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In-district Charter Programming in an Urban School District: The Promises and Challenges of Semi-Autonomous Schooling

Lensi Nikolov
Lehigh University

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In-district Charter Programming in an Urban School District: The Promises and Challenges of

Semi-Autonomous Schooling

By Lensi Nikolov

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requirements for the degree of Doctorate of Education.

_____	_____
Date	George White
	Dissertation Chair
	Professor of Educational
	Leadership
	Committee Members:
_____	_____
Accepted Date	Floyd Beachum
	Associate Professor
	Education Leadership
	_____
	Craig Hochbein
	Assistant Professor of
	Education Leadership
	_____
	Linda Mayger
	Assistant Professor of
	Education
	College of New Jersey

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TABLE OF CONTENTS

CHAPTER 1

CHAPTER 2

CHAPTER 3

LIST OF FIGURES

ABSTRACT

The rapid increase in charter school enrollment has had a significant impact on many school districts throughout the country. As such, a large body of research has emerged around charter school issues, including equitable access to charter school enrollment, fair and transparent recruitment and enrollment practices, and effects on academic, attendance, and behavior outcomes.

The Center for Reinventing Public Education, housed at the University of Washington, is leading a district-charter collaboration initiative to re-align the two sectors to better serve students in both charter and traditional public schools. District-charter collaboration has the potential to address the complexities in each of the three research themes described above. The present study aimed to contribute to this emerging work around district-charter collaboration by examining the outcomes of the only in-district charter school in operation in Eastern Pennsylvania. Using extant data from Building 21 Allentown and Allentown School District, this study first examined whether students who entered the in-district charter's admissions lottery represented the general population of district students, and then examined whether the program had an impact on Building 21 Allentown lottery winners, compared to lottery non-winners. Logistic regression results indicated that Gifted identification increased the likelihood of entering the lottery and that absenteeism decreased the likelihood. Chi-Square results indicated that lottery winners and non-winners performed similarly on the standardized Algebra exam. MANOVA results revealed that lottery winners achieved significantly higher GPAs and significantly fewer discipline infractions than non-winners. The findings from the study should inform policy makers, practitioners and researchers about the advantages and challenges of in-district charter schools.

1

CHAPTER 1

Introduction

According to the National Center for Education Statistics [NCES], charter school development and enrollment are growing rapidly across the nation. From 2004 to 2014, the total number of charter schools in operation in the United States increased from 3,000 to 6,500, while the percentage of public school students attending a charter school increased from 1.6 % to 5.1% in the same period (NCES, 2016). As more families opt in to public charter schools, enrollment at traditional public schools [TPS] is down by nearly a half million students nationwide. Pennsylvania had 180 charter schools in operation in the 2015-16 school year (Enrollment Public Schools, 2016). The school districts of Eastern Pennsylvania (27 spanning the Carbon, Lehigh, Monroe, Northampton, and Pike Counties) where this study took place, have experienced similar rapid growth of charter schools and subsequent declines in public school enrollment. In Fall Semester 2015, there were 14 brick-and-mortar charter schools in the defined area serving 6,339 students. Enrollment in public schools in the region totals 129,177 students, which means that 4.9% of the students enrolled in a brick-and-mortar charter school rather than their TPS (Enrollment Public Schools, 2016).

As charter school enrollment rises, so does the controversy surrounding the policies that govern them. Questions about charter schools' funding, academic performance, students' behavioral and emotional outcomes, and community impacts are central issues in the current education reform milieu (see Betts & Tang, 2014). This study aimed to accurately present the complicated issue of charter schooling, and to move the debate beyond whether charter schools should or should not exist, should or should not receive public funding, and/or should or should not be held to stricter measures of accountability. Rather, this study was situated in the reform

agenda which is considering improved policies and support for both charter schools and TPSs. Specifically, I addressed questions about a third schooling option that is gaining attention and support: high-autonomy schools that operate with a unique mission and educational philosophy *within* the school district of residence. But what exactly does such an arrangement entail?

District-Charter Collaboration

In 1988, Albert Shanker, then president of the American Federation of Teachers, gave a historic speech to the National Press Club regarding the state of the national education reform movement. Summing up the standards movement that proceeded *A Nation at Risk*, Shanker urged the nation to consider an alternate reform that would address the fact that the standards movement did not meet the needs of, "80 percent of the students who do not learn well in this country," (Shanker, 1988, p. 8). He proposed: "The school district and the teacher union would encourage [groups of] teachers to submit a proposal to create a new school [utilizing 'something new, something different,'] … that would be a totally autonomous school within that district," (Shanker, 1988, p. 11). He communicated a vision that would empower teachers to develop fully autonomous programs, and empower "any group of parents to opt in to a different type of school," (Shanker, 1988, p.12). Thus, the charter school movement was born.

Interestingly, Shanker's (1988) original vision of the movement did not propose separate systems. Contrary to what has evolved since then, he saw school districts and unions leading the effort to offer programs of choice for students, families, and teachers. In the 28 years that followed Shanker's address, his ideas have been developed along a very different trajectory than he imagined. School choice options have expanded with the introduction of state-sponsored private school vouchers, magnet schools, public school choice (such as open enrollment and inner-district transfers) and tuition-free charter schools. Consequently, a large number of public

charter schools began serving a vast number of students. However, their status as experimental

programs that could be scaled-up has largely not been a reality. As such, 40 states operate

charters under 40 unique charter school legislations, which result in different authorization,

oversight, and funding schemes (NCES, 2016). While the financial impact varies along

legislative lines, there is reason to believe that all systems with a significant charter presence

experience pressure to compete for enrollment. This pressure, combined with political pressure

from both sides of the movement, has led 21 school systems across the nation to develop

District-Charter Collaboration Compacts (CRPE, 2016).

The Center on Reinventing Public Education, housed at the University of Washington,

has led the district-charter collaboration efforts in these 21 cities. Each city school system has

been provided a grant to develop collaboration among charters, local education agencies, and

Catholic school systems. They have been charged with implementing collaborative initiatives

around several common areas: performance, special education and English Language Learners

[ELLs], facilities and resources, enrollment systems, human capital, professional development,

and common core curriculum and instruction. Through these collaborative efforts, administrators

across sectors have made improvements to their systems by aligning and sharing resources and

responding to local/community needs. In some cities, such as New Orleans, primary focus has

emphasized raising student achievement outcomes across sectors (New Orleans District-Charter

Collaboration Compact, 2016). In other cities, such as Boston, focus has been on unifying

enrollment and increasing financial efficiency with collaboration around facilities (Boston

Catholic-District-Charter-Collaboration Compact, 2016). In all cases, cities with compacts have

entered into a new phase of co-existence: one that accepts the reality that their respective school

choice options will remain and recognizes that all sectors benefit when they can share resources

and expertise. While most of these cities have been living with a large charter school population for quite some time, many mid- and smaller-size cities are just starting to feel the weight of charter school proliferation. The Lehigh Valley of Pennsylvania, where this study was situated, is one such area that is grappling with the growing prevalence, and competition from, charter schools.

Costs of Charter School Tuition to Regional Districts

Superintendents and school boards across the nation are experiencing significant loss of revenue with the rapid increase in charter school enrollment. While state policies vary with regards to funding for charter schools, a consistent argument against charter school expansion is the loss of funding to school districts and TPSs.

Some Pennsylvania school districts have experienced soaring costs in charter school tuition payments. In the nine years preceding 2013-2014, the net cost of charter school tuition to Pennsylvania school districts rose over 77%, to more than $1.2 billion (Pennsylvania School Board Association, 2014). Indeed, the competition from charter schools has led superintendents and district leaders to opine charter school resource drain, as evidenced by a joint statement from 27 superintendents in Eastern Pennsylvania as follows: "Charters and Cyber-charters are not 'free' as they are generally advertised. They are funded by a state-mandated funding formula draining local tax dollars from school districts, causing property tax increases and cuts in staffing and programs (at public schools), (Superintendents of the Carbon, Lehigh, Monroe, Northampton, and Pike Counties, 2014). The region's school districts are spending an increasing amount of money in charter and cyber-charter school payments. The average cost to districts in the region rose by 42% and 49% for charter and cyber-charter schools respectively from 2007-2010 ("Rationale to Course Correct," 2010, p. 40). Originally, the state government made

reimbursement and grant money available to school districts to offset the sudden decrease in revenue. Although the reimbursements were paltry compared to the expenditures (roughly two thousand dollars for every nine to eighteen thousand lost), the recent withdrawal of reimbursements has caused yet another fiscal blow to financially hurting school districts. In response, school district leaders and university colleges of education are collaborating to petition the Pennsylvania Department of Education to revise the current charter school funding policies to mitigate these financial effects.

Pennsylvania Charter School Law

School districts argue that state law regarding charter schools is unfair in both accountability measures and funding policies. Pennsylvania law states that, "teachers, parents, pupils and community members may establish and maintain schools that operate independently from the school district structure as a method to accomplish [several things]," including holding the schools accountable to meeting measurable academic standards (Charter School Law, §17-1702). Charter schools in Pennsylvania are currently evaluated under the same system as school districts. However, superintendents argue that charter schools have not endured the same consequences as TPSs for failing to meet achievement and growth expectations ("Rationale to Course Correct," 2010). Pennsylvania law also outlines how charter schools are to be funded:

> For non-special education students, the charter school shall receive for each student enrolled no less than the budgeted expenditure per average daily membership of the prior school year… minus the budgeted expenditures of the district of residence for nonpublic school programs; adult education programs; community/junior college programs; student transportation services; for special education programs; facilities acquisition, construction and improvement services; and other financing uses, including debt service and fund

transfers. For special education students, districts pay charter schools the non-special

education amount, plus an additional amount based on the total special education

expenditure divided by average daily attendance of the prior year (Charter School Law,

§17-1725-A).

This funding formula is burdensome to TPSs in that it costs them significantly more money than

educating students in-district. As the former superintendent of Allentown School District was

quoted, "Charter school tuition costs the district $15,000,000 a year, compared to [the]

$5,000,000 it would cost to educate them in the district," (Sasso, 2014). With such significant

impact on school district budgets, regional superintendents are pressing the state to revise the

Charter School Law to be more equitable in both funding formulation and accountability for

student achievement. Although these leaders have not expressed interest in collaborating with

charter schools to improve financial outcomes for both sectors, this study is situated in a

developing line of research and practice, which posits that collaboration may be both viable and

desirable for systems experiencing division between charters and district schools.

Building 21 Allentown – A High-Autonomy In-district Charter School

In 2015, Allentown School District opened Building 21, a collaboration between the

district, local businesses, and a non-profit organization that provides consultation and guidance

on opening "reimagined" secondary schools. When asked whether this was a charter school in

the district, Chip Linehan, the founder of the Building 21 organization, described it as a "high

autonomy in-district school, or what some might call, an in-district charter," (Business Matters,

WFMZ, 2015). As a new concept, leaders engaged in the founding of the school have been

challenged to define it, to specifically address how it is similar to, and different from other

charter schools, magnet programs, and the public schools from which it draws students. Building

21 funding, governance, and programming practices situate it uniquely outside of existing school models. It is neither a charter school nor a magnet school (as specified in the definition of terms), nor a traditional public school. It incorporates some of Shanker's (1988) original vision as a school within a district with teachers represented by the union, but also incorporates aspects of modern charter schools with a high level of autonomy, external organizational collaboration, and an entrance lottery. Whether the term "in-district" charter will continue to be used to classify it is unpredictable, as language and semantics evolve over time. In an effort to address the lack of an accepted and understood title for Building 21 Allentown, the following details explain what sets the school apart along three important dimensions.

Funding. The collaboration between the district, businesses, and the Building 21 organization involved raising $3.6 million dollars in private funds, including substantive contributions from the following lead supporters: Air Products and the Rider-Pool Foundation (Building 21, ASD, 2015). The start-up money was used to fund a 15-year lease on a school site from a local property developer at less than $10/square foot, and to cover the $1.5 million dollar renovations needed to equip the Building as a blended-learning school. The school was founded with no initial investment from the district. However, per the Memorandum of Understanding [MOU], the district is committed to assume full fiscal responsibility for the school after the fourth full year of operation. Charter schools most often lease Buildings as well, either from community businesses or the district of residence. State laws vary in the degree to which they protect or limit access to district-owned Buildings, but Pennsylvania law provides no guidance and little financial help to charter schools operating independently of school districts (Basic Education Circular, 24 P.S. §17-1701-A).

As was explained in the earlier section, "Pennsylvania Charter School Law," funding for charter schools is determined by a legislative formula resulting in a percentage of the per pupil expenditures from the district of each student's residence. In the case of Building 21, per pupil expenditures are the same as those at the other schools throughout the district. This funding approach is in stark contrast from that used in charter schools, where per pupil revenue varies based on the district they reside in. Having the school in-district prevents the district from losing control over a substantial percentage of their per pupil expenditures.

Governance. Building 21 Allentown is technically a high school within the district, but operating with a high level of autonomy in which the school's administration engages in most of its operations independent of the school district, including hiring, professional development, curriculum and instruction development, student assessment, and performance review. The school relies on the school district, however, for transportation, facilities, and employee benefits. Building 21 teachers are members of the collective bargaining unit and enter into the same contract as the district school teachers. A common argument among charter school opponents is the fact that they are not led by democratically elected officials, but rather by appointed board members. Unlike TPSs, Building 21 Allentown has an advisory council whose members represent high-level executives in the business community, as well as one district and one Building 21 administrator. The advisory council provides guidance and leadership in its programming, but is not a decision-making entity. Because Building 21 is an in-district school, the elected School Board of Directors serves as the legal decision-making entity. In contrast, for true charter schools, the appointed boards serve in both capacities, providing programmatic guidance as well as making decisions about all manners of operations. A further distinction between the Building 21 Advisory Council and charter school Boards of Trustees is that the

latter are subject to the Public Official and Employees Ethics Act and legally accountable to provide "good and effective [stewardship] of public money," (24 P.S. §17-1701-A).

A notable difference between Building 21 Allentown, TPSs, charter schools, and magnet schools is the admissions lottery. TPSs generally enroll students from a defined attendance area or neighborhood. Although many districts now practice open enrollment and no longer require students to attend their neighborhood schools, Allentown School District requires all students to attend the school they are zoned for. Magnet schools typically "require students to take an exam or demonstrate knowledge or skill" to gain admission (U.S. Department of Education, 2017). Building 21 differs from magnet schools in that there are no additional admissions requirements beyond the student's residence in the district. It differs from charter schools because the lottery is open only to students who reside in the district, regardless of whether it is over-subscribed or not. Charter school admissions in Pennsylvania prioritize students who reside in the district, but are open to any students who desire to enter the lottery.

Programming. The school in this study is the second site to open for the Building 21 organization, which operates its flagship school in the School District of Philadelphia. The organization operates with a unique model:

> Building 21 is designing a competency-based educational model that provides flexibility in how, what and where students learn. Students will be supported as they design personalized learning pathways and choose from a variety of instructional opportunities which include blended learning, problem-based learning and experiential learning (Building 21, 2016).

Two of the most distinctive offerings at Building 21 are the studios and modules. Students choose studios, wherein they learn about topics such as journalism, finance,

environmental studies, etc. Although they are similar to electives in that they are outside of the core curriculum and provide choice to students, they differ from electives at neighborhood high schools in that they are organized around specific occupational fields and the curriculum is built around integrating content and application of skills to solve real-world problems. Modules provide blended-learning experiences for students to learn core content knowledge. Students work at their own pace online, while also receiving direct instruction from a teacher on a small group or individual basis. Although magnet programs may offer similar programming in various contexts, their competitive admissions procedures make it impossible to judge whether the increased gains are attributable to program effects or simply reflect the higher abilities of the students admitted. Similarly, neighborhood high schools offer blended learning modules to at-risk students for intervention purposes, whereas Building 21 integrates these practices into the everyday fabric of their students' lives.

Building 21 Allentown is the first school of its kind to open in the Lehigh Valley; it is the first high-autonomy, or in-district charter school. Its position in the school district, unique program offering, and lottery enrollment process make it a well-suited subject for a study of such schools. Examining common well-researched questions about charter school inputs and outcomes through Building 21 has the potential to offer new insights into some of the often conflicting findings about the following issues: demographic and sociological predictors of charter school enrollment; the exacerbation of racial and socioeconomic segregation among public schools; the fiscal impacts of charter school enrollment on school districts; and academic, attendance, and discipline outcomes as a result of charter school attendance. Research on Building 21 is uniquely positioned to address the "non-winner effect," a major limitation in the charter school literature. While charter schools employ lotteries that most often include student

11

entrants from a wide variety of TPSs and often, different school districts, Building 21 only offers

lottery entrance to students residing in the Allentown School District, reflecting a geographically

small, relatively homogenous, inner city. For all of these reasons, this study aimed to analyze the

promises and challenges of a high-autonomy in-district school as an essential piece of the

evolution toward district-charter collaboration.

Statement of the Problem and Purpose of the Study

As the information above reflects, school districts are losing a significant amount of

funding due to increasing charter school enrollments. School district officials and charter school

opponents argue for greater financial and academic accountability, while charter school officials

and advocates argue that parents have a right to create and support programmatic options for

their children. This study examined the option of district-charter collaboration through the only

operating "in-district charter" in the Lehigh Valley of Pennsylvania. The purpose of this study

was to determine whether students who enter the lottery for Building 21 are similar to the general

population of students in their district; and then to examine the effects of such a program on

academic performance, attendance, and discipline.

Need for the Study

There are several reasons this study is needed at the current time. First, there is a lack of

charter school effect studies specific to Pennsylvania, and to Eastern Pennsylvania in particular.

In conversations, speeches, formal statements, and interviews, superintendents in the area have

expressed that charter school proliferation, and the funding policies associated with them, are the

most urgent concern for school districts attempting to maintain and increase achievement in their

schools. The 2010 report co-authored by the area superintendents illuminated the need for

regional charter schools to be held accountable for their achievement data, but merely compared

average passing rates between the charter schools and their "sending districts." It is impossible to make valid conclusions about effects without applying statistical analyses to the data. For example, the report makes comparisons between individual charter schools and various districts throughout the region. However, comparing average scores of a district of 17,000 students to average scores of a school with 500 students does not make a generalizable comparison. A further complication is that not all sending districts send the same number of students, so comparing a charter school's performance to a district that sends only a few of its students to that school is invalid. Most importantly, there is wide demographic variation between the school districts of the Lehigh Valley. For example, one popular charter school in the area receives students from all of the large school districts surrounding it, from inner-city schools that report 97% student poverty rates, to schools that report 27% student poverty rates. Simply looking at overall achievement rates does not account for demographic variables such as socio-economic status, ethnicity, and/or other dimensions of student diversity. As noted by Cowen and Winters (2013), "Estimating simple differences-in-means between [such] groups may be misleading." This study analyzed whether students who enter the in-district charter lottery represent the general district population and whether there were differences in outcomes between the two populations, while controlling for any possible "non-winner" effect.

Second, the only study that analyzed the effects of Pennsylvania charter schools as a whole has been criticized for the statistical method used. The Center for Research on Education Outcomes [CREDO] (2011) used a propensity-score matching method, which matches individual charter school students to a group of students with similar characteristics. "The fundamental problem with using matching-based methods is that, in the absence of a lottery that forces similar students to attend different schools, we know that the "nearly identical" students are not in fact

nearly identical since they decided to make different choices," (Hoxby, 2009, p.5). In fact, researchers and school choice critics note that comparison studies are unreliable when they fail to control for non-observable data among participants, most notably motivation to seek out an alternative school (Betts & Tang, 2014). There is a strong possibility that families who act on a choice option are inherently more invested in education and more likely to support school efforts in the home. Therefore, using data from lottery "winners," "non-winners," and "non-entrants" allowed me to compare student outcomes, while controlling for demographic *and* motivation variables.

   Lastly, reliable statistical information about the effects of charter school attendance, or attempts to attend, may inform school districts about students they lose to charters, helping superintendents, and potentially school site leaders, to advocate for their schools more effectively. Providing more specific data will assist district leaders as they collaborate to pressure the state to revise current charter school law. Similarly, charter school leaders may be empowered by the data to advocate for increased support and greater collaboration with their local school districts. Giving parents and students expanded choices in the types of educational opportunities available to them is a stated purpose in the Pennsylvania Charter School Law. Providing information about schools' growth and achievement data can increase transparency and lead to a more informed decision making process. Ultimately, the findings here may provide support for all stakeholders to collaborate around effectively meeting the needs of all students, regardless of their attendance at a TPS or charter school, while providing a model for both sectors to identify strategies for collaboration and mutual benefit.

Research Questions

The goal of the study presented here was to begin a new line of research, which examines high-autonomy in district schools, also referred to as in-district charter schools. The first primary research question was derived from the charter school research which suggests that charter schools "skim the cream," and are not truly representative of the general population of their TPS. Therefore, I asked:

1. Are the Building 21 lottery entrants different from non-entrants in Allentown School District?

   a. How do student characteristics of entrants to the lottery compare to those of non-entrants?

   b. Which student characteristics predict the likelihood of entering the lottery versus not entering the lottery?

The second set of questions followed the area of research that examines the effects of charter school education, asking:

2. Are there statistically significant differences in the outcomes of Building 21 Allentown lottery winners and lottery non-winners?

   a. Do Building 21 Allentown lottery winners and lottery non-winners show significantly different academic achievement?

   b. Is there a significant difference in attendance outcomes between Building 21 Allentown lottery winners and lottery non-winners?

   c. Is there a significant difference in discipline outcomes between Building 21 Allentown lottery winners and lottery non-winners?

Significance and Contributions

Studying Building 21 Allentown has the potential to provide unique contributions to practice, research, and policy. The study can inform educational practitioners of the potential effects, both positive and negative, of operating "charter-like" schools, as districts look to diversify their programming to decrease the extent to which charter schools pull away the best students and drain resources from traditional public schools. The study will also contribute to the charter school student effects literature, providing a unique look at two populations that are far more homogeneous than most population comparisons. Legislators and policy makers may encourage greater collaboration, if not reunification, of charter schools and school districts based on the information gleaned from the study. While there is potential for contributions, there are limitations. Generalizability may be limited due to the unique context of the case. Although a more homogeneous sample increases internal validity, external validity is jeopardized by lack of generalizability. Lastly, as Building 21 Allentown was in its first year of development, the effects may be mitigated by the many confounding variables that new schools face. The study's design threats and accommodations are discussed in greater detail in Chapter 3.

Definition of Terms

admissions lottery – A lottery is a random selection process by which applicants are admitted to the charter school. (Every Student Succeeds Act, 2015).

charter school – any independent public school established and operated under a charter from a local school board of directors and in which students are enrolled or attend. A charter must be organized as a public, non-profit corporation. Charters may not be granted to any for-profit entity. Charter schools must prioritize students who are residents of the school district where the charter school is located, but students outside the district are eligible to attend when

open spaces are available. Public, random admissions lotteries are required when it is oversubscribed. No additional admissions criteria are allowable. A charter school is independent from the school district and Board of Directors (Pennsylvania Charter School Law, §17-1725-A).

in-district charter school– For the purposes of this study, an in-district charter school refers to a school that operates with a mission and program that is substantively different from the mission and/or program of the school district, but that shares some or all responsibilities and liabilities with the resident school district. It uses an open lottery admissions process for resident students without any additional admissions requirements. It operates with an advisory council, but the elected School Board of Directors retains legal decision-making responsibility. Teachers are employed by the school district and under the negotiated contract between the School District and the Teacher Association (union). The school has autonomy from the district over instructional models, curricular resources, assessments, professional development and evaluation, and hiring.

lottery entrant – students who enter a charter school admissions lottery

lottery non-winner – student who entered a charter school admissions lottery and did not win admission (Tuttle et al., 2013).

lottery winner – student who entered a charter school admissions lottery and won admission (Tuttle et al., 2013). For the purposes of this study, it refers to students who matriculated to the charter school as well.

magnet school - the term ''magnet school'' means a public elementary school, public secondary school, public elementary education center, or public secondary education center that offers a special curriculum capable of attracting substantial numbers of students of different racial backgrounds (SEC 4401, Title IV, Part D). Magnet schools use competitive selection

criteria, rather than lotteries, to admit students. They are only open to district residents, but attendance is not bound by a catchment area, or neighborhood. They are fully governed by the School Board of Directors, and are not fiscally or legally autonomous (US Department of Education, 2017).

non-entrant – student who did not enter a charter school admissions lottery

oversubscribed charter school – a charter school that has more students requesting admission than there are spots available.

CHAPTER 2

Literature Review

The purpose of the current study was to examine the option of district-charter collaboration, to determine whether students who enter the lottery for Building 21 are similar to the general population of students in their district, and to examine the effects of such a program on academic performance, attendance, and discipline. District-charter collaboration may address three specific issues in practice and research with regards to both sectors. First, collaborating around charter school location and lottery entry strategies may address the increasing segregation along demographic lines. Second, collaborating around information and recruitment strategies may address exclusionary practices currently used among some charter school administrators. Third, collaborating to collect and use data of students who "win" admission in charter lotteries to those who do not will provide more valid information about the effects of the program on student outcomes due to increased ability to control for external, impactful variables. To date, I have been unable to find any peer-reviewed literature about in-district charter schools, or district-charter collaboration, specifically. Such collaboration is relatively new, and only exists in a formal compact in 21 school systems throughout the country. Therefore, the literature reviewed here explores each of these lines of research within the charter school literature, and provides examples of how district-charter collaboration, or moving to "charter-like" options, can address the underlying problems in each area of research.

Equitable Access to Charter School Lotteries

A prominent theme in the charter school literature revolves around whether students who choose to attend a charter school are significantly different from students who do not make that choice. Research has revealed that demographics such as race, socioeconomic status, special program status and neighborhood are correlated to whether students are more or less likely to

attend a charter school (Bifulco, Ladd, & Ross, 2008; Cowen & Winters, 2013; Finnigan, et al., 2004; Frankenberg, Siegel, Wang & Orfield, 2012; Ni, 2012; Sohoni & Saporito, 2009). That these demographic variables predict attendance has come under intense scrutiny from researchers and charter opponents who argue that charter schools are more segregated than public schools as a whole. In their influential work about racial segregation among charter schools, Frankenberg and Lee (2003) reported that charter schools were significantly more segregated than traditional public schools in national and state level comparisons. In 2012, Frankenberg et al. argued that charter school research had *proven* that charter schools were more segregated than TPSs. However, the literature reviewed was heavily based on studies comparing all charter school students to all public school students: eight of the studies were based on state or national comparisons while only two of the studies examined local enrollment comparisons (Frankenberg et al., 2012). Frankenberg et al. (2012) cited an earlier federal report by Berman et al. (1999) as evidence of the segregation trend. However, Berman et al. (1999) reported that charter schools, on average, represented student demographic patterns similar to their surrounding school districts (p. 30). Frankenberg et al. (2012) were correct in pointing out that charter schools in six of the 24 states in the Berman study served higher percentages of minority students than all students in the state, but they failed to include that Berman et al. also found 72% of charter schools reflected the student demographics of their surrounding districts (1999, p. 31). Additionally, four of the states where minority students were over-represented in charter schools were also reported to be among the most segregated school systems in the country, indicating that charter schools may accelerate a trend already started by state and district trends (Lee, 2014).

A second study evaluated by Frankenberg et al. (2012) presented findings similar to those in Berman et al. (1999). Nelson et al. (2000) replicated the Berman study a year later and found

racial segregation trends to be more or less the same as the prior year. Although Frankenberg and colleagues correctly asserted that racial/ethnic distribution in charter schools did not represent the distribution among public schools, they failed to note that student demographics were similar to those of surrounding districts (Nelson et al., 2000, p. 31). A thorough read of both Berman et al. (1999) and Nelson et al. (2000) reveal that charter-state comparisons yield very different results from charter-surrounding district comparisons.

Although Frankenberg's research gained much attention, some researchers found it was over-simplified to analyze enrollment patterns by comparing such wide swaths of geographic locations. This line of research was limited in that it failed to account for differences in locations between charter schools and TPSs. "For example, charter schools that are located in densely populated urban areas may over-represent minority students when compared to state and local school district demographics, but not when compared to the families living in the immediate surrounding neighborhoods" (Gulosino & d'Etromont, 2011, p. 5). Since charter schools tend to be located in urban neighborhoods where there are larger populations of racial minorities, it stands to reason that they would also enroll larger numbers of those students. In fact, urban schools and districts across the country have been becoming more segregated along racial and economic lines. Comparing enrollment patterns of charter schools to the immediate neighborhood, or assigned school or district, rather than to a city, state, or country, yields more valid comparisons (Gulosino & d'Etromont, 2011).

Garcia (2007) also challenged the methodology of comparing charter schools to public schools in which "the sector, not the school, was the unit of analysis," (p. 808). His study opened a new line of research that moved the issue beyond simply comparing demographics of all charter school students to all students attending TPSs. Garcia argued that understanding whether

charter schools had a segregating effect could be better accomplished by comparing the TPSs students exited, to the charter school they entered. "The findings [were] based on a direct comparison of the racial/academic characteristics of the exact district schools students chose to exit and the racial/ academic characteristics of the charter schools they subsequently entered," (p. 815). Garcia found that elementary students entered charter schools that were more racially isolated than the TPS they exited, but high school students entered charter schools that mirrored the demographics of their previous TPS (p. 823).

As is well-established, schools across district and charter sectors are becoming increasingly segregated (Reardon, Grewal, Kalogrides, & Greenberg, 2011). However, whether charter schools are more segregated than district schools is debatable. As NCES reported, "between school years 2003–04 and 2013–14, charter schools experienced changes in their demographic composition similar to those seen at traditional public schools," with an increase in the percentage of Hispanic and Asian/Pacific Islander students, and a decrease in the percentage of White, Black, and Native American students (2016). The research suggests that, especially in urban settings, charter schools most often mirror the surrounding TPSs from which the students exit. The smaller population of charter schools that are located outside urban cores, tend to be more segregated, most likely due to the large number of districts from which such charter schools pull students. While charter schools may not be more segregated than TPSs, the fact remains that all schools are becoming increasingly segregated.

One strategy to combat this trend is for districts and charter schools to collaborate around school location. Although charter schools may be incentivized to locate in "high-needs" neighborhoods, this practice exacerbates segregation because parents make school choices based more on proximity than academic considerations (Jacobs, 2011). Strategizing to locate along

accessible transportation routes and along neighborhood borders may encourage more families to make a choice outside their neighborhood, with more racially integrated results.

Do Charter Schools "Skim the Cream?"

A second prominent theme in charter school research has revolved around inquiry into whether charter schools "skim the cream" from TPSs. Lacierno-Paquet et al. explain that, "As a consequence of [market-oriented] pressure, schools may "cream" students, that is, they may attempt to siphon off those students who, because of favorable background circumstances, will be easier and perhaps less costly to educate." Charter opponents further argue that charter schools attract the most academically capable students away from TPSs, inflating charter school achievement outcomes and lowering TPS outcomes. On one hand, there is little evidence that charter schools pull the best and brightest from district schools, but instead, attract students who underperform their peers in their TPS (Cowen & Winters, 2013). On the other hand, there is evidence that charter schools serve disproportionately fewer English Language Learners and Special Education students (Lacierno-Paquet et al., 2002).

Zimmer et al. (2009) analyzed the characteristics of students transferring from a TPS to a charter school across eight states. The researchers examined longitudinal academic performance data pre- and post-transfer and compared it to students who remained in their respective TPS. In seven out of the eight sites, charter school students scored below district averages prior to switching, and identical to or below their TPS peers in five sites (p. 12). When disaggregated by race, the data showed similar patterns for African Americans and Hispanics, but the opposite pattern for White students, who generally scored higher than district averages and peers in their TPSs (p. 13). This may indicate that charter schools had attracted more capable White students. However, the proportion of White students in charter schools is so small that their performance

23

had little to no effect on overall achievement patterns. In sum, the study concluded that charter schools across these eight metropolitan locations were not "skimming the cream," and were actually enrolling students with lower previous academic performance than their district and school-level peers.

An earlier study examined whether there were differences between charter school student enrollment patterns in market-oriented charters and non-market-oriented charters (Lacierno-Paquet et al., 2002). The theoretical framework for this earlier study posited that for-profit schools with a strong business presence on the board of directors would draw a different population of students than not-for-profit charter operations. The results confirmed the hypothesis, that for-profit charter schools enrolled significantly fewer students identified as economically disadvantaged, Special Education, and English Language Learners. Distinguishing between market-orientated and non-market-oriented charter schools revealed that non-market schools served more students with these identifications than the school district of residence.

The idea of cream-skimming has also been evaluated with regards to the students who are "left behind," examining whether the void left in TPSs by students opting in to charter schools significantly affects the student achievement outcomes of those in the TPS. Dills (2005) studied a newly formed school, which enrolled only high-achieving students on an application basis. She found that the absence of the high achieving students did decrease student achievement outcomes among those remaining in their TPS, and surprisingly, the reverse was also true. If charter schools do, in fact, recruit and enroll the highest achieving students from TPSs, then stayers could be negatively affected. However, most charter schools utilize open-enrollment or random lottery when they are oversubscribed, which is why researchers have attempted to look more closely at lottery entrant characteristics. Walsh (2009) analyzed differences in family quality

between leavers and stayers (those who transfer from a TPS to a charter school) to find out whether leavers were disproportionately from "low-quality" families (as defined by parent education, family income, student percentile rank, and homework habits). Similar to Zimmer et al. (2009), there was no evidence that leavers represented significantly higher quality families than stayers. Walsh concluded that because within-school heterogeneity was so limited, students leaving to enroll in charter schools had no statistical effect on the student achievement of those who stay in the TPS. Walsh's findings are aligned with the segregation literature that points to intensifying segregation among all public schools, problematizing the argument that only those with more advantage act on school choice opportunities. Regardless, all school entities, including TPSs, charters, magnets, and private schools should be encouraged, if not mandated, to diversify their student and staff bodies because all students benefit from diverse school experiences (Mickelson & Nikomo, 2012).

Inequities Caused by Marketing, Recruitment, and Enrollment Requirements

Early studies that confirmed a positive effect on student outcomes were criticized for ignoring non-observable variables, like motivation to seek out alternate education options and parent involvement. Indeed, "parental preference with regards to their children's schooling covers a variety of factors, including school quality, curricular focus, extracurricular activities, safety, and convenience," (Ni, 2012). In contrast, *access* to school choice is dependent on other factors, including access to transportation and outreach to all families (Frankenberg, Siegel-Hawley, Wang, & Orfield, 2012). Since entering charter school lotteries relies on parents pursuing a non-traditional enrollment process, it stands to reason that lottery entrants may represent students and families with greater resources. Understanding how charter school

marketing, recruitment, and enrollment requirements affect student attendance may point to how districts and charter schools can collaborate to improve access to choice.

All charter schools are subject to federal and state legislation regarding enrollment. The federal government has outlined broad guidelines for state education agencies [SEA] with regards to operating charter schools, including for student admissions (Every Student Succeeds Act, 2016). Specifically, the law notes that charter schools must employ an admissions lottery when they are over-subscribed and comply with "the Age Discrimination Act of 1975, title VI of the Civil Rights Act of 1964, title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, and part B of the Individuals with Disabilities Education Act," (S. 4301). The law authorizes random lotteries or the use of weighted lotteries in favor of students from educationally disadvantaged populations. It also states that SEAs are to work with charter schools on "recruitment and enrollment practices to promote inclusion of all students, including by eliminating any barriers to enrollment for educationally disadvantaged students," (S. 1177-198). Pennsylvania legislation mirrors ESSA in noting that charter schools may not deny admission to any student pursuant to the aforementioned acts, but may have a specific mission or focus addressing "at-risk" students (Basic Education Circular, PDE, Section 6, 2004). Although the laws specifically prohibit discrimination in enrollment procedures, they do not address recruitment or information sharing practices, which is where researchers have focused their inquiries.

One concern in the charter school literature is that application practices inequitably favor families with greater resources (DiMartino & Jessen, 2014; Fleming, et al., 2015; Jennings, 2010; Weiler & Vogel, 2015). Weiler and Vogel (2015) identified six barriers that could preclude families with fewer resources from participating in a charter school lottery. One such

barrier was heavy reliance on technology for accessing registration information and materials. Of the 143 schools in their sample, 60 required parents to access information online, making it difficult for parents without reliable internet access to complete. Twenty-two of the schools also implemented a school visit/tour requirement, mandating that a parent or guardian attend a session prior to entering the lottery, potentially excluding or deterring families with transportation challenges. Forty-nine percent of Denver charter schools required a set number of hours that families were required to volunteer. The number of hours required among them ranged from 20 to 150 hours per school year, potentially creating unreasonable and impossible expectations for working families.

Attracting the most desirable students under the guise of "best fit" is another segregating factor found in charter school research (Jabbar, 2016). The rising focus on branding and marketing among charter schools has led to "niche educational entities within the larger public system, raising questions around access and equity" (DiMartino & Jessen, 2014, p. 449). Although the law encourages charter school development focused on at-risk students, research has shown that some charter schools use that provision to systematically exclude some students, while others see it as an opportunity to focus on student needs. In one urban context, principals of charter schools described how they actively recruited students with highest need, those with the most discipline challenges and least engagement in their TPSs (Eckes & Trotter, 2007). Principals in these urban and rural charter schools reported recruiting students in person, going door to door, to the Boys and Girls Club, to the YMCA and other community outreach centers to recruit students most likely identified as "at risk" (p. 76). Unlike the principals who actively recruited at-risk students, Jennings (2010) found that, when forced to position their schools in a competitive market, principals employed concerning marketing strategies: some overtly

discriminated against "less desirable" students, manipulated state regulations to attract highly

committed parents and students, and dissuaded or blatantly denied students based on their

attendance history, GPA, and extensive application requirements. While a focus on marketing

has proven to have undesirable consequences, it also forces schools to identify coherent and

focused mission statements and to coordinate efforts to bring that vision to fruition (DiMartino &

Jessen, 2014).

In addition to formal marketing and recruitment efforts, researchers have found that

families rely most heavily on social networks to gather information about school choice options

(Fleming et al., 2015; Lubienski, 2007; Stewart & Wolf, 2012). Eckes & Trotter (2007) reported

that, when making decisions about their children's enrollment, families relied largely on "word-

of-mouth" recommendations: a strategy that has been found to exacerbate inequities in school

choice access because social networks tend to be homogenous (Lubienski, 2007, p. 135).

Furthermore, low-income and minority parents struggle to gather the necessary information to

make informed decisions because their social networks tend to be smaller and less stable (see

Fleming et al., 2015, p. 790).

Savvy principals have been found to exploit the tendency to make school choices based

on recommendations from one's social network. Jabbar (2016) found that word-of-mouth

recommendations did not only flow from parent to parent, but were used strategically by

principals to recruit specific "types" of families. Principals would ask parents held in high regard

to recruit other "like-minded" parents, and even held invitation-only events for the highly

regarded parents and their friends. Some principals chose to keep quiet about enrollment and

programs when they had open seats, to avoid being forced to fill them with less desirable

students. Others purposely over-enrolled students at the beginning of the year to avoid having to

accept new students mid-year when others withdrew. While a variety of recruitment strategies were employed, all served to select, rather than leaving up to chance, which students enrolled in and matriculated to their schools.

In contrast to the recruitment efforts described above, other researchers have analyzed how schools of choice use their websites and promotional materials to market their schools to specific families (Lubienski, 2007; Wilson & Carlsen, 2016). While researchers acknowledge that it is impossible to determine whether, and to what extent, schools intentionally market to racially segregated groups, their marketing mediums appealed to either White/Asian middle-class families, or Black/Hispanic economically disadvantaged families. Lubienski (2007) found that public, private, and charter schools emphasized different types of information in their promotional materials, with public schools providing the least information and typically only what was state-mandated to be reported. Whereas charter schools focused on differentiating themselves programmatically from public schools. Lubienski argued that the lack of "hard" information, like standardized test scores, and focus on perceived issues of value (like program, uniform code, and safety) made it impossible for families to make "rational" school choices.

Wilson and Carlsen (2016) analyzed how 55 charter schools in the Twin Cities Metropolitan Area marketed themselves to particular subgroups of students. Using critical discourse analysis the researchers categorized the local charter schools and examined how their school websites communicated potential "fit" for certain families. The study was focused on understanding the mechanisms that shape the patterns of segregation among school choice actors beyond that of geography. Viewed through the prism of explicit and implicit markers of race, class, culture, and ethnicity, the websites of charter schools with a majority-White student population rarely mentioned race, culture, or diversity (p. 33). These schools were focused on

missions of elite or international competition, with no stated intention of justice or equity. Charter schools with missions focused around certain groups of students, such as ethno-centric and "No Excuses" schools, had explicit language about race and other markers of diversity, as well as stated foci on issues of equity and social justice. Although the variable of location was not accounted for, the study illuminated how information provided on websites appeal, whether intentionally or not, to certain families and communities along lines of race and class.

As is shown in the literature reviewed above, regulations around charter school enrollment and recruitment can be manipulated by charter school leaders to purposefully construct a specific student body. While some have been found to recruit students in greatest need, many strategize to enroll only those with high commitment and "desirable" behaviors. Although there is no evidence that charters pull the brightest or highest-achieving students from TPSs, the research clearly reveals that some work hard to attract and retain the most committed students and families.

One strategy to combat selective recruitment and information sharing activities among charter schools is for authorizers to monitor such activity more closely. Lake (2014) explains that charter authorizers should carefully scrutinize marketing and advertising strategies and materials before authorizing charters, then develop better policies for regulating them once they are in operation. An in-district charter would have access to the school district's public relations personnel while also being held to the same standards of transparency in recruitment and enrollment policies.

Charter School Effects

As part of the school reform efforts of the last 20 years, charter school performance has been of central concern in the school choice debate. Studies surrounding school choice, and charter schools specifically, have largely centered on comparing student achievement in charter schools to student achievement in TPSs. Unfortunately, research has provided no clear resolution to the debate over the charter school effect on student achievement (Judson, 2014, p. 2). One reason for mixed results in charter effect studies is the varying methodologies employed in analyzing outcomes. Charter effect research has developed three prominent methodologies: propensity-score matching, student fixed-effects models, and lottery-based studies (Betts & Tang, 2014; Zimmer et al., 2012).

In the propensity-score matching method, researchers compare student outcomes of charter school attendees to students in TPSs. Because there are no randomly assigned students to each group, researchers select a comparison group by matching a TPS student to each charter school student on several characteristics — assuming that both students have similar probability of attending a charter school (Betts & Tang, 2014, p. 7). The Center for Research on Education Outcomes (CREDO) has published several influential studies of charter school effects using this matching strategy (CREDO, 2011, 2013, 2015). CREDO (2015) used information from charter schools across 27 states and over 1.5 million charter school students to create a comparison group of matched students. Charter school students were matched to students in TPS feeder schools based on gender, ethnicity, ELL status, free and reduced-price lunch status (FRPL), IEP status, grade level, and baseline test scores. Matching studies have the benefit of including more students than other research approaches and can include all charter schools, whether they are over-subscribed or not (Zimmer et al., 2012). However, propensity-score matching can only

control for observable characteristics and "it could be that students who self-select into charter schools are different from students at TPSs for unobservable reasons," (Betts & Tang, 2014, p. 7). If students who self-select into charter schools are more prone to higher achievement because of non-observable characteristics, then matching studies would inflate positive findings. CREDO (2015) produced mixed findings between student sub-groups and subjects; students in poverty, Black students, and ELLs showed significant gains in both reading and math, Hispanic charter school students scored no differently in both subjects, and White charter school students showed significant decline compared to their TPS matches (CREDO, 2015, p. 23). On the other hand, the study found that the majority of charter schools either performed better or similar to their local TPSs.

In the fixed-effects method, researchers examine changes in the achievement trajectories of students who move from a TPS to a charter school or vice versa (Zimmer et al., 2012). Fixed-effects studies use longitudinal data to compare each student's changes in reading and math achievement over time, comparing achievement when enrolled in a charter to his/her achievement when enrolled in a TPS. This method allows the researcher to control for unobservable differences between the two groups of students, unlike the matching method. However, there are two significant concerns with the fixed-effects method. The first is that such studies only include "switchers," students who switch between the two types of schools in the middle of their educational career. As Hoxby and Murarka (2010) point out, it is possible that switchers represent a sub-group of students who experience difficulty in one or the other school, biasing estimates of effects. A second concern is that fixed-effects methods lack external validity, as the results of switchers may not generalize to the larger population of charter school students who begin and stay in their respective schools (Zimmer et al., 2012). Results from the

fixed-effects approach have been mixed, with some studies finding no significant differences in outcomes (Zimmer & Buddin, 2006; Hanushek, Kain, Rivkin, & Branch, 2007), one finding significant negative effects on student achievement (Bifulco & Ladd, 2006), and still one finding overall positive effects (Booker, Gilpatric, Gronberg, & Jansesn, 2007).

In the lottery-based method, researchers compare achievement results of those who win a charter school spot in a random lottery, to those who do not. The advantage of lottery-based studies is that they have strong internal validity because researchers are able to control for both observable and non-observable characteristics. The disadvantage of lottery-based studies is that they rely solely on data from oversubscribed charter schools, and as Betts and Tang (2014) argue, "Popular schools with lotteries are likely to outperform less popular charter schools, leading these studies to overstate the effect of charter schools overall" (p. 5). Indeed, several lottery-based studies have produced generally positive impacts on student achievement (Abdulkadiroglu et al., 2009; Hoxby & Rockoff, 2004; Hoxby et al., 2009). However, a large-scale study that analyzed results from 36 charter middle schools across 15 states found no significant difference in overall achievement between lottery winners and non-winners (Gleason et al., 2010). The same study found that lower-income lottery winners experienced higher achievement results than low-income lottery non-winners. Due to the ability to provide the greatest control for external variables, the lottery-based method is considered the most reliable of the three (Betts &Tang, 2014; and Zimmer et al., 2012).

Betts and Tang (2014) aggregated the effects found in fixed-effects and lottery-based studies and reported significant positive effects for math achievement in charter schools, and no discernable effect on reading achievement. While there were some differences in results between the statistical approaches, Betts and Tang reported that such differences were generally not

statistically significant. Similarly, Nicotera, Mendiburo, and Berends (2011) found that charter school attendance had an overall significant positive effect on math and reading achievement, but the significance leveled off for reading achievement after two or more years of attendance at a charter school.

Following this line of research surrounding the effects of charter school attendance on student achievement, Judson (2014) narrowed in to examine the effects of STEM-focused charter school attendance on three measures of academic achievement. Comparing elementary students who had moved from a TPS to a STEM-focused charter school to students who moved between two TPSs, he found that after three years, the STEM charter school students had significantly raised their achievement in math and language arts, while their TPS counterparts had no significant change in achievement. Judson integrated a critical step that is missing from much of the research: comparing the experimental and control groups' baseline differences. Contrary to common criticism of charter schools, his inclusion of baseline comparisons complicated the idea that charter schools *skim the cream* (drain public school district students of their best and brightest and skew achievement results). In fact, only two of six comparisons between the charter school students and their comparison groups showed significantly different achievement prior to switching.

Pennsylvania's charter school effects are unlike those found from national data, wherein only 30% of the state's charter school students achieved significantly better than their TPS counterparts in reading, and only 25% did so in math (CREDO, 2011, p. 7). Controlling for prior academic achievement, results from cyber-charter schools specifically revealed that 100% of them achieved significantly lower results in both math and reading than their TPS counterparts. Although the report does not analyze differences between regions in the state, the

superintendents of the Eastern Pennsylvania region jointly state that, "the vast majority of these charter schools [in Pennsylvania] do not meet Adequate Yearly Progress as defined in NCLB," Superintendents, 2010, p. 42). Since the publication in 2010, Pennsylvania no longer reports Adequate Yearly Progress, which relied solely on achievement data. Rather, the state has moved to a method of reporting school effectiveness that looks at both achievement and growth measures. What has not been explored to date is the effect of charter school attendance within this comprehensive evaluation system.

Charter School Effects on Other Achievement Measures

In addition to the large body of research examining the effects of charter school attendance on student achievement, there is a growing body of research that is investigating whether charter schools effect achievement metrics outside of standardized reading and math scores. Some have explored the effects of charter school attendance on college enrollment and/or completion (Angrist, Parag, & Walters, 2013; Dobbie & Fryer, 2013; Furgeson et al., 2012; Booker, Sass, Gill, & Zimmer, 2011; McClure, Strick, Jacob-Almeida, & Reicher, 2005). The results from these studies are overwhelmingly positive and largely statistically significant, suggesting that charter schools have a significant positive impact on college enrollment patterns compared to their TPS counterparts.

A small body of research has begun to look at charter school effects on behavior and attendance outcomes. Imberman (2007) found that students who entered charter high schools experienced a significant reduction in suspensions compared to their disciplinary histories in a TPS. However, there was no change in attendance rates. Dobbie and Fryer (2013) included in their achievement study several metrics of student behavior. Comparing lottery winners to lottery non-winners, they found that female lottery winners were 12% less likely to become pregnant in

their teens and that male lottery winners were 4% less likely to be incarcerated than lottery non-winners.

Overall, results from the existing literature reveal that charter schools have significant positive impact on students at best, and have no impact or statistically insignificant negative impact at worst. The studies with the most significant outcomes are those that focus on specific charter schools or charter organizations (Dobbie & Fryer, 2013; Ferguson et. al. 2012; and Booker et. al., 2011). Perhaps those studies that analyze data from wide swaths of schools, across geographic locations, vary too widely to result in consistent significant results. Perhaps the most valuable lessons for local practitioners can be found in case studies that focus on a smaller geographic location or particular program, organizational structure, or affiliation.

A final advantage of district-charter collaboration is the potential for public schools to learn about and adopt highly effective practices from charter school partners. Spring Branch Independent School District in Houston, Texas, has initiated a partnership with two highly effective charter organizations, KIPP and YES Prep, to offer their programs in three of the district's existing middle schools (Compact Summary, 2015). The superintendent recruited the charter organizations in an effort to raise the academic achievement of the TPSs to be on par with the charter schools' performance. Three years in to the collaboration initiative, one of the schools has improved student performance (Compact Summary, 2015). The collaboration also provided opportunities for cross-sector professional development and networking, which teachers and leaders report is valuable.

Summary

As shown in the literature reviewed here, concern over charter schooling has revolved around equitable access, fair recruitment and admissions practices, and charter school effects on

student outcomes. Although evidence suggests that charter schools are not generally more segregated than the TPSs in their neighborhoods, in-district charter programming has the potential to ensure access to lotteries is equitably distributed among students of all backgrounds. More importantly, in-district charter programming may reduce instances of biased recruitment practices among charter school leaders: a growing and significant concern as is evidenced in the literature. Finally, in-district charter collaboration can increase data sharing practices and transparency to improve our understanding of the effects of such programming on student outcomes. If in-district charter schools automatically entered all students in their lotteries, for example, there would be ample data for more experimental studies, the gold standard of social science research. As such, the current study aims to make a unique contribution to the body of work reviewed here, by examining the lottery entrance, selection, and subsequent outcomes in the first in-district charter school study.

CHAPTER 3

Methodology

This study examined the option of district-charter collaboration through the only operating in-district charter in the Lehigh Valley of Pennsylvania. The purpose of this study was to determine whether students who opt in to Building 21 (lottery entrants) are similar to the general population of students in their district; and then to examine the effects of such a program on academic performance, attendance, and discipline of those who did successfully enter the school (lottery winners) as compared with the lottery non-winners. The research questions guiding this study were:

1. Are the Building 21 lottery entrants different from non-entrants in Allentown School District?

    a. How do student characteristics of entrants to the lottery compare to those of non-entrants?

    b. Which student characteristics predict the likelihood of entering the lottery versus not entering the lottery?

2. Are there statistically significant differences in the outcomes of Building 21 Allentown lottery winners and lottery non-winners?

    a. Do Building 21 Allentown lottery winners and lottery non-winners show significantly different academic achievement?

    b. Is there a significant difference in attendance outcomes between Building 21 Allentown lottery winners and lottery non-winners?

    c. Is there a significant difference in discipline outcomes between Building 21 Allentown lottery winners and lottery non-winners?

Context of Building 21

Building 21 is a non-profit organization that has partnered with the Allentown School District to open a competency-based high school in-district. The organization does not operate with a true charter, but rather with a Memorandum of Understanding (MOU). Building 21 raised 3.6 million dollars for start-up costs, from mostly local businesses, including Air Products, National Penn Bank, and the Rider-Pool Foundation (Assad & Kraus, 2014). Much like typical charter schools, the Building that houses Building 21 Allentown is leased by the district, not owned, which is a cost absorbed initially by the organization but to be assumed by ASD in the school's fourth year of operation. It is not completely clear what the organization's role will be in the school once that date is reached, but the MOU indicates that the school will be the district's third high-school, operating with the same budget, personnel and operations policies and procedures. This unique arrangement provides even greater control of these external variables, which is not possible in out-of-district charter effects studies. Thus, we can assume, with a high level of confidence, that any possible differences in outcomes are attributable to the program.

Programming at Building 21 Allentown is built on competency-based education, which includes:

- Students advance[ing] upon mastery.

- Explicit, measurable, transferable learning objectives that empower students.

- Meaningful assessment and a positive learning experience for students.

- Students receiv[ing] timely, differentiated support based on their individual learning needs.

- Learning outcomes emphasiz[ing] competencies that include application and creation of knowledge, along with the development of important skills and dispositions. (Competency Works, 2017).

Neighborhood high schools are not competency-based, and continue to use a traditional school model that places students on a track, pushing them through a pre-determined sequence of courses on a pre-determined timeline. In Algebra at the neighborhood high schools, for example, students enroll at the beginning of the semester and follow a syllabus with defined time allotment for each topic. If these students are struggling and/or in danger of failing, they may be recommended for tutoring or intervention during the semester, but this is not done systematically. Rather, the neighborhood high schools place students in remedial classes once they have failed the standardized Algebra Keystone exam. At Building 21, however, students work through content at an individual pace; some students may complete their Algebra course in three months, and others may complete it in three semesters. Interventions and supports are provided on an on-going basis by the content area teachers and support personnel throughout, rather than separate remedial classes post-failure.

Lottery

In fall 2014, Allentown School District began receiving "applications" from rising ninth graders to attend Building 21 in Fall 2015. In preparation for this, Building 21 staff held informational sessions at each of the four district middle schools, informing eighth grade students of the new school, program, and how to apply for enrollment if interested. Student information sessions were addressed to the entire eighth grade class at each school. Students would complete an interest form, return it to their school office, who would forward it to the district office where the Department of Curriculum and Development compiled a central data file

with all student applicants. Building 21 held informational sessions in the evening throughout the

year, and provided help to families and students in the application process when needed. There

were several media events as well, an appearance on the local news by the founder, principal,

and community partners, and several articles in the local newspaper.

In late spring 2015, Building 21 had received applications from 460 of 1,583 eighth grade

students in Allentown School District. The lottery was conducted by running a random number

generator on the data file held in the central office, with Building 21 and district administrators

present. Once students were assigned their random number, Building 21 contacted and offered

admission to the students assigned numbers 1-150, moving down the list when students rejected

the enrollment offer. Unlike charter school lotteries, which are conducted in public by third party

entities, Building 21's admissions lottery was not conducted in public. The founder of the

organization allowed me to view the file with random number assignment prior to conducting the

study. I had no further access to that information after that point.

Data Set

As Building 21 Allentown is a district-operated school, I requested and received

permission from the superintendent (Appendix A and B) to access existing student data to

address the research questions guiding this study. The district maintains lottery information,

which identifies all students who entered the lottery, those who "win" a spot, and those who did

not. An Excel file compiled by the school district contained a worksheet for each of these student

groups: non-entrants (students who had not entered the lottery), lottery winners (students offered

and accepted enrollment) lottery entrants, and lottery non-winners (students who were not

offered enrollment). Data points contained in the file for each student included gender, race,

special education [IEP] identification, Gifted identification, English Language Learner [ELL]

identification, attendance data for eighth and ninth grades, discipline data for eighth and ninth

grades, categorical scores for English Language Arts [ELA] and Math achievement on the

Pennsylvania State System of Assessment [PSSA] in eighth grade, categorical scores for the

Algebra Keystone exam in eighth and ninth grades, and cumulative GPA from the end of ninth

grade (Appendix C). The school district does not maintain GPA information from the end-of-

eighth grade year. Rather, student GPAs are maintained on a cumulative basis. Therefore,

changes in GPA were unable to be calculated from the end of eighth grade to the end of ninth

grade. The district provided data regarding lottery non-winners' subsequent school enrollment

using the student information system. The list of students was identified only by student

identification number with no names provided, in order to protect student anonymity.

Attendance data reflects the number of days a student was absent in each of the two

years in the analysis, ranging from zero to 162. Discipline data reflects the number of infractions

that were documented in the student information system for the two years of the analysis,

ranging from zero to 113.

Academic achievement measures are complex because a significant divide in the state

assessment schedule occurs in ninth grade. Baseline academic achievement reflected the ELA

and Math scores each student earned on the Pennsylvania State System of Assessment [PSSA] in

eighth grade. Due to the fact that Pennsylvania students have no required assessments in ninth

grade, we cannot compare PSSA scores before and after treatment. No state-mandated

assessment exists for ninth grade students in Pennsylvania. However, all students are to pass the

Algebra Keystone Exam by their 11th grade year, and a large portion of students do so in ninth

grade. Therefore, the current study used the ninth grade Algebra Keystone as one measure of

academic achievement. The sample for this procedure was limited to the number of students who

took the exam in the treatment and control groups. Cumulative grade point average [GPA] taken from the end of year report (2015-2016 school year) served as a second measure of academic achievement.

Study Population and Sample

Allentown School District [ASD] is the home district in which Building 21 resides. It is a large urban school district in eastern Pennsylvania, with 16,483 students enrolled in 21 schools. The district covers a relatively small geographic region at only 18-square miles. ASD students represent 43 different countries and speak 26 different languages. The majority of students are classified as economically disadvantaged (74.33%) with 67% Hispanic, 16% African-American, 12% White, and 5% Asian, Mixed-Race, or other. The study population encompasses school systems with similar urbanicity and high charter school enrollment, and in which the majority of students are racial/ethnic minorities and low-income.

ASD students are exposed to several community risk factors that affect social and academic outcomes: poverty, population growth of low-income residents, crime (violent and property crime rates surpass national rates), gang activity, availability of drugs; availability of firearms, and low neighborhood attachment (ASD, 2016). These risk factors and environmental realities present immense challenges to the schools' achievement efforts, and the number of students choosing to attend out of district charter schools has been in steep incline over the last several years. In fact, 13% of the district's students enroll in out-of-district charter schools (National Alliance for Public Charter Schools, 2016). Operating Building 21 as an in-district charter school may encourage students likely to enroll in out-of-district charter schools to stay in-district, potentially keeping an additional 600 students, or 3.6%, in the district. The school's memorandum of understanding (MOU) with ASD stipulates that the school would open in 2015

with 150 ninth graders, then add an additional 150 students each year over the following three years to a maximum enrollment of 600.

In 2015, 460 of 1,583 eligible students submitted their names for entry into the admissions lottery. Three of those were ineligible because they were not enrolled eighth graders at the time. The entrants group was comprised of 457 students. A random admissions lottery was conducted and 150 students were offered enrollment, with the other 307 placed on a waiting list in order of random lottery assignment. In the case of students declining an offer, the next student on the waitlist was offered enrollment. Data regarding the number of students declining enrollment was not maintained. All entrants were required to present proof of residency in ASD, although not all students had been enrolled in ASD schools at the time of lottery entry. Specifically, 364 lottery entrants were enrolled in ASD schools in eighth grade, while 28 entrants had been enrolled in charter schools, and four had been enrolled in parochial schools. Sixty-one lottery entrants were relocating from outside the district, and were attending public schools in a different district in eighth grade, or were homeschooled. Of the 150 students offered admission, 134 students came from TPSs in Allentown School District, 12 came from charter schools, two were from parochial schools, and two had been homeschooled or moved from out of district. The non-entrant group was comprised of 1,901 students who were enrolled in one of the TPSs in ASD for ninth grade, exclusive of non-winners.

Research Design

The goal of the present study was to determine whether students who enter the Building 21 admissions lottery are different from the general population of students in the school district, whether certain characteristics increase the likelihood of entering the lottery, and then to determine whether attending the in-district charter school produces different results in their

academic achievement, attendance, and discipline outcomes. Achieving this goal "requires the greatest possible causal rigor" (Tuttle et al., 2010). Because students who enter the lottery do so out of choice, it can be difficult to ascertain whether any differences in outcomes are attributable to program, or to other characteristics, such as demographics, ability, and prior performance. "The best way to rule out the latter explanation, which would lead to selection bias in estimates of charter impacts, is to use an experimental design in which a student's opportunity to attend a school is determined by a randomized admissions lottery," (Tuttle et al., 2010, p. 5). Random assignment by lottery to a charter (treatment) or TPS (control) ensures that observed differences between winners and non-winners are a result of the treatment rather than other student characteristics (Zimmer et al., 2012). I employed a statistical methodology similar to the lottery-based model used to study the effects of oversubscribed charter schools (Abdulkadiroglu et al., 2009; Gleason et al., 2010; Hoxby & Rockoff, 2004; Hoxby et al., 2009; Tuttle et al., 2010). Each research question required statistical tests that best fit the applicable variables and outcome measures (see Table 1).

Are Building 21 lottery entrants different from non-entrants in Allentown School District?

To answer question 1a, I analyzed descriptive statistics to compare demographics among and between the lottery entrants, non-entrants, and winners, including gender, race, IEP, Gifted, and ELL status. Averages of discipline infractions and absences were compared, as well as proficiency rates of PSSA ELA and Math scores in each group. I then used logistic regression to examine the likelihood of each student characteristic predicting whether students enter the admissions lottery (question 1b), where entrance/non-entrance served as the outcome variable, and race, IEP, Gifted, Proficient/Non-Proficient in Math and ELA PSSAs, attendance, and discipline rates served as the predictor variables.

Table 1

Statistical Procedures

Research Question	Statistical Test	Outcome Variable(s)	Predictor Variable(s)
1a.	Descriptive Statistics	Lottery Entrance	Race (Hispanic, Black, White) IEP Gifted Proficient PSSA R Proficient PSSA M Attendance rate Discipline rate
1b.	Logistic Regression	Lottery Entrance	Race (Non-White/White) IEP Gifted Proficient PSSA R Proficient PSSA M Attendance rate Discipline rate
Research Question	Statistical Test	Dependent Variables	Independent Variables
2a.	Chi Square	Algebra Keystone (Proficient, Basic, Below Basic)	Model 1:Non-Winner/Non-Entrant Model 2: Winner/Non-Winner Model 3: Non-Entrant/Winner
2a.-c.	MANOVA	GPA Attendance Discipline	Non-Winner/Non-Entrant/Winner

Are there statistically significant differences in the outcomes of Building 21 Allentown lottery winners and lottery non-winners?

As seen in the literature review, a gap in the charter school effect studies has been the ability to control for a potential non-winner effect on academic and behavior outcomes. Building 21 Allentown provided a unique opportunity to compare the outcomes of students who "lose" in the admissions lottery to students in their homeschools who did not enter the lottery. Doing so

allowed me to test a demoralization effect, or the hypothesis that students perform worse than expected as a consequence of losing the lottery. To accomplish this, I first used Chi-square to determine whether there is a relationship between the independent variable, winning/not winning the lottery, and the dependent variable, proficiency/below proficiency on the Algebra Keystone Exam. Then I used Multivariate Analysis of Variance [MANOVA] to determine whether non-winners, non-entrants, and winners had significantly different outcomes on measures of GPA, attendance, and discipline. Once I could rule out the possibility of a non-winner effect, I analyzed the results with confidence that any differences in outcomes between lottery winners and lottery non-winners could be attributed to program impact.

Statistical Procedures

Logistic Regression

Binomial logistic regression is used to analyze how likely a person is to belong to one of two categories based on one or more predictor variables that are continuous, categorical or both (Field, 2009). Results from the *a priori* power analysis using G*Power 3.1 ensures the sample size exceeded the required minimum of 957 (n=1,674) for the eight predictor variables reflected in Table 1 (where α=.05, odds ratio = 1.72, and power=.95). The logistic regression equation from which the probability of Y is predicted by several predictors is:

$$P(Y) = \frac{1}{1+e^{-(b_0 + b_1 X_{1i} + b_2 X_{2i} + \cdots + b_n X_{ni})}}$$

I used Statistical Package for the Social Sciences (SPSS) to run the logistic regression procedure. Logistic regression results were analyzed, looking specifically at the odds ratios for each predictor. The odds of an event occurring (in this case applying to the admissions lottery) is the probability of an event occurring divided by the probability of that event not occurring. The

odds ratio is the proportionate change in odds after a unit change in the predictor variable,

derived by dividing the odds after a change in the predictor by the original odds, or:

$$\Delta \text{odds} = \frac{\text{odds after a unit change in the predictor}}{\text{original odds}}$$

Chi-square

Chi-square is used to determine whether there is a relationship between two categorical

variables (Field, 2009). The present study met both assumptions: each person contributed to only

one cell of the contingency table and expected frequencies in each cell exceeded the minimum of

five (Field, 2009). The sample sizes in each group represent the number of students who took the

exam in ninth grade. The contingency tables for the present study were:

<u>Model 1</u>

	Proficient	Not Proficient	
Non-Winner			127
Non-Entrant			1,152
			$n = 1,279$

<u>Model 2</u>

	Proficient	Not Proficient	
Winner			45
Non-winner			127
			$n = 172$

<u>Model 3</u>

	Proficient	Not Proficient	
Winner			45
Non-Entrant			1,152
			$n = 1,197$

As suggested in Gravetter and Wallnau (2002), I used SPSS to compute the chi-square statistics in each model: X^2 (2, n = 1,279) and α=.05, X^2 (2, n = 172) and α=.05, and X^2 (2, n = 1,197). The chi-square equation was:

$$X^2 = \Sigma \frac{(f_o - f_e)^2}{f_e}$$

MANOVA

Multivariate Analysis of Variance (MANOVA) is used to analyze "two groups of subjects on several dependent variables simultaneously; focusing on cases where the variables considered together make sense as a group" (Stevens, 2009, p. 145). In this study, I grouped Grade Point Average (GPA), attendance and discipline rates, based on the research conducted by Duckworth and Seligman (2005 & 2006), which found correlations between self-discipline behaviors and report card grades. In contrast to measures on standardized achievement tests, which require short bursts of sustained effort and attention, GPA requires sustained effort and concentration (discipline), and participation (attendance). I conducted *a priori* power analysis using G*Power 3.1 to determine a sufficient sample size with a power of .80, α=.05 and D^2=.64. I reported Pillai's trace due to the unequal sample sizes and potential non-normality of attendance and discipline rates.

Design Threats and Accommodations

According to Zimmer et al. (2012), lottery-based studies have strong internal validity because researchers can be confident that any observed differences in achievement are caused by admissions to, and subsequent attendance at, a charter school. However, generalizing findings from lottery-based studies to all charter schools is problematic because not all charter schools are oversubscribed. It may be true that oversubscribed schools have waitlists because they already have higher student achievement results than undersubscribed charter schools (Tuttle, Gleason, & Clark, 2012). Building 21's unique position as an in-district charter school may further complicate generalizability, as the vast majority of charter schools operate independently from their school districts. However, this study is intended to take charter school research in a slightly new direction with the introduction of in-district charter school effects, and can be generalized to schools and districts of similar demographics and urbanicity. Building 21 reflects the most common demographics shared among charter schools throughout the country: majority economically disadvantaged in an urban community (NCES, 2016). Generalizability is further accommodated because ASD is one of 200 school districts nationwide that share at least 10% of district resident students with charter schools (National Alliance for Public Charter Schools, 2016). The findings from this study may have implications for hundreds of school districts facing similar realities.

A second design threat in the study is the fact that the sample and data are from a brand new school, collected after the first year of operation. As is widely understood in education practice and research, an educational innovation that requires new skills and practice often causes an "implementation dip" in performance (Fullan, 2001). If the analyses provide no significant findings, it may be at least partly due to faculty and staff's social-psychological

discomfort with change and/or lack of technical skills to implement the new program and structure effectively. On the other hand, if there are significant findings, it may in fact be a more robust validation of the program, as a great number of external variables have been controlled.

Finally, the study design is threatened by using an extant data set, which has instances of missing data points throughout. For example, 61 students in the lottery entrant group and 16 in the lottery winner group were not ASD students in eighth grade, and therefore have no attendance, discipline or PSSA data. Fortunately, sample sizes in each of the analyses were large enough to accommodate and sample sizes are reported for each analysis.

CHAPTER 4

Results

This chapter is organized around the research questions and results from the statistical analyses employed for each question.

Question 1: Are Building 21 lottery entrants different from non-entrants in Allentown School District?

Question 1 was divided into two parts, where question 1a sought to compare the demographic and achievement characteristics of lottery entrants, non-entrants and lottery winners. Table 2 notes the percentages of students who entered the lottery, those who did not, and those who entered and won admission.

Table 2.

Demographics of Lottery Entrants, Non-Entrants, and Lottery Winners

|	Lottery Entrants (*N* = 457)		Non-Entrants (*N* = 1,901)		Lottery Winners (*N* = 150)	
	Percentage	*n*	Percentage	*n*	Percentage	*n*
Male	50.3%	230	50.5%	1,047	48.6%	73
Hispanic	59.2%	271	70.0%	1,331	64.0%	96
Black	14.0%	64	18.0%	342	14.7%	20
White	19.9%	91	10.5%	199	15.3%	23
Gifted	9.0%	41	3.0%	57	7.3%	11
ELL	10.7%	49	14.6%	278	8.0%	12
IEP	16.0%	73	22.0%	409	12.0%	18

Note. Student demographics were reported for all students in the sample.

As Table 2 shows, there was little variation among demographics between lottery entrants and Building 21 enrolled students. However, there were interesting differences between lottery entrants and non-entrants. There appeared to be little difference in the number of males and females entering the lottery when compared to total enrollment, where both showed half of the population to be male. There was a smaller percentage of Hispanic students in the entrant group than the total population (-10.8%). There was a smaller percentage of Black students entering the

lottery than not entering the lottery (-4 %), and a larger percentage of White students entering the lottery than not (+ 9.4%). The percentage of students identified as Gifted appeared to be overrepresented in the lottery entrant population (+6%), while ELL and IEP populations appeared to be underrepresented in the lottery entrant population (-3.9% and -6% respectively). These demographic data suggest that lottery entrants were Whiter and presented fewer academic needs than non-entrants. Gifted students in the total population represented more White students than Non-White students, 29.6% and 68.4% respectively. Thus, students identified as Gifted across the district are disproportionately White.

The average number of absences in eighth grade was 19 for non-entrants and 14 for entrants, with both groups experiencing an increase in the number of days absent in ninth grade. The average number of discipline infractions was slightly higher in eighth and ninth grades for non-entrants, but decreased slightly in ninth grade. Due to the wide variation in attendance rates, I categorized absenteeism by number of days absent: 0-5, 6-10, 11-19 and 20 or more absences. Allentown School District uses a cutoff of 10 absences to indicate chronic absenteeism, while research has referred to chronic absenteeism as missing more than 20 days of school (Sheldon & Epstein, 2004). The Pennsylvania Department of Education defines chronic absenteeism as missing 10% of school days, which is 18.5 days for Allentown School District. Therefore, I chose the absenteeism categories to reflect these three cutoffs and approximate quartiles (see Figure 1). More entrants had 6-10 and 11-19 absences than non-entrants, but more non-entrants fell in the highest absenteeism category with 20 or more absences. The sample size reflects the number of students for whom data was recorded. A Chi-square test indicated that the relationship between entrance and attendance was significant, X^2 (3, $N = 1,946$) = 12.05, $p = .007$.

Figure 1. Absenteeism for 8th Non-Entrants v. Entrants
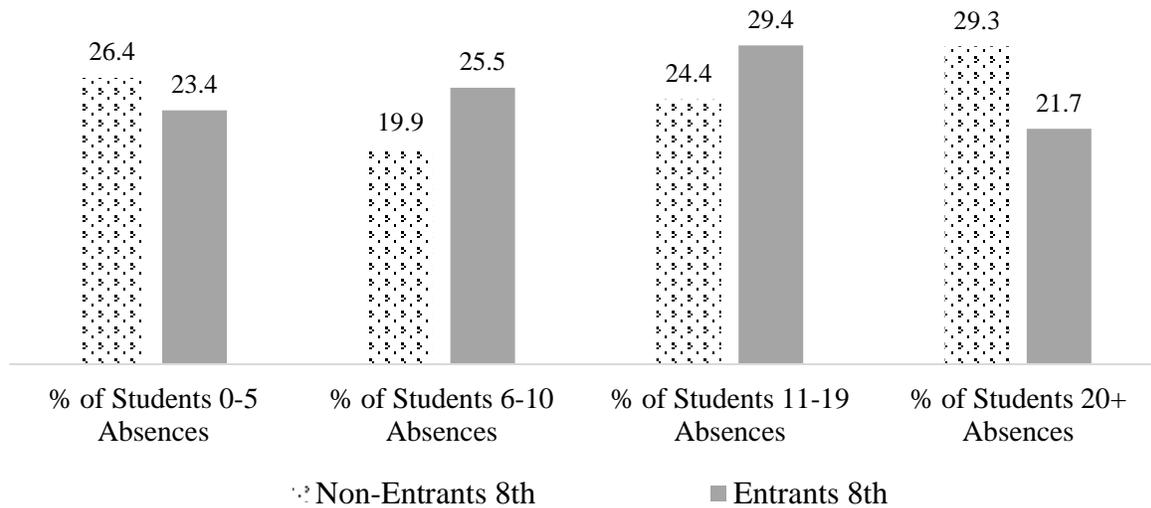
Discipline rates also indicated wide variation, so I chose to group them into four categories approximated around quartiles: zero discipline infractions (which represented 21% of all cases), one to five infractions (which represented 31% of all cases), six to seventeen infractions (which represented 24% of all cases), and 18 or more discipline infractions (which represented 25% of all cases). The sample size reflects the number of students for whom data was recorded. A Chi-square test indicated that the relationship between entrance and discipline rate was not significant, X^2 (3, $N = 2,033$) = 6.17, $p = .10$ (see Figure 2).

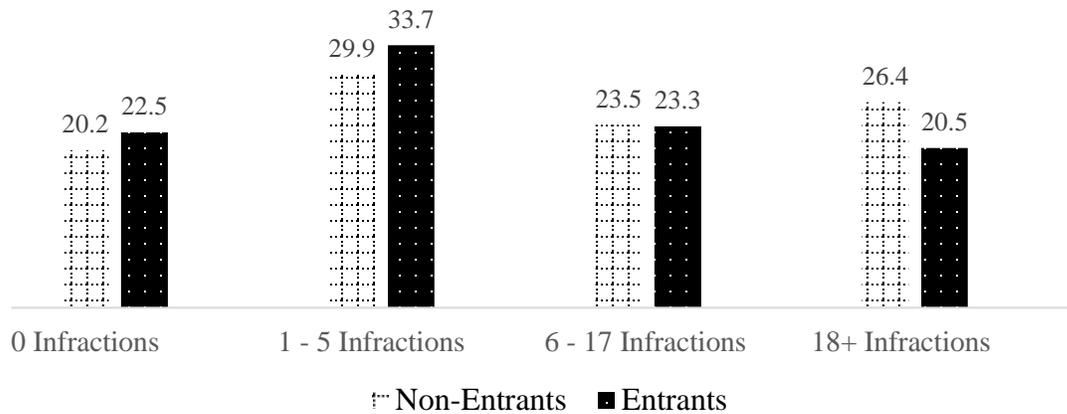Figure 2. Discipline Infractions for 8th Grade Non-Entrants v.
Entrants

Table 3 compares the proficiency rates of entrants to non-entrants on the PSSA ELA and Math tests completed in eighth grade. Sample sizes reflect the number of students who took each exam in eighth grade. Variation was seen between the two populations, with a larger percentage of entrants demonstrating proficiency on both tests compared to non-entrants. I conducted Chi-square tests to determine whether the relationship between PSSA performance level and lottery entrance was significant. The relationship between PSSA ELA and entrance was significant, X^2 $(1, N = 1,920) = 16.09$, $p < .001$. The relationship between PSSA Math and entrance was also significant, X^2 $(1, N = 1,924) = 6.27$, $p = .018$.

Table 3.

Proficiency rates for entrants and non-entrants.

PSSA ELA	Entrants		Non-Entrants	
	n	Percentage	*n*	Percentage
Proficient	90	25.8%	261	16.6%
Not Proficient	259	74.2%	1,310	83.3%

PSSA Math	Entrants		Non-Entrants	
	n	Percentage	*n*	Percentage
Proficient	26	7.5%	68	4.3%
Not Proficient	320	92.5%	1,510	95.7%

Logistic regression results. Question 1b asked which student characteristics predict the likelihood of entering the lottery versus not entering the lottery. The null hypothesis was that there is no relationship between lottery entrance (outcome variable) and race, IEP, Gifted, proficiency on PSSAs, attendance, and discipline rates (predictors). I conducted a logistic regression analysis for 1,674 students with complete data. Gifted and IEP were coded with a 1/0, where "1" was entered if the student identified with the label and "0" was entered if the student did not identify with the label. Race was collapsed to reflect Non-White ("1") and White ("0"). PSSA ELA and Math data were coded as Proficient ("1") or Not Proficient ("0"). Discipline and attendance data were continuous, representing the number of discipline infractions and number of days absent recorded in the student data file. The outcome variable was coded as 1 = entered the lottery, and 0 = not entered the lottery. The logistic regression model was significantly predictive of the outcome, $X^2 (7) = 18.90$, $p=.009$. The Hosmer and Lemeshow Test also showed goodness of fit, $X^2 (8) = 6.70$, $p=.569$, and the Classification Table showed that the model correctly classified whether students enter the lottery or not 83.8% of the time. Although the overall model fit well, only Gifted status and eighth grade attendance significantly predicted

student entry into the Building 21 lottery (see Table 4). I used the log-odds statistics of $\beta_{0} = -1.372$

(SE = .215) and $\beta_1 = .701$ (SE = .300) to calculate the odds of lottery entry for Gifted students

(OR = 1.05), which indicated that the probability of entering the lottery was 33.8% for Gifted

students, compared to 20.2% for non-Gifted students. Holding constant all other factors, the

predicted odds of entering the lottery decreased by a factor .99 with each additional day absent. I

used the log-odds statistics of $\beta_{0} = -1.372$ (SE = .215) and $\beta_1 = -.008$ (SE = .004) to calculate the

odds of lottery entry with each additional day a student was absent, which indicated a .1-.2%

decrease in probability of entering the lottery for each additional absence (see Appendix D).

Table 4

Logistic Regression Results

Predictor	B	S.E.	Wald	df	Sig.	Exp(B)
Gifted	.701	.300	5.443	1	.020[*]	2.015
IEP	-.110	.180	.372	1	.542	.896
8th Discipline	-.002	.004	.275	1	.600	.998
8th Attendance	-.008	.004	4.077	1	.043[*]	.992
PSSAR	.258	.184	1.971	1	.160	1.295
PSSAM	-.469	.340	1.900	1	.168	.626
Non-White	-.190	.203	.876	1	.349	.827
Constant	-1.372	.215	40.726	1	.000	.254

Note. Values rounded for clarity and brevity.
* Significant at the *p* < .05 level.

Question 2: Are there statistically significant differences in the outcomes of Building 21 Allentown lottery winners and lottery non-winners?

With questions 2a-2c I sought to determine whether attendance at Building 21 Allentown

resulted in significantly different outcomes in academic achievement, attendance, and discipline

rates. Because Algebra Keystone results are categorical (Proficient/Not Proficient), and the other

outcome variables are continuous, I used Chi-square and MANOVA to answer the second set of questions.

      Chi-square. I conducted three Chi-square analyses to compare outcomes on the Algebra Keystone exam between non-entrants, entrants, non-winners, and winners. The descriptive statistics showed considerable variability between the groups, both in terms of the proportion of students taking the test as well as the proportion of students demonstrating proficiency (see Table 5). Sample sizes reflect the number of students in each group who took the exam in ninth grade. The score represented the "Best Banked" score from ninth grade.

Table 5.

Algebra Keystone Results by Group

	Group Test Takers	Percent Proficient	n
Non-Entrants	60.6%	20.0%	1,152
Entrants	37.6%	16.3%	172
Non-Winners	41.4%	13.4%	127
Winners	30.0%	24.4%	45

      To test the possibility of a demoralization effect, I first analyzed outcomes between non-winners and non-entrants. The null hypothesis for Model 1 was:

      H_0: Keystone Algebra proficiency is independent of lottery loss

      I next calculated a Chi-square test of independence comparing proficiency rates between non-entrants and winners. The null hypothesis for Model 2 was:

      H_0: There is no difference between winners and non-entrants in Algebra proficiency

      Last, I calculated a Chi-square test of independence comparing proficiency rates between non-winners and winners. The null hypothesis for Model 3 was:

      H_0: Keystone Algebra proficiency is independent of attendance at Building 21

All three Chi-square tests of independence indicated no significant difference between

the groups on the Algebra Keystone exam (Table 6).

Table 6.

Algebra Keystone Chi-square Results

Test	X^2	*p*	*n*
Non-Winners v. Non-Entrants	3.25	.071	1,279
Winners v. Non-Entrants	.518	.472	1,197
Winners v. Non-Winners	2.98	.084	172

Note. Significant at p < .05.

MANOVA.

I used multivariate analysis of variance [MANOVA] to determine whether attending (v.

not attending) Building 21 was related to differences in GPA, attendance, and discipline rates

(DVs). I compared results between non-entrants, non-winners, and winners (IV). The null

hypothesis was that no differences existed between the three groups in their GPA, attendance, or

discipline rates. The null hypothesis expression was:

H_0: $\mu_1 = \mu_2 = \mu_3$

I checked for multivariate normality by examining the univariate normality for each

dependent variable (Stevens, 2009). GPA met the assumption of univariate normality, with

skewness of .589 (*SE* = .062) and kurtosis of -.829 (*SE* = .124). Ninth grade attendance was non-

normally distributed, with skewness of 2.392 (*SE* = .052) and kurtosis of 6.531 (*SE* = .104).

Similarly, ninth grade discipline was non-normally distributed, with skewness of 2.134 (*SE* =

.052) and kurtosis of 5.478 (*SE* = .103). However, the F statistic is robust against violations of

normality when sample sizes are large, when $n \geq 80$ (Howell, 2013; Pallant, 2013; Stevens,

2009). In this model, the sample sizes reflected the number of students with complete data across

the three dependent variables, $n = 1,493$. Homogeneity of variances assumption was also

violated, Box's Test M = 375.65 $F(12, 501,278) = 31.06$, $p < .001$. MANOVA results indicated a

significant difference in outcomes between the three groups, Pillai's Trace $= .107$, $F(6, 2{,}978) =$ 28.05, $p < .001$ (see Table 7).

Table 7.

MANOVA Descriptive Statistics

	Group	Mean	Std. Deviation	*n*
Ninth Discipline	Non-Entrants	12.25	16.14	1,195
	Non-Winners	14.33	18.90	182
	Winners	2.47	4.80	116
	Total	9.71	16.13	1,493
Ninth Attendance	Non-Entrants	22.77	28.83	1,195
	Non-Winners	17.85	21.56	182
	Winners	16.65	17.11	116
	Total	17.38	19.92	1,493
GPA	Non-Entrants	1.30	1.20	1,195
	Non-Winners	1.83	1.23	182
	Winners	2.53	1.02	116
	Total	2.10	1.20	1,493

Note. Values rounded for clarity and brevity.

Follow-up univariate tests indicated that there were significant differences in ninth grade discipline and GPA between the three groups. Winners had accrued significantly fewer discipline infractions and achieved significantly higher GPA than non-winners and non-entrants. Differences in GPA between the groups was significant, with winners achieving the highest and non-entrants achieving the lowest. Ninth grade attendance showed no significant differences between the groups. GPA was the only variable on which non-entrants achieved significantly different outcomes from non-winners. Using parameters identified in Cohen (1988), effect size for GPA showed a medium effect, and ninth grade discipline showed a large effect between winners and non-winners (see Table 8). GPA and discipline showed large effects between non-

entrants and winners. Differences between non-entrants and non-winners showed small effect sizes for both GPA and discipline.

Table 8.

Post-Hoc Univariate Results and Effect Sizes

	GPA		Ninth Discipline	
	p	*d*	*p*	*d*
Winner v. Non-Winner	< .001	.62	< .001	.86
Non-Entrant v. Non-Winner	< .001	.44	.229	.12
Non-Entrant v. Winner	< .001	1.10	< .001	.82

Note. Values rounded for clarity and brevity.

Summary

Results from the analyses were mixed. Question 1 sought to reveal whether certain demographic and previous performance variables were related to students entering the lottery or not. Descriptive statistics showed that students who entered the lottery represented fewer Black, Hispanic, ELL, and IEP students, and more White and Gifted students than non-entrants. Average discipline infractions in eighth grade were comparable for entrants and non-entrants, but average number of days absent for non-entrants was higher than lottery entrants'. Similarly, logistic regression revealed that higher numbers of absences significantly predicted a decreased likelihood that students would enter the lottery, and an increased likelihood among Gifted students to enter.

Question 2 sought to determine whether academic and behavior outcomes differed between lottery winners and non-winners. Chi-square results indicated no significant difference between winners and non-winners in Algebra Keystone proficiency. MANOVA results indicated that winners had accrued significantly fewer discipline infractions and higher GPA than non-winners. Neither statistical analysis provided evidence of a demoralization effect.

CHAPTER 5

Discussion and Implications

This study examined the option of district-charter collaboration through the only operating "in-district charter" in the Lehigh Valley. The purpose of this study was to determine whether demographic variables predicted the likelihood of students entering the in-district charter school lottery; and then to examine the effects of such a program on academic performance, attendance, and discipline. In this chapter I discuss important findings, strengths, and limitations. I conclude with recommendations for future research, policy, and practice.

Important Findings

Student characteristics and lottery entrance. There were interesting differences in the proportions of students represented in the lottery entrant group compared to the non-entrant group. Descriptive statistics showed substantial differences in six of the seven student demographic variables. There were smaller percentages of Black, Hispanic, IEP, and ELL students in the lottery entrant population compared to the non-entrant population. There were higher percentages of Gifted and White students in the lottery entrant population than the non-entrant population. In short, lottery entrants were Whiter and presented fewer academic needs (as measured by IEP and ELL identification). This suggests that the total student population was inequitably represented in the entrant population. Also of note was the difference in admission rates between student groups coming from different school systems upon lottery entrance. For example, only two of 61 students who were enrolled out-of-district or homeschooled at the time of entry were selected in the admissions lottery.

Building on the descriptive statistics that suggest an inequitable distribution of student groups in the non-entrant population, findings from the logistic regression procedure indicated

that student characteristics predicted the likelihood of students entering the admissions lottery at Building 21 Allentown. Two specific student predictors significantly impacted this likelihood. Gifted students were significantly more likely to enter the lottery than non-gifted students. This finding appears to contradict what previous researchers have found, which is that charter schools do not skim the cream of TPSs (Cowen & Winters, 2013; Walsh, 2009; and Zimmer et al., 2009). Although the increased likelihood of entering the lottery among Gifted students may point to the potential of inequitably recruiting the brightest and most capable students from the school district, it is important to note that previous measures of academic performance (PSSAs) did not significantly predict entering the lottery. Interestingly, none of the literature reviewed in this study included Gifted status as a variable. Therefore, why would students identified as Gifted be more likely to enroll in the Building 21 lottery? One possible explanation is that Gifted identification often includes motivation as a defining characteristic, and research, consequently, has found that gifted students score higher on measures of intrinsic motivation (see Clinkenbeared, 2012). Perhaps Allentown students with a Gifted label have higher intrinsic motivation to pursue alternative programming than their peers who are not identified as Gifted. Or, perhaps the small population of Gifted students relied on their social network to inform their decision about entering the lottery. Families most often rely on "word-of-mouth" recommendations when making their school choice decisions (Eckes & Trotter 2007; Fleming et al., 2015; Lubienski, 2007; Stewart & Wolf, 2012), and the small network of Gifted students in their tracked systems could have propelled this phenomenon.

Findings from the logistic regression procedure also indicated that as the number of days absent increased, a student's likelihood of entering the lottery decreased. Although charter school studies have not applied quantitative procedures to analyze attendance rate as a predictor of

63

lottery entry, several studies have found that school attendance is correlated with higher academic achievement (Farrington et al., 2012; West et al., 2016), which could explain why some charter school leaders recruit students they perceive as possessing desirable behaviors (Jennings, 2010). In the present study, however, there was no evidence that Building 21 leaders actively recruited students with particular attributes. It is possible that students with worse attendance were unaware of the program and procedures for entering the lottery, since information was shared with students in school. Alternatively, students with worse attendance may have been intrinsically less motivated to act on school choice options.

Other student factors were not significant in predicting a student's entry in the lottery, aligning with previous findings that student demographics in charter schools reflect demographics in surrounding districts (Berman et al., 1999; Nelson, 2000; and Gulosino & d'Etromont, 2011). In contrast to previous findings by Lacireno-Paquet et al. (2002), students with special education identification in Allentown were not significantly less likely to enter the lottery.

Differences in academic achievement between winners and non-winners. Results from the Chi-square procedure indicated that there were no significant differences between lottery winners and non-winners in Algebra Keystone results. There are a number of possible explanations as to why the two groups performed similarly. First, the present study examined results only from the students' ninth grade attempts, despite the fact that students are allowed numerous attempts to pass it from grades seven through eleven. Students who pass the exam before ninth grade are generally higher performers: those who are placed on an accelerated math track. The students attempting the exam in ninth grade are either grade-level students or those who failed the exam on previous administrations, potentially biasing the results downward.

Another confounding factor is the variability in proportions of students taking the exam from each group. Sixty percent of non-entrants took the exam in ninth grade, compared to 30-40% of students in the other three student groups. It is possible that the schools differ in when and how they administer the exam. Some may have a "cast a wide net" philosophy, administering the test to all eligible students, regardless of their readiness. Others may have a more conservative philosophy, administering the test to students only when they show a good possibility of passing. Second, the overall performance of students district-wide is very low, with only 5-10% reaching proficiency on any given administration, suggesting that curriculum and instruction across the district fails to prepare students to attain proficiency in Algebra. Third, Building 21 students may have been slightly disadvantaged, as new instructional initiatives often cause a dip in performance (Fullan, 2001). It is possible that examining the school again after three years of operation would find a different impact (Judson, 2014). Finally, the Building 21 mathematics program may not be significantly different from instruction, delivery, and assessment at the neighboring schools.

Previous lottery studies comparing winners and non-winners have found positive impacts on student achievement (Abdulkadiroglu et al., 2009; Hoxby & Rockoff, 2004; Hoxby et al., 2009). Betts and Tang (2014) found the aggregated effects of previous research utilizing fixed effects and lottery methods were positive for math achievement, which is contradictory to the findings here.

Results from the MANOVA procedure indicated that lottery winners achieved significantly higher grade point averages than non-winners, which somewhat aligns with previous findings regarding charter school impacts on graduation and college attendance rates (Angrist, Parag, & Walters, 2013; Booker, Sass, Gill; & Zimmer, 2011Dobbie & Fryer, 2013).

Although none of the studies I reviewed measure differences in GPA specifically, both graduation and college attendance are positively correlated with GPA (NEA, 2015). Building 21 students may achieve higher GPA because the school's competency-based learning model provides ongoing intervention and continuous progress monitoring. Building 21 is also significantly smaller than the two neighboring high schools. In fact, Building 21 students report that their grades improved in their ninth-grade year due to the low student-to-teacher ratio (Polochko, 2016).

   Differences in behavioral outcomes between winners and non-winners. Results from the MANOVA procedure indicated that non-winners accrued significantly more discipline infractions than winners in their ninth grade year, echoing previous evidence that charter school attendance improves student behavior outcomes (Dobbie & Fryer, 2013; Imberman, 2007). Teacher-to-student and administrator-to-student ratios may explain why Building 21 students had fewer disciplinary infractions than non-winners. Imberman (2007) found that such ratios accounted for as much as 80% of the variance in discipline rates between charter school students and TPS students. In the present study, the administrator-to-student ratio at Building 21 was 1:70, compared to the neighboring high schools where the ratio was approximately 1:250. Closer relationships between administrators and students may decrease disciplinary infractions for similar student populations. In contrast to the disciplinary findings, there was no significant difference in attendance rates between winners and non-winners in their ninth-grade year. Both of these behavior outcomes contradict a recent study's findings that attendance at charter schools decreased students' absentee rates and had no effect on student discipline rates (West et al., 2016).

Strengths and Limitations

The sample and data studied here contributed to the charter lottery literature that has indicated positive impacts on students' academic and behavior outcomes. Previous studies have only examined differences between lottery winners and non-winners, whereas this study also examined differences between non-winners and non-entrants as a control for a potential "non-winner" effect. Earlier findings of significantly improved outcomes for lottery winners were obscured by the possibility that upon "losing" a seat at their desired school, non-winners disengaged from the learning process and in turn, achieved lower than expected outcomes. The findings here disprove that hypothesis, as non-winners achieved similarly or better than their peers who had not entered the lottery.

Another strength of the study is that the sample reflected the common charter school profile, which is urban, low-income, and majority-minority (NCES, 2016). Low heterogeneity among students helps to limit the influence of impactful, external variables, such as income and family background (Betts & Tang, 2014). Despite Building 21's unique context as an in-district charter school, its demographic profile suggests that findings may be generalizable to urban school districts and charter systems attempting to collaborate.

The limitations of the study revolve around the challenges of using an extant data set. Some unexplained anomalies existed in the data. For example, the fact that only two of 61 students who were transferring into the district won a spot in the admissions lottery suggests that caution should be taken when interpreting the results. Similarly, the Algebra Keystone data provided only categorical proficiency levels. Due to the overwhelming low proficiency of students across the school district, categorical levels may have obscured significant differences in students' achievement that could only be captured with numeric scores. It is possible that non-

67

proficient students in the winner sample scored significantly higher or lower than non-winners *within* that proficiency level. Also, the Algebra Keystone exam posed a threat to internal validity as administration conditions may vary between the TPSs and Building 21. Schools have the flexibility to decide whether and when to re-administer the exam to students who fail. Because the data set did not include student scores on previous administrations of the test, I cannot rule out the possibility that winners who take the Algebra Keystone at Building 21 represent more or fewer re-testers than those who took the test in their TPS.

Another limitation that resulted from using extant data is the lack of variables that could measure academic growth at the student level. Previous studies comparing within subject effects of students who switched from TPSs to charter schools found that some experienced no significant change in academic achievement upon switching (Zimmer & Buddinb, 2006; Hanushek, Kain, Rivkin, & Branch, 2007), some experienced negative effects (Bifulco & Ladd, 2006), and some experienced positive effects (Booker, Gilpatric, Gronberg, & Jansen, 2007). The current study was limited by the fact that GPA in eighth grade was not available, making it impossible to determine if student growth rates varied between winners and non-winners. Unfortunately, without pre and post-treatment measures, this study cannot shed light on this aspect of the literature.

Finally, the current study is limited by the short implementation period of the treatment. The data examined in this study accounted for student outcomes after only one year of the school's operation, potentially obscuring differences in treatment and outcomes. On the other hand, I expect that differences in outcomes will intensify over time, as the faculty and staff at Building 21 refine their program. In that way, this study should be seen as the beginning of a

new line of research examining whether the in-district charter context affirms or defies evidence from the charter school literature to date.

Recommendations

  Research. Charter school research has largely centered on comparing student achievement in charter schools to student achievement in TPSs. Lottery-based studies are widely considered to be the most robust and reliable methodologies, and have indicated positive results on academic achievement (Abdulkadiroglu et al., 2009; Betts & Tang, 2014; Hoxby & Rockoff, 2004; Hoxby et al., 2009; Nicotera, Mendiburo, & Berends, 2011; West et al., 2016). The present study extended that line of research and found that students who attended the in-district charter school had significantly higher GPAs than students who had not won admission. More research is needed to determine whether in-district charter schools consistently produce similar results in student GPAs.

  Large studies have examined aggregate effects across charter school organizations in various geographic contexts, ranging from rural to suburban to urban. Betts and Tang (2014) found that charter schools in urban communities produced the most significant results, and Gleason et al., (2010) found that low-income students experienced more significant gains than middle and high-income students, and that urban charter schools (defined as located in a "Large City") also produced significant positive results. Currently, little is known about in-district charter schools, and researchers should examine whether student income and urbanicity play the same mitigating role that they do in the broader charter school research. Betts and Tang (2011) suggested researchers begin building a database with estimates of school-level findings that would become publicly available. This database would allow for more nuanced meta-analyses of characteristics of charter schools that are truly making a positive or negative difference for

student achievement (Betts & Tang, 2014, p. 54). I recommend that such an endeavor include and differentiate in-district charter schools to develop an understanding of their specific and unique impacts on student outcomes.

Research regarding the effects of charter school attendance on outcomes beyond standardized measures of academic achievement has uncovered promising results (Angrist, Parag, & Walters, 2013; Booker, Sass, Gill, & Zimmer, 2011; Dobbie & Fryer, 2013; Furgeson et al., 2012; McClure, Strick, Jacob-Almeida, & Reicher, 2005). The findings here suggest that *in-district* charter programming also has positive impacts on low-income, majority-minority, urban school students. After one year of attendance, ninth grade students in the in-district charter school had significantly fewer discipline infractions than their peers who did not win admission. While this points to the school's positive impact on behavior, more research is needed to understand the long-term impact of attendance on discipline and other behavior outcomes.

Policy. Pennsylvania law mandates that charter schools use a random admissions lottery when the number of applicants exceeds the number of seats available (Charter School Law, §17-1723-A). Clearly, this is the most equitable way to handle oversubscription. However, the research reveals that students who enter charter school lotteries may be more academically motivated than students who do not, and the present study is also limited by this possibility. I suggest that the charter school law be revised to mandate that all students are automatically entered into regional and in-district charter school lotteries, thus eliminating the motivation bias.

A second suggestion for policy makers revolves around district-charter collaboration specifically. The current law recognizes and protects charter school autonomy in nearly all aspects, except funding. TPS leaders oppose these funding regulations and advocate for greater oversight of charter school authorization, accountability, and transparency among boards of

trustees (PSBA, 2014). I suggest that the state convene an equitably representative committee to review current legislation and make revisions that are mutually beneficial to both school sectors.

        Practice. Findings from this study uncover several opportunities for practitioners to improve options and outcomes for students in TPSs. It is clear from the number of students who entered the Building 21 lottery that many will act on the opportunity to engage in alternative programming. In the context of this study, approximately 28% of eligible students in the district entered the admissions lottery. Consistent with common criticisms of charter school lotteries (Frankenburg et al., 2010), the findings here somewhat affirm that entry into the lottery was fairly inequitable. There were substantive differences between entrants and non-entrants along lines of race, Gifted, IEP, ELL status, and previous attendance and academic performance. However, race, performance, and behavior did not inequitably predict lottery entry, whereas Gifted identification and previous attendance rates did. Common lottery and enrollment practices can ensure that every student has an equal opportunity to enter and attend their school of choice. The findings suggest that school districts and charter schools should collaborate around universal lottery entry, "allow[ing] families to fill out a single application with a single deadline for any and all schools they wish to apply to. It's meant to cut down on the confusion and stress of choosing a school and to assure families that the application process will be fair," (Gross, DeArmond, & Denice, 2015, p. 1).

        Practitioners will also benefit from collecting and maintaining more specific and consistent student data. The present study was limited by the fact that students' standardized test scores were maintained in the student information system as categorical proficiency levels. This is due, in part, to the fact that teacher and school accountability schemes rely solely on proficiency levels, rather than scaled scores (Pennsylvania Department of Education, 2015).

Similarly, GPA is maintained cumulatively, and student grade achievement cannot be measured between two points in time, or before and after an intervention. I suggest that maintaining student GPA data at fixed intervals (at the end of each year) and cumulatively will enable practitioners to make better informed decisions about program effectiveness. Maintaining specific scores with all other student data in the student information system will facilitate data gathering, analysis, and reporting. Moreover, districts and charter schools alike should engage in more robust data gathering as it relates to lottery entrants and results. More information is needed across schools and districts that tracks student data over time, such as previous schooling and numbers of students declining offers of admission.

Finally, the findings from this study indicate that district and charter school leaders may find collaboration beneficial for students in both sectors. In-district charter schools, independent charter schools, and school districts should be open to sharing best practices and adopting those that are working across sectors. As small groups of students attend in-district charter schools, their outcomes give school leaders an opportunity to scale up successful interventions, and limit negative impact of failed interventions. In this case, the leaders of Allentown School District should work with Building 21 leaders to investigate what aspects of their program led students to achieve significantly higher GPAs and better discipline outcomes. Conversely, Building 21 benefits from the expanded resources and expertise of the school district that independent charter schools do not have access to.

In conclusion, the present study provided evidence that an in-district charter school led students to achieve higher GPAs and fewer discipline infractions than their TPS peers who entered the admissions lottery. There was no evidence that race, special education status or previous academic performance predicted whether students would choose to enter the lottery.

However, students identified as Gifted were more likely to enter the lottery and students with worse attendance were less likely. I suggest that researchers continue to examine the unique impacts of in-district charter schools on academic achievement and behavior outcomes. Practitioners should play a critical role in collecting, maintaining and sharing specific data to use for this purpose. Finally, policy makers should encourage district-charter collaboration, particularly in urban schools systems with high charter school enrollment. Doing so may lead to better academic, behavior, and life outcomes for students.

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Dr. Gary Cooper, Superintendent
Allentown School District
31 S. Penn Street
Allentown, PA 18102

Dear Dr. Cooper,   12/16/2016

I am currently a doctoral candidate in Educational Leadership at Lehigh University. My dissertation is focused on the impacts of Building 21 on student attendance, discipline, and academic achievement. I am also studying whether and which student characteristics (as reflected in the list below) increase the likelihood of students entering the admissions lottery. To help me conduct my research, I would like to request the following information:

- Excel spreadsheet containing the following data for each student who entered the Building 21 lottery for SY 2015-2016.
    - Y/N indicating whether student won admission to the lottery
    - English Language Learner status
    - Gender
    - Race
    - IEP status
    - Gifted status
    - School attended in eighth grade
    - ninth Grade GPA for SY 2015-2016
    - eighth grade Performance level on PSSA Reading
    - eighth grade Performance level on PSSA Math
    - ninth grade Performance level on Keystone Algebra (where applicable)
    - Number of absences for SYs 2014-2015 and 2015-2016
    - Number of discipline infractions for SYs 2014-2015 and 2015-2016

- A second Excel spreadsheet with all data listed above for ASD students who were eligible but did not enter the 2015-2016 admissions lottery, and were continuously enrolled in ASD schools other than Building 21 for SY 2015-2016.

Please see the attached example of a spreadsheet.

Also, please ensure that all identifiable information is excluded from the data file(s). ***No student names, student addresses, or phone numbers should be included***. Neither I, nor anyone else, will attempt to identify or contact students in any way. I will keep the data file on a flash drive only, and will return it to you at your request once the data collection and analysis are complete.

Please let me know if there is any other information you need from me regarding this matter. I believe the information gleaned from the study will be helpful to the school, district, and most

importantly, students. Thank you so much for your help and I look forward to working with you on this issue.

Sincerely,
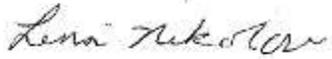
Lensi Nikolov
Ed.D. Candidate
Lehigh University

APPENDIX B

Sample Excel File Attached to Request to Conduct Research Sent to Allentown School District

APPENDIX C

PERMISSION TO CONDUCT RESEARCH

ASD Allentown
SCHOOL DISTRICT
41 South 2nd Street • P.O. Box 328 • Allentown, PA 18105
Administration Center • 484-765-4235 • Fax 484-765-4239

GARY R. COOPER, ED.D.
Interim Superintendent
cooperg@allentownsd.org

PERMISSION TO CONDUCT RESEARCH

December 19, 2016

Dear Ms. Nikolov and Lehigh University:

The purpose of this letter is to inform you that I, Dr. Gary Cooper, give Lensi Nikolov permission to conduct the research titled "In-district Charter Programming in an Urban School District: The Promises and Challenges of Semi-Autonomous Schooling." This also serves as assurance that this school and district comply with requirements of the Family Educational Rights and Privacy Act (FERPA) and the Protection of Pupil Rights Amendment (PPRA) and will ensure that these requirements are followed in the conduct of this research. The district expects student anonymity be upheld. We look forward to seeing the results.

Sincerely,

[signature]

Dr. Gary Cooper
Superintendent
Allentown School District

Appendix D

Table 7.

Odds Ratio Calculation for Attendance

Days Absent	Odds of Lottery Entry	Odds Ratio	Probability of Entry
0	0.254	0.340	20.2%
1	0.252	0.336	20.1%
2	0.250	0.333	20.0%
3	0.248	0.329	19.8%
4	0.246	0.326	19.7%
5	0.244	0.322	19.6%
6	0.242	0.319	19.5%
7	0.240	0.315	19.3%
8	0.240	0.312	19.2%
9	0.240	0.309	19.1%
10	0.234	0.306	19.0%
11	0.232	0.302	18.8%
12	0.230	0.299	18.7%
13	0.229	0.296	18.6%
14	0.227	0.293	18.5%
15	0.225	0.290	18.4%
20	0.216	0.276	17.8%
50	0.170	0.205	14.5%
100	0.114	0.129	10.2%

Note: Values rounded for brevity and clarity.

LENSI NIKOLOV

545 Pine Top Trail, Bethlehem, PA 18017   lensinikolov@gmail.com   (512) 914-9086

EDUCATION

Ed.D. Educational Leadership
Lehigh University – A.B.D., Expected Graduation May 2017
M.A. Second Language Education
McGill University, Montreal, Québec - May 2006
B.A. Comparative Literature in Italian & English
University of California, Berkeley - August 2001

EXPERIENCE

Adjunct Professor, Cedar Crest College, Allentown, PA
Academic Year 2016 - 2017
- Teach *Academic Success II* (4 credits) and *Academic Composition II* (4 credits), two required courses for bachelor's level international students.
- Instruct diverse students on note-taking, study skills, social interactions, personal habits of success and all aspects of effective English writing.

University Instructional Internship, Lehigh University, Bethlehem, PA
Summer Term 2016
- Co-taught *Organizational Leadership and Change Management,* a required course for graduate students in Educational Leadership programs at Lehigh University, with Dr. George White.
- Delivered and supported lectures on organizational and personal vision, leadership, organizational design, and change in diverse settings.
- Coached students through writing assignments.
- Graded written papers and provided feedback to students for improvement.

Director of Instructional Planning and Monitoring, Allentown School District
August 2015 - August 2016
- Directed district wide Summer Programs, serving over 3,000 students, 100 employees, across 11 school Buildings with a $478,000 budget.
- Coordinated wide-scale federal monitoring of Title I compliance, resulting in 100% Met Requirements accounting for $1.9 million.
- Presented to School Board of Directors in Public Board Meetings and Executive Session on comprehensive planning topics.

Assistant Principal, Sheridan Elementary School, Allentown School District
December 2014 - August 2015
- Coached and evaluated 18 instructional staff members.
- Supported teams in analyzing data to inform instructional practice.
- Developed and facilitated annual team professional development.
- Developed positive relationships with children, families and staff.

ESL District Coordinator / ESL Teacher, Central Bucks School District, Doylestown, PA

August 2011 – December 2014

- Wrote Student Learning Objectives for use throughout the district.
- Provided professional development on policy, research, and instructional practices.
- Advised teachers on instruction, intervention, and assessment.
- Created and maintained websites for program and community.
- Advised educators and families about supporting culturally/linguistically diverse students.

ADDITIONAL WORK EXPERIENCE

Curriculum Specialist, Teach for America Summer Institute, Philadelphia, PA
January 2011 - August 2011

Elementary Multiple-Subject ESL Teacher, Grade 4, Austin Independent School District, Austin, TX August 2006 - June 2009

Research Assistant, Department of Second Language Education, McGill University, Montreal, Québec April 2005 - April 2006

ESL Instructor, North Harris Community College, Houston, TX Spring 2004

Teach for America, Elementary/ESL Teacher, Houston Independent School District, Houston, TX August 2002 - June 2004

PROFESSIONAL DEVELOPMENT & CONFERENCE PRESENTATIONS

Lehigh University, Bethlehem, PA
What Principals Need to Know About ELLs, March 9, 2016

Allentown School District, Allentown, PA
Teaching with Poverty in Mind, July 21 & 22,
2015 *ESSA Accountability Updates*, February 24,
2016

Central Bucks School District, Doylestown, PA
Supporting Primary ELLs in Math, September 29, 2014
Identification, Assessment and Placement for ELLs, March 14, 2014
English as a Second Language Department In-Service, January 27, 2014
District-wide In-Service for Elementary Teachers, August 27, 2013
English as a Second Language Department In-Service, August 15, 2012

Teach for America, Philadelphia, PA
Leveraging Resources for Independent Reading, June 2011

Bethlehem Area School District, Bethlehem, PA
I in PRIDE: Educators as Innovators at Nitschmann Middle School, January 14, 2011

The 30 Minute Meeting for PLCs, January – June 2011

Council Rock School District, Newton, PA
District-wide In-service for World Language Teachers, November 3, 2009

Bucks County Intermediate Unit, Doylestown, PA
Global Learning Conference, October 21, 2009

Austin Independent School District, Austin, TX
English Language Proficiency Standards Professional Development Trainer, 2006-2009

Harvard Graduate School of Education, Cambridge, MA
Student Research Conference & International Forum, February 24, 2006

University of Texas at Austin, Austin, TX
Texas Foreign Language Education Conference, March 24, 2006

PROFESSIONAL SERVICE

    Pennsylvania Department of Education ESSA Accountability Workgroup
    May 2016 – Present

    Pennsylvania Association of Federal Programs Coordinators
    August 2015-August 2016

    Joint Council for Curriculum and Instruction, Carbon-Lehigh Intermediate Unit
    August 2015-August 2016

    English as a Second Language Advisory Council, Bucks County Intermediate Unit
    August 2011 – December 2014

    Teach for America Alumni Organization, Teach for America
    June 2004 - Present

    Department of Educational Leadership Faculty Search Participant, Lehigh
    University Spring 2011

COMMUNITY SERVICE

    Junior League of the Lehigh Valley, Member, 2009 - 2015
    Member Development, Assistant Chair, May 2013 – present
    Strong Moms Strong Girls Community Program, Chair, May 2012 – May 2013
    Board Secretary, May 2010 - May 2011