated throughout the state of Michigan. Even though the emphasis is to operate schools more efficiently from a financial perspective, the idea of giving children an adequate education should not be lost or superseded by financial efficiency of school operation.

Certainly, this study will add to the research of charter schools, however, additional longitudinal studies of the adequacy and effectiveness of charter school is necessary. Even though this study found that charter schools are not as efficient as traditional public schools, these types of schools only represent about 10% of the schools in Michigan. The effect of an inadequate education has both implications in the long term for the person receiving that education and society in general. Education (or lack thereof) affects the choices we make in all aspects of our daily life.

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ABSTRACT

A MEASURE OF EFFICIENCY BETWEEN CHARTER SCHOOLS AND TRADITIONAL PUBLIC SCHOOLS IN MICHIGAN

by

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Advisor: Dr. Ben Pogodzinski

Major: Educational Leadership and Policy Studies

Degree: Doctor of Philosophy

The purpose of this study was to measure the efficiency between charter schools and traditional public schools in Michigan. 1,628 schools, both charter and traditional public schools were examined in the study. Archived 4th grade MEAP reading and math assessment data was examined. In addition, financial data was examined for all of the schools.

Regression analysis utilizing SPSS was employed with MEAP reading and math scores as the dependent variable and the following independent variables: enrollment economically disadvantages students, percentage of white students, percentage of male students, average total instructional expenditures, and charter schools.

The results of the descriptive statistics indicated that there was a significant difference in student achievement and academic proficiency between charter and traditional public schools. Charter school students, on average, performed worse on the MEAP math and reading assessment than their TPS counterparts. Additionally, schools that had a large percentage of economically disadvantaged students and male students performed worse than schools that did not have a large percentage of these types of students. White students performed better than non-white students in

both charter and traditional public schools. Additionally, the study found that average instructional expenditures did influence student achievement. Schools that spent more on instructional expenditures received better academic results than schools that did not. The study suggests that charter schools, on average, perform worse in student achievement than traditional public schools in Michigan.

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