EVALUATING THE IMPACT OF THE K-EXCEL PROGRAM

IN MOUNT OLIVE PUBLIC SCHOOLS

By

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ABSTRACT OF THE DISSERTATION
EVALUATING THE IMPACT OF THE K-EXCEL PROGRAM
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While most people believe that Kindergarten is beneficial to children, some studies have shown that the academic benefits of a full-day program verses a half-day program fade away by the third grade year, calling into question its long-term value (Kay & Pennucci, 2014; Votruba-Drzal, Maldonado-Carreno & LiGrining, 2008; Cannon, Jacknowitz, and Painter, 2006; Cooper et al., 2010; Wolgemuth et al., 2012). Many of the studies are disproportionately focused on urban areas, offering few studies of suburban impact from full-day programs. Despite this limited research, there has been an increase in the number of suburban districts adopting full-day kindergarten programs with approximately 85% of New Jersey districts now providing full-day kindergarten for all students (NJDOE, 2015). This is done at a significant cost to school budgets that are currently under spending caps.

This two-year study examines the impact that full-day kindergarten has when compared to a half-day program in the suburban district of Mount Olive, New Jersey. The K-Excel Program was designed to help bring grade level equivalency rates up by combining half-day kindergarten with additional time in literacy and language arts instruction, effectively giving some students a full-day program.

The study employs a mixed methods approach with both a pre-test/post-test design measuring the age and grade level equivalencies of the children and interview data from five first grade teachers and twelve first grade parents. Propensity score matching was used to reduce selection bias and improve the balance between comparison groups.

The academic gains noted from a full-day kindergarten model were relatively small (.48 effect size) and were not found to be significant for those students that were on scholarship due to low initial scores. However, the interviews offered some insight into the fade out effect as well as support for the many ancillary academic, social, and emotional benefits that full-day kindergarten had for certain families. Specifically, ELL students, children of working parents with demanding jobs, and children suspected of having learning difficulties were reported to benefit most from the full-day program. There was also evidence that parents preferred the choice of either full-day or half-day programs. These findings led to program improvement recommendations for Mount Olive Public Schools as a part of this program evaluation.

Acknowledgements

My thanks to all who helped me reach this life-long goal of completing my Ed.D. While it was a struggle to balance work obligations as a district administrator, the coursework of this rigorous program, and trying to find balance with health and wellness, this program and all who are associated with it helped me grow in unimaginable ways. I certainly learned the importance of support. In the words of Jane Howard, "Call it a clan, call it a network, call it a tribe, call it a family. Whatever you call it, whoever you are, you need one". I am so grateful to my mentors, friends, partner, and colleagues at Rutgers and in Mount Olive. I owe my success to all of the support and patience you have shown me throughout these four years.

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You allowed me to work on a dissertation that was both practical and relevant for our community. You also continue to be a support for me through the trials and tribulations of leading our school district, and I am so thankful to have you as a mentor, colleague in educational change, and friend. Dr. Barnett, you have been my quantitative sage, always giving me just enough information to initially confuse me but ultimately leading to some of my greatest intellectual awakenings. You did more for my intellectual confidence than anyone else because I had to struggle so much to understand and persevere through my own deficiencies in statistics. Ultimately, I reached understanding as a result of your guidance and my willingness to struggle and learn what I did not already know. You helped me navigate and grow in ways that I never thought possible, turning the foreign language of quantitative analysis and propensity scores into practical tools that I can use to impact local practices.

I will always cherish the many memories I formed with the teachers and students of the Rutgers Ed.D. Program. My peers are each brilliant in his or her own way and helped me appreciate the intellectual diversity that existed in our classes, one that was maximized by our great instructors like Dr. Sharon, Dr. Mangin, Dr. Belzer, and Dr. Justice. Each taught me to look at education through a unique lens, one that broadened my mind and helped me understand more fully my own intellectual curiosity.

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I also need to thank the Mount Olive community. I have been blessed with a board of education that has been supportive of my research and allowed me to take a hard look at our own program because they value data and doing what is best for our students. One board member in particular, Bill Robinson, was always holding me to high expectations of integrity in my research no matter what the data showed, and he helped assure me of the importance of my findings and the value of the study. Without a supportive superintendent and board of education, I would not have been able to study the K-Excel Program in such an open way. I am truly appreciative to work in such a great place, serving a community I care about.

My thanks also go to the teachers and parents of Mount Olive that helped me by participating in the study. I thoroughly enjoyed learning from each interview, and each person's story helped me create a more thorough understanding of the program impacts in ways that quantitative data alone could not accomplish. Your willingness to give your time and energy to be interviewed helped me complete this study and ultimately understand the context of our kindergarten programs at an entirely different level.

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Dedication

To Frank and Judy
my parents, who taught me love, compassion, and inspired me to serve others in all that I do

To Ellie
my second mom, who continued where my mom left in supporting and raising me

To Steve
my partner, for filling the last twenty-one years of my life with love and keeping me sane
through the ups and downs of life's journey

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CHAPTER I

INTRODUCTION

There is perhaps no greater milestone in the life of a child than when he or she learns how to read. This one skill can open the world to them for further learning through books, newspapers, and even the Internet, allowing them to construct their own learning further beyond their past or even current experiences (Bransford, 2000). However, a great inequality for American children is that "low-income kindergartners typically start school at least a full year behind others in reading and with a vocabulary of 5,000 words (as opposed to 20,000 for their middle-class peers)" (Evans, 2005, p.585). This inequality puts poor students at a severe disadvantage even before they begin their formal schooling and can perpetuate forward throughout their academic career, hindering them from ever accessing their potential (Fielding, 2006). As others are moving on, these students are forever catching up, always left behind. Fortunately, early childhood interventions can often mitigate inequity by giving at-risk students the skills that they need to start off closer to their peers. Mount Olive Public Schools is currently using such a strategy to attempt to close the reading achievement gap by providing extra programming to at-risk children through a program called K-Excel.

The K-Excel Program was introduced in the 2013-2014 school year in Mount Olive School District with the intent of offering an extended school day to students needing more time to master pre-reading skills, resulting in a full-day of kindergarten versus the standard half-day offered to the rest of the student population. The focus of the program is to increase literacy skills and reduce reading gaps that exist between first graders. While the purpose of the program is clear, attempting to close achievement gaps among students in literacy, it has yet to be evaluated to see if the program delivers on its potential and if the program has benefits that extend beyond early literacy skill development.

The purpose of this work is to carry out the systematic study of the program's perceived and estimated impact on the students of Mount Olive.

Significance of the Study

The primary intended audience of this study is the policymakers in Mount Olive Schools. According to Marsh, Pane, and Hamilton (2006), administrators typically use data in two ways. The first is to "inform, identify, and clarify". The second is to "take action". The findings of this study will be used to accomplish both tasks. First, it will inform and explain the benefits of the K-Excel Program and clarify the ways in which the program touches the lives of the children and families involved. It may subsequently be used by the district policymakers to act based on the data to expand, change, or disband the K-Excel Program. Therefore, the impact of this program study may impact budget, personnel, policy, and program decisions for the K-Excel Program that it evaluates.

The program design outlined within this study may also be of interest to districts concerned with issues of limited resources, efficiency, and closing achievement gaps within their own places of practice. The K-Excel Program was run without cost to the school budget, which may make it particularly appealing to districts currently saddled with budget caps. By thoroughly describing the program, its organization, and its funding, this study offers readers from other districts insight into how they can design a similar program or adopt components within their own places of practice.

This study also serves as a model of how program evaluation methods can be used at the district-level to solve real-world problems through job-embedded research. The direct purpose for such research is to take local action using local data.

This is a stark contrast from most research into the effects of full-day kindergarten, which focuses on large national samples from the Early Childhood Longitudinal Study.

Additionally, the use of mixed methods in such research has been limited, with only a few studies that have used qualitative data to explain larger phenomenon. Finally, the use of propensity score matching to compare different samples of students to assess program effectiveness can be valuable since randomized experiments are challenging to do within schools. This study will model this method as a means of comparing non-experimental samples.

This study merges the larger body of research with its own results from an evaluation of the district-based program. This methodology may hold value for other practitioners seeking models to follow in their own program evaluations, despite smaller sample sizes. Such data can help them inform their own decisions around programming and make data-driven decisions a more frequent norm within schools.

Purpose of the Research

The primary purpose of this study is to assess the K-Excel Program's impact on first grade reading. While the K-Excel Program's primary objective is to increase first grade readiness and help ensure a greater percentage of students are at grade level equivalency, local decision makers in Mount Olive also want to learn about parent and teacher perceptions of the program and any ancillary benefits beyond the primary objective of the program. Such information may offer important insight into ways that the program can be modified or additional clues as to contributing factors for the quantitative findings.

The Context and History of Kindergarten Programs Offered in Mount Olive Schools

While most towns and cities in New Jersey have implemented full-day kindergarten for all students (85%), Mount Olive is in the minority with only a half-day program for their regular education students and a full-day kindergarten program for special education students (NJDOE, 2015; Rybolt, 2012).
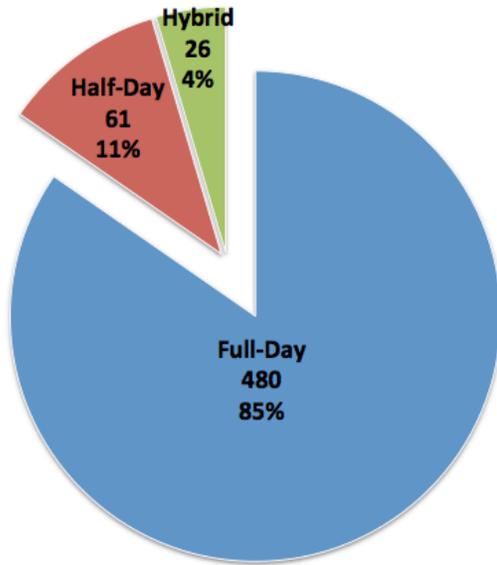
Figure 1.   Kindergarten programs in NJ districts in the 2013 – 2014 school year (NJDOE, 2015).

Per the superintendent, Dr. Larrie Reynolds, this was due in large part to the lack of funds, space,

and lack of parental pressure to have a program (personal communication, November 19, 2012).

However, the demographics of the town have been changing, and pressure has slowly mounted

to introduce a full-day kindergarten program, a proposition with a 1.4-million-dollar annual cost

before factoring in the additional construction costs that would be necessary to implement the

program (L. Reynolds, personal communication, November 19, 2012).

       According to William Robinson, a resident since 1970 and board of education member,

Mount Olive never needed a full-day kindergarten program since the community was comprised

of farmers and seasonal visitors to Budd Lake. It was a small rural community where, "Chester

Stephens, the first superintendent, would be on his tractor in the morning as a dairy farmer and

serve as superintendent in the afternoon, but that all changed." In the 1970's, many of the

seasonal cottages around Budd Lake were being converted to year-round homes just as

apartment buildings were expanding. Once the New Jersey Foreign Trade Zone was built in

1979, jobs were plentiful, causing the town to grow further.

Mr. Robinson stated, "we didn't have the money for kindergarten when we had to spend ninety-million dollars in constructing buildings just to keep up with the population" (personal communication, March 14, 2014). However, requests for the board of education to institute full-day kindergarten started to increase as single parent and dual-working families began to increase in numbers. Thus, the board decided in 2012 to write into their goals the possibility of introducing a full-day kindergarten program (Amianda et al., 2012). A feasibility study was completed, and in the resulting analysis by the superintendent, it was learned that the current available classroom space was insufficient to house the projected enrollments. There were only three available classrooms at the time, but at least eight would be needed – new classrooms would need to be constructed, meaning a capital improvement expense for the district. A second barrier that was identified by the superintendent was the cost of teacher salaries in a capped budget. The healthcare costs of the entire staff increased by 13% during the year, leaving almost no funds for new teachers (L. Reynolds, personal communication, November 19, 2012). Along with the knowledge that New Jersey does not incentivize schools to offer a full-day kindergarten program over a half-day program, the costs were determined to be prohibitive to start such a program for the entire district (Murtha, 2013; Kauerz, 2005).   Introducing full-day kindergarten for all students was struck down as an option at that time. However, school report cards sent a second jolt of impetus when they arrived. Every elementary school failed to meet their NCLB progress targets due to disaggregate score reporting from the NJ State Report Cards. Table 1 demonstrates the targets missed by each elementary school in the 2012 – 2013 school year compared with the previous year (NJ School Report Cards, 2012).

Table 1.

Mount Olive NCLB Progress Targets not met for Language Arts and Math

School	2011-2012 School Year	2012 – 2013 School Year
Chester Stephens School	ALL PASSED	Students with Disabilities (Math/LA)
Tinc School	ALL PASSED	Economically Disadvantaged (Math/LA) Students with Disabilities (Math)
Sandshore School	ALL PASSED	Schoolwide, White (LA) Students with Disabilities (Math/LA)
Mountain View School	White (LA)	Schoolwide, White, Students with Disabilities (LA)

Because of these missed targets, the administrative team was tasked by the board of education to investigate and problem-solve ways to close achievement gaps among students. One possibility found was to introduce a full-day kindergarten program for at-risk students as a remediation strategy. Suddenly, the limited space of three classrooms was enough to meet a need for the most "at-risk" children. The K-Excel Program was envisioned to help close these achievement deficiencies.

Relationship of the Investigator to the Study

As a director of curriculum for Mount Olive Public Schools, the researcher was closely involved in determining educational priorities within the schools, working directly with the superintendent of schools and in some instances the board of education to establish goals. The interest in the subject of creating a program evaluation of the K-Excel Program came specifically from helping the superintendent and school board navigate policy implications and priorities in the Mount Olive Public Schools around early childhood education and its priority in the K-12 plan. Therefore, the project had positional relevance to the researcher. Beyond this, the researcher was a major proponent in establishing the current model of K-Excel in the district.

There is currently a high level of pressure to institute a full-day program for all. Mount Olive is one of only 2 districts in Morris County without a full-day kindergarten program that serves every student. Therefore, parental pressure is currently being exerted on the board to adopt a full-day program. However, to implement such a program, there is a steep price tag of 6.6 million dollars in new construction, an issue of rezoning the school boundaries, and a recurring staff cost starting at $804,000 in the first year (Garber, 2016). This study will allow the director of curriculum to better advise policy makers of the benefits of the current program in comparison to full-day kindergarten for all.

One factor impacting the researcher is the cost-benefit of kindergarten programs verses other educational programs in the district. Since the cost is too high in the current budget to implement a full-day kindergarten program without impacting other programs, it was imperative for the researcher to consider what parts of the curriculum would be impacted in various scenarios. A fear exists that spending excessively on early childhood programs would detract from the overall quality of programs offered later in Mount Olive Schools.

The researcher was a co-planner of the current program design of K-Excel and has been an instructional leader in supporting parent nights and program implementation in the three years that the K-Excel Program has run. In many ways, he championed the importance of a full-day program as part of his job in ensuring enrollment in K-Excel. Therefore, a personal agenda of evaluating a program that the researcher helped to create is a consideration when looking at bias. Specifically, confirmation bias or only looking at opinions that would support the assumptions made within the program design was a concern within the study (Klayman, 1995). Thus, the process of data collection and interpretation required a constant reevaluation of impressions from the interviews and a need to challenge preexisting assumptions and hypothesis.

The researcher needed to continuously reflect on interview transcripts and to consider counterarguments about the perceived benefits of the program. It was through self-reflection of assumptions and supporting findings with tangible evidence that this bias was minimized.

Design of the K-Excel Program

Despite the realized need for the K-Excel Program, problems had to be overcome to get the program off the ground. This included solving the issue of funding, identifying students to target with the program, developing the curriculum, and recruiting qualified teachers to staff the program.

Solving the Funding Challenge

The program faced a major limitation; there was no money allocated in the budget for its creation. This meant that it had to be completely self-funded. Because of the availability of classroom space and the ability to hire non-unionized teachers through a partnership with Mount Olive Child Care, it was estimated that the program could run at a bare-bones cost of $2,500 per student for the year. By doubling the costs for each paying parent to $5,000, a scholarship was created for a second student identified by the district to be below age-level proficiency. This resulted in two students admitted into the program, one paid and one on scholarship. In addition, two of the schools had Title I funds that were used to support even more at-risk students. Thus, K-Excel became a completely self-sustaining program except for utility and supply costs. All other expenses netted zero expense to the district operating budget as shown in Table 2.

Table 2.

Fund allocation for the K-Excel Program in the 2013 – 2014 school year.

	Enrollment	Revenue/Child	Income
Estimated Program Cost	88	-$2,500.00	-$220,000.00
Tuition Revenue	31	$5,000.00	$155,000.00
Title I Fund Allocation			$65,000.00
Net Cost to the Budget			$0.00

Identifying the Scholarship Students

Because the goal was to help remediate our least ready children entering kindergartener,

the district needed to identify students that were at-risk of not being prepared for first grade. The

Brigance Early Childhood Screen III was employed by the district as an instrument to detect

students that were below kindergarten readiness. The district used the score of 65 as the cutoff

since it was the age level equivalency of a child that was 4 years and 11 months old. Since the

test was administered in the June before entry into kindergarten, the district wanted students that

could perform at the expected level of a five-year-old child. Selection for scholarships was

based solely on the child's score on the assessment. Students scoring below the cutoff score on

the screening instrument were offered a scholarship so that they could attend K-Excel without

fees. No additional variables were used for awarding scholarships. Table 3 shows the

enrollment and funding source of the K-Excel cohorts by each elementary school.

Table 3.

Student Participation by Elementary School and Funding Source

Funding Source	Elementary School Enrollment in K-Excel				Total Students	Percentage
	CMS	Sand Shore	Tinc	Mountain View		
Paid	8	9	6	8	31	35%
Scholarship	8	9	6	8	31	35%
Title 1 Scholarship	20	0	6	0	26	30%
Total Students	36	18	18	16	88	100%

This was an important factor when considering ways to evaluate the effectiveness of the program

since the students in K-Excel had varying scores on the Brigance Early Childhood Screen III

(K&1) and were made up of "compliers", those that were selected by the test to be in the

program and "non-compliers", those students that were not initially placed into the K-excel

group but had parents that paid to have them join (Angrist, Abdulkadiroglu, & Pathak, 2011).

Hiring and Training Teachers

Mount Olive Child Care interviewed and hired five teachers and five support staff for the

four elementary schools. All the teachers hired had similar teaching backgrounds with valid NJ

teaching certificates and less than five years of teaching experience in kindergarten. They also

participated in a comprehensive training day for the curriculum prior to beginning. There were

additional monthly trainings and staff meetings throughout the school year scheduled to support

them in their roles with the K-Excel Program. This included observations and mentoring by the

school district administration and Mount Olive Child Care Center staff.

Identifying the Curriculum

Language arts was determined to the be the major focus of the curriculum because the

2012-2013 NJASK scores for the elementary schools demonstrated more pronounced

weaknesses in language arts than in mathematics (See Table 1). Therefore, a daily schedule was

created where students would finish their regular kindergarten program in the morning, go to

lunch, have a short recess time, and then be immersed in over 160 minutes of literacy activities

in the afternoon. Additionally, computerized programs such as MindPlay Virtual Reading Coach

were provided to support individualized learning both in the classroom and at home.

Designing a Parent Academy

To better support students in the K-Excel program, the administration created a series of

eight parent nights to encourage parents to support the goals of the program at home. These

evenings were designed to focus on ways that parents could reinforce what was learned in school

as well as a way of distributing additional resources such as books, games, and tutorials for

parents to use in the home to support the literacy goals of their children.

Theoretical Framework

To understand the administrative decisions in designing the K-EXCEL Program, multiple informal interviews were conducted with the superintendent, Dr. Larrie Reynolds, to gage the "rationale and conceptualization" for the program components as they were proposed (Rossi, Lipsey, & Freeman, 2004, p.135). As the director of curriculum, the researcher had access at-will to informal and ongoing conversations about the program and its components.

The use of Logic Models

The use of logic models can assist in understanding the expected outcomes as well as identify areas for monitoring the program. Figure 2 shows the expected program impact theory that led to the program design (Rossi, Lipsey & Freeman, 2004). The light blue shading indicates academic impacts that are expected to originate in school. The orange are some secondary benefits that are anticipated. The pink shading represents the ways that the home-life may be impacted as a result of the program. Note that this model is based on the anticipated impact of the program according to the interviews and is not expected to comprise the entirety of the advantages and disadvantages resulting from the program. That is one purpose of conducting the qualitative components of this research study, to discover the unanticipated outcomes and experiences resulting from a family's participation in the K-Excel program.
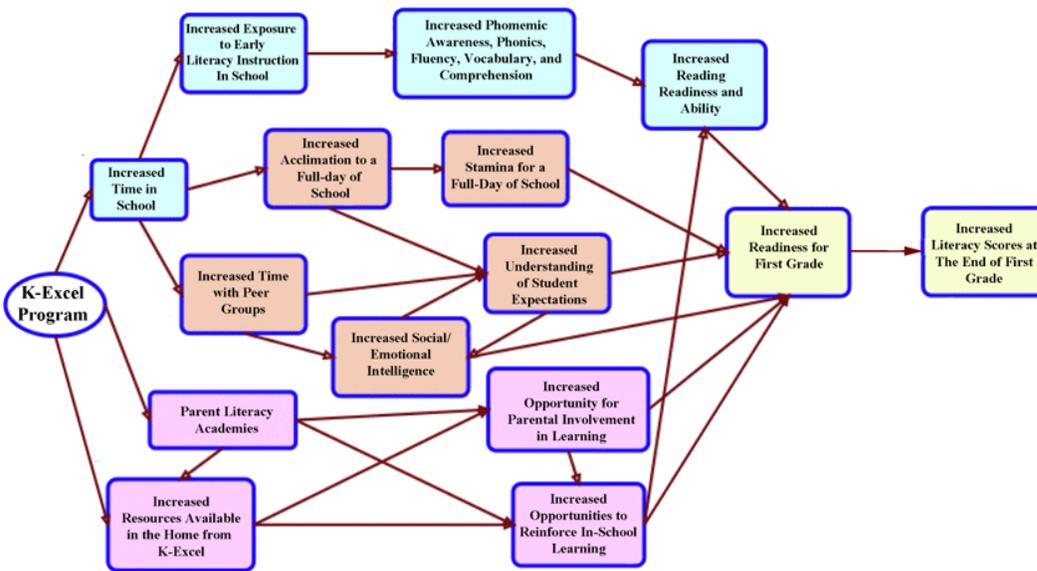
Figure 2. Logic Model for the K-Excel Program

Research Questions

Using the logic model as a focus, research questions were formulated to evaluate the

program logic against the outcomes of the K-Excel Program. The questions serve as an

organizational element for the study and resulting report. The questions are separated into two

primary categories for analysis, reading effects and the perceptions of program effectiveness.

1. **Reading Effects**. If the program is effective, it should demonstrate measurable test score

gains for the students that participated in the program.

    1.1. Was K-Excel more effective than half-day-only kindergarten in bringing students

       up to grade level equivalency (GLE) by the end of the first-grade year?

2. **Perceptions of Effectiveness**. There may be additional benefits to the program beyond the

increased literacy gains that would be important to record and monitor. Additionally, the

perception of program effectiveness offers insight into possible findings around the academic

gains. This component of the research offers further insight into the effects of a full-day

program for children and their families.

2.1 What do first grade teachers perceive to be the benefits of the K-Excel Program for

students compared to those who only received half-day kindergarten?

2.2 What do parents perceive to be the benefits of the kindergarten programs their

children participated in?

In addition to exploring the perceived benefits, knowledge of the family demographics can help

explain differences in the experiences of families belonging to subgroups. Therefore, a further

question was developed examining these differences.

2.3 Are there unique benefits from a full-day program for ELL and low SES students?

What are the benefits?

The goal of increased first grade readiness is well-defined, plausible, and measurable

using both qualitative and quantitative assessment instruments. The overall program logic seems

to be consistent with the stated goals of better preparing at-risk children for the academic rigors

of first grade (Rossi et al., 2004). Additionally, Figure 2 contains more areas than just student

achievement since the Mount Olive administrative team is also interested in measuring positive

affective and ancillary outcomes that might be the result of the program implementation.

Because the questions contain both outcome measures as well as perceptions, the intent to

use a mixed-methods study is in line with the needs of the district and the intended audience of

the superintendent, board of education, and leadership team as they make decisions about the

overall value of the program as well as areas for refinement (Patton, 2008).

Research Assumptions

While the teaching was not identical across the K-Excel classrooms, it is assumed that the methods employed were similar enough to have a consistent net effect across the various classrooms. This assumption was strengthened using the Stronge Teacher Evaluation Model to assess whether all teachers performed within the district's high expectations (Stronge, 2013). All K-Excel teachers were monitored during the school year with this teacher evaluation system, and all met district expectations of rigor and pedagogy, achieving overall ratings of 'Effective' within the teacher evaluation system. Student engagement was also sampled once per teacher using the Snapshot protocol (Weiser et al., 2005). A further assumption is that the students labeled as 'at-risk' were correctly identified within the study through the Brigance Early Childhood Screening III. Informal reports from both the Kindergarten and K-Excel teachers indicated that those children on scholarships were correctly identified with only one or two identified exceptions caused by late registration. Finally, there is an assumption that the interview questions will be answered with honesty by participants. While violation of any assumptions may undermine the internal validity of a study, the above assumptions are necessary within this study to draw meaningful conclusions from the data while still making the research plan operational and not time prohibitive.

CHAPTER II

LITERATURE REVIEW

The purpose of this study is to determine the overall effectiveness of full-day verses half-day kindergarten programs in addressing the needs of only certain students in the population, and it has significant policy implications for the district. Therefore, studies and articles were included if they helped to evaluate the logic used within the design of the K-Excel Program to inform the leadership regarding the value of a full-day Kindergarten program over the half-day program for at-risk children. The research had to relate directly to the research questions posed or to the process and design of the overall program.

To find relevant articles, educational databases of peer-reviewed research such as Academic Search Premier were used with search terms including: full-day kindergarten, half-day kindergarten, program evaluation, achievement gap, and early childhood literacy development. The initial review of articles led to additional readings located through works cited within the research reviewed. This process was cyclical with search terms evolving to researcher names and specific articles cited in works that might be deemed seminal.

Use of the Early Childhood Longitudinal Studies

Many of the studies that are reviewed around achievement gaps and the effects of full-day kindergarten used data sets from the U.S. Department of Education's Early Childhood Longitudinal Studies (ECLS). These data offer important insights to researchers into the characteristics of beginning kindergartners as well as their development and success over time. "The ECLS permits a unique look at a nationally representative sample of kindergartners on a range of cognitive, behavioral, and health indices as they begin schooling (Chatterji, 2006, p. 491). Because the sample sizes are large and representative, trends can be identified with high external validity, making them a useful source of data for quantitative studies. Most of the

studies about kindergarten achievement gaps analyzed these data as a way to assess trends based

on thousands of students. However, the use of the same data sets led to studies with duplicative

results and findings that were subject to the same limitations between studies. One limitation is

the imbalance of representation of students in urban and suburban districts. Students in full-day

kindergarten are more likely to be from urban districts with different demographics than those in

suburban settings (Walston et al., 2004).

While some of the statistical trends could be confirmed using other data sets such as the

Integrated Public Use Microdata Set, this method was limited to only describing demographic

trends with kindergarten-aged students but fell short when looking at trends in student

achievement. Additionally, studies that only used the ECLS sampling offered little insight into

the experiences within the communities of the children and families involved. So, this inherent

limitation of the studies relying on ECLS had to be considered when reviewing articles.

However, this also points to the importance of more localized studies, such as this one, that

explore program effectiveness using both quantitative and qualitative measure to implement

local program changes.

Is Full-Day Kindergarten Worth the Time and Investment?

The studies supported a longer day of instruction for at-risk kindergarteners and did show

a large effect on achievement within the kindergarten year. Being enrolled in full-day programs

and increased attendance time was shown to improve student performance for poor children

(Chatterji, 2006), as was the length of the kindergarten day (Chang, 2012; Cryan, Sheehan,

Weichel, & Bandy-Hedden, 1992; Lee, Burkam, Ready, Honigman, & Meisels, 2006).

Additionally, the quality of the instructional activities was very important. Both the

length of the sustained reading and the level of the mathematics instruction helped to raise

achievement (Wang, 2010). Also, teacher's positive interactions with students were shown to

specifically help low achieving children more than high achieving children (Curby, 2009;

Glascoe & Leew, 2010). Therefore, moving from a part-time to a full-day program had merit

within these studies if the amount of effective instruction was increased because of the longer

day (Wang, 2010). The studies did find that increased time leads to more instructional

experiences for students and increased educational attainment.

Diminishing Returns from Full-Day Kindergarten

Even though many positive effects were described in the studies about early achievement

resulting from full-day kindergarten, several studies also found that the academic benefits of full-

day kindergarten were short lived and faded out over time (Kay & Pennucci, 2014; Votruba-

Drzal, Maldonado-Carreno & LiGrining, 2008; Cooper et al., 2010; Wolgemuth et al., 2012).

These studies found diminishing outcome differences between full-day and half-day kindergarten

with the gap due to full-day enrollment no longer present by third grade within the studies that

used ECLS. This is shown in Figure 3, comparing test score effect sizes at the end of each grade

level. The effect size of .05 is so small that it shows that full-day kindergarten has very little

effect using Cohen's scale of .2 being a small effect size (Thalheimer & Cook, 2002). Such

findings suggest that the K-Excel Program would have little to no effect on the academic

trajectory of children, counter to the district's desired outcomes.
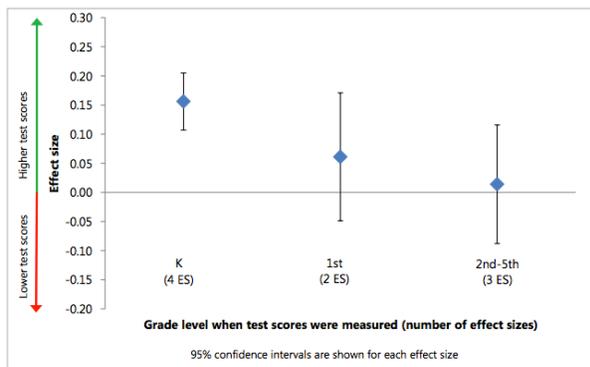
Figure 3. Fade-out effect observed in full-day kindergarten standardized test performance (both
ELA and math) compared to their peers in half-day kindergarten (Kay & Pennucci, 2014).

However, researchers found that early childhood education has other benefits that appear in cost benefit analyses and studies of adult earning.   While these studies center largely on preschool, they demonstrate the importance of going beyond simple achievement scores to assess program impact. Studies of the Perry Program showed that a pre-school program had significant impact on the child's eventual earnings as well as a decreased delinquency and crime rate and decreased cost per year of education in elementary and secondary schools (Barnett, 1985).   A subsequent study followed this cohort further and built upon this work, finding that the actual earnings at 40 years of age increased between 11 – 34 percent for those that attended pre-school (Belfield, Barnett, & Schweinhart, 2006). This work offers important insight that long-term longitudinal data sets from randomized trials could be more informative than other studies when analyzing the impact of full-day kindergarten.

Researchers are beginning to use such methods when studying the impact of full-day programs (Votruba-Drzal, Maldonado-Carreno & LiGrining, 2008). Economic analysis plays a critical role in considering the estimated benefits associated against the expected financial cost to the district. Since full-day verses half-day kindergarten is estimated to cost an additional $2,778 per child compared to half-day, it is important to know the value of return from such an investment. For example, the increased earnings for adults that had been in a pre-school program (Hahn et al., 2014). Kay and Pennucci (2014) performed this analysis by conducting a meta-analysis on ten scientific studies that followed students longitudinally. Although limited in duration, the researchers confirmed the fade-out effect on student achievement that was discussed in earlier studies through their analysis (See figure 3). The researchers then projected the fade-out trends forward through high school to estimate long-term effects of full-day

kindergarten and potential returns on the investment. If full-day kindergarten makes sense

financially, this will depend at least in part to the return to children once they are in the

workforce. Unfortunately, the researchers did not find that likely salary increases alone justified

the cost of full-day when considering the score fadeout.

Several concerns arose from this work. First, the studies were projections all the way

through high school when data was only available to the researchers up to third grade. Although

authors discussed the limitations openly, the findings were not conclusive, ranging from a net

loss of $490 if complete fadeout occurred to $15,188 if no fadeout occurred. Secondly, there

may have been hidden savings due to the program if fewer students were identified as needing

special education services or fewer students had to repeat a grade because of their full-day

experience in kindergarten. If the full-day program prevented such additional costs, there is

added value that was not calculated within these cost/benefit analyses, rendering their estimates

too low. This is especially true, if one considers the extra year of revenue the child might make

if they are not retained and can work an extra year in the job market. Finally, the researchers

make an excellent point when expressing the possibility that "the greatest benefits from full-day

kindergarten are not measured by test scores" (p.7). However, further studies are needed that are

longer in duration.

Gaps in Student Achievement

Given the results that a longer kindergarten school day has positive immediate effects, the

question arises as to its use in closing achievement gaps, particularly in bringing more students to

grade level equivalency. A great deal of research has been completed about ethnic, socio-

economic, age gaps, and gender gaps that materialize in a child's education and contribute to

their ultimate success or failure in school (Alexander, Entwisle, & Olsen, 2012; Cascio, 2008;

Cheadle, 2008; Evans, 2005; Spencer, 2012). However, we are learning from these studies that

many of the variables that predict student performance are outside of the school's influence and

are part of the experiences the child has outside of the school (Chaney, 2014; Evans, 2005).

A variety of demographic factors lead to child rearing practices that do not support the

development of skills that get kids ready to read.   For example, a seminal piece by Annette

Lareau (2011) offers insight into why the financial standing of the family plays such an

important role in achievement gaps. In her qualitative work, she monitors the longitudinal

development of 88 children from a variety of backgrounds and compiles this work into an

investigation of what helps ensure success from the family. She proposes the idea of "concerted

cultivation", a way in which the school and middle class families work together to support the

child's learning. She found that a great deal of attention was paid to middle-class students

"regardless of racial background" (Lareau, 2003, p. 241). This attention and focus helped lead to

more involved conversations at home, which led to an increased vocabulary use by the children,

and a willingness to interact with the schools in a proactive way. Lareau states:

> The role of race was less powerful than I expected… how children spend their
> time, the way parents use language and discipline in the home, the nature of the
> families' social connections, and the strategies used for intervening in institutions
> – white and Black parents engaged in very similar, often identical, practices with
> their children (p. 240).

The work of Evans (2005) linked the larger body of work by Lareau to

kindergarten. It was stated, "low-income kindergartners (a group that includes large

numbers of black and Hispanic children) typically start school at least a full year behind

others in reading and with a vocabulary of 5,000 words (as opposed to 20,000 for their

middle-class peers)" (Evans, 2005, p.585).   Evans explains that this is a universal finding

and not just in America. Also, those from low-income families lose more information

over the summer than their middle-class peers. Evans explains that this has a great deal

to do with how children are spoken to in the home, with more affluent parents engaging

students in longer conversations and higher-level vocabulary. These findings within the

qualitative and quantitative research indicate that when considering students for the K-

Excel Program, socio-economic background is a very important indicator of literacy

background.

Although ethnicity played a smaller role in the achievement gaps among kindergarteners

than family income, an important exception is children who speak a different language at home.

Lahaie (2008) used multivariate regression models to investigate the impact that language had on

the academic performance of the children of immigrants, which account for one in five children

currently under the age of six within the United States. The research demonstrated a gap for

beginning kindergarten students who live in a home where both parents speak a non-English

language. Children were 81% more likely to be partially proficient in English, which was found

to be statistically significant (Lahaie, 2008). This research suggests that children who are from

limited English homes may benefit more from a full-day program and should be selected for

inclusion in the K-Excel placements.

Non-academic Benefits of Full-day Kindergarten

Since the secondary purpose of this study is to determine non-academic outcomes that

can be expected, articles were also reviewed that offered insight into some other ancillary

benefits of a full-day program. The Community Preventative Services Task Force (2014) has

identified several positive effects of full-day kindergarten within the literature beyond just

improved reading and math scores. The report concludes that ethnic-minorities and low-income

families benefit from increased family income because of both parents being able to work full-

time jobs. By increasing family income, this can change the resources available to the child

(Barnett, 1985). Additionally, students receive more individualized instruction in full-day

kindergarten, a greater chance of being identified for special education services at an earlier age, and even improved health and nutrition because their basic needs can be taken care of by the school when they attend for a full-day.

Hahn et al. (2014) concluded that full-day kindergarten can have profound impacts on a child's health to include not only physical health but also psychological and social well-being that could ultimately lead to decreased morbidity and mortality. The researchers also emphasized the importance of "booster" programs such as night courses for parents, nutritional programs for the children, bussing to and from school, and a variety of other ancillary services that could enhance many aspects of a child's long-term development (p. 319 – 320). This research offers encouraging examples of the need for more research around the long-term effects from full-day kindergarten involvement and expands the reasons for such a program beyond just academic success.

Reliability of Identifying At-Risk Students

The design of the K-Excel Program is dependent on correctly identifying students that are "at-risk" of not being adequately prepared for first grade. In order to identify these students, the Mount Olive School District uses the Brigance Early Childhood Screen III (K&1) as its only measure of kindergarten and first grade readiness, a screen that is developmental and not intended as a purely academic diagnostic. There is a possibility of overcoverage and undercoverage as possible repercussions to this selection process (Rossi et al., 2004). This effect is seen in the work of Mantzicopoulos (1999), where 134 children had been identified as at-risk through the Brigance's ability to predict students for special education services. In the study, 59% of the eventual special education students were false negatives when using 65 as the cut-off on the kindergarten Brigance. This research points to a limitation in the current method of selection for K-Excel scholarships using only the Brigance assessment.

Summary of the Findings from the Literature

Overall, the literature focused largely on the impact of extra time in full-day verses half-day programs. By extending the school day, a weak effect could be predicted for students with some groups benefiting more such as ELL and low SES students. Additionally, long-term health and socializing skills could result from a full-day program. However, the research also called into question some of the components of the logic model in Figure 2. Specifically, there are concerns around the long-term benefits in student achievement that was expected and if there would be measurable improvement at the end of first grade (Cooper et al., 2010; Votruba-Drzal, Maldonado-Carreno & LiGrining, 2008; Wolgemuth et al., 2012). Issues were also raised with the reliability of the Brigance in identifying students that are at-risk (Mantzicopoulos, 1999).

While using the Brigance Early Childhood Screen III (K&1) as a single assessment measure to determine eligibility to the K-Excel Program, the screening was administered by experienced kindergarten teachers that knew the normal kindergarten readiness levels they were looking for. Additionally, when asked about the reliability of the at-risk identification, the teachers stated that it was only students that registered late and were not tested that they felt might have been misplaced, not having K-Excel. According to the studies, ELL status and socio-economic background should also be considered as important variables in determining eligibility for K-Excel scholarships (Lahaie, 2008; Cannon, Jacknowitz & Painter, 2011; Evans, 2005). For this reason, the district should consider integrating these risk factors into the decision for admission into the K-Excel scholarship group.

CHAPTER III

METHODS

Investigative methods were chosen that matched closely with the research questions and

would garner the data needed for analysis of the perceived and measured benefits of the K-Excel

Program. Table 4 shows the correlation between the research questions and the ways in which

each question will be investigated within the study.

Table 4.

Research Questions and Corresponding Research Types (Patton, 2008).

Research Question	Type of Investigation Required
1.1. Was K-Excel more effective than half-day-only kindergarten in bringing students up to grade level equivalency (GLE) by the end of the first-grade year?	Quantitative: Pre-Test/Post-Test Comparison of Proficiency using PSM to control for selection bias
2.1 What do first grade teachers perceive to be the benefits of the K-Excel Program compared to students that only received half-day kindergarten?	Qualitative – Semi-structured Interviews of Teachers
2.2 What do parents perceive to be the benefits of the K-Excel Program compared to students that only received half-day kindergarten?	Qualitative – Semi-structured Interviews of Parents
2.3 Are there unique benefits from a full-day program for ELL and low SES students? What are the benefits?	Qualitative – Semi-structured Interviews of Parents, Analysis of Family Demographics in Comparison to Answers

The study was conducted in two phases to assess the effectiveness of the K-Excel

Program. The first phase was the ongoing quantitative analysis exploring the impact of the K-

Excel Program on student achievement. It used student demographic data to complete a

propensity score match, creating matched pairs of students that are statistically similar but

received different treatments. This process controls for differences between the students that

were involved in the K-Excel Program and those that were not and is intended to reduce

selection bias. Then, student test scores from the two groups were used to offer quantitative data as to the effectiveness of the program in improving student performance outcomes.

The second phase of the study consisted of qualitative interviews of first grade teachers and representative families from various demographic groups from both the treatment and comparison groups. Finally, the findings of each area of study were analyzed and summarized to create coherent recommendations for the intended audience of this study, the policymakers in Mount Olive Public School. The general overview of the study design is outlined in figure 4 and will be discussed further throughout the methods section.
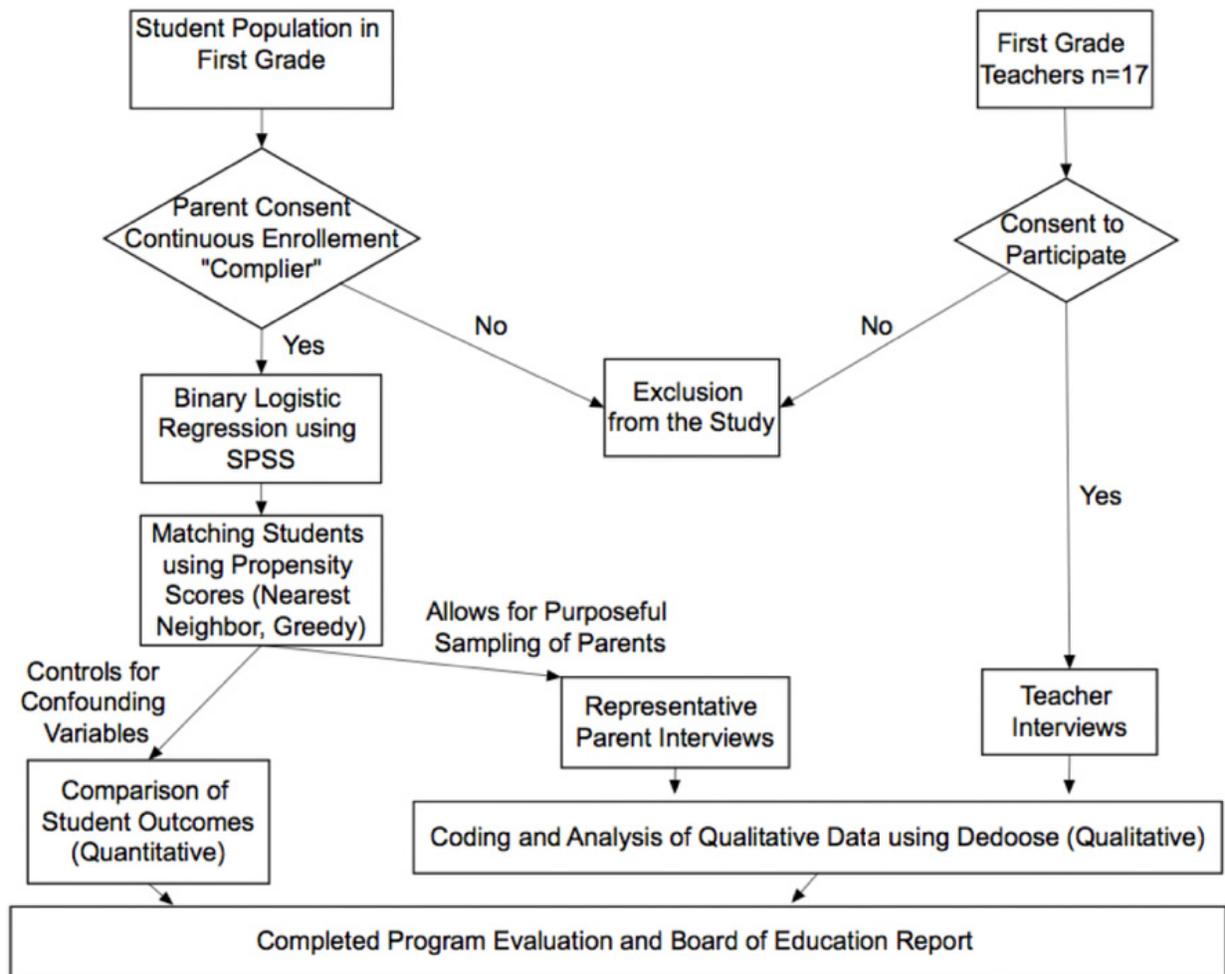
Figure 4. Flowchart of Study Components for the K-Excel Program Evaluation

This evaluation used a sequential mixed-methods approach to assess the K-Excel Program. It involved both qualitative and quantitative "approaches in tandem so that the overall strength of the study is greater than either quantitative or qualitative research alone" (Creswell, 2009, p. 4). The data collection artifacts are listed in Table 5.

Table 5.

Data Collection Types, Categories, and Timing.

Data to be collected	**Quantitative (N) Qualitative (L) Mixed Methods (M)**	**Data Collection Point(s)**	**Research Questions**
Brigance Kindergarten Readiness Screening III Results Collected	N	December 2014 Initially Collected in May of 2013	Pre-Test Data 1.1, 1.2
Parental Informed Consent Letters to use Student Data	M	February 2015	IRB Approval
Student and Family Demographic Data Collected	M	December 2014 - January 2015	1.1, 1.2, 2.2, 2.3
STAR 360 Language Arts Assessment	N	May 2015	1.1, 1.2
Teacher Informed Consent Letter to Participate in an Interview	L	February 2015	IRB Approval 2.1
Teacher Interviews	L	May – June, 2015	2.1
Parent Phone Interviews with verbal/recorded consent	L	July - August, 2015	2.2, 2.3

Phase 1: Quantitative Methods

The primary research question to be answered in this study is if the K-Excel Program was effective in closing the gap between children that entered kindergarten below age level equivalence and those that initially scored at or above age level equivalence on the Brigance III Kindergarten Screen. To answer this question, a comparison group pre-test/post-test design was used where students initially below grade level readiness were measured again at the end of their first-grade year to see if they caught up and are working at grade level expectations in language arts. While normal pre-test/post-test designs employ one assessment administered twice, the developmental differences between an entering kindergartener and ending first grader are too substantial to measure with the same assessment. For example, when students are screened for kindergarten, they are not expected to be reading. At the beginning of the first-grade year, students are not all reading in Mount Olive as shown by SRI results, where approximately half of the students register as beginning readers, BR, with no specific Lexile score identified. Therefore, two different assessments needed to be used to measure if students were below or above grade level expectations that were more developmentally appropriate in measuring pre-literacy and eventual literacy scores. For this, the kindergarten screening scores from the Brigance III Early Childhood Screening instrument served as the pre-test the spring before their kindergarten year. The STARS 360 Language Arts Assessment served as a post-test at the end of the first-grade year where scores would have higher specificity.

Technical Report on the Pre-Test / Post-Test Design

The Brigance Screens III is the method used by Mount Olive Public Schools to determine kindergarten readiness levels. It is a norm-referenced and criterion-referenced test that "allows comparisons of individual group performance with that of other children across the country" as well as built with items that match a "well-defined set of age-appropriate skills" (French, 2013).

The test is administered in May/June of the spring before kindergarten by kindergarten teachers that are trained in its administration. It is done in a one-on-one setting with each child as the parent waits in another area. Testing windows of thirty minutes are provided for each child with most tests taking approximately twenty minutes. The kindergarten teachers use the full battery of questions that measure the domains of physical development, language development, and academic/cognitive development. Sample question types and what they are intended to measure are outlined in Table 6.

Table 6.

Core Assessment Components for the Four-Year Old Child (French, 2013)

Skill Area/Domain	Skill
Gross Motor Skills	Walks forward heel-to-toe five steps; Hops five hops on preferred foot.
Fine Motor Skills	Draws a Circle
Receptive Language Skills	Follows Directions
Expressive Language Skills	Knows names of body parts (e.g., knees); At least 90% of speech is intelligible
Literacy Skills	Knows street address; visually discriminates between L and O
Mathematical Concepts	Counts by rote; gives the correct number name for five objects

The norming of the Brigance included a national sample of 1,929 children that were stratified based on the demographic characteristics of race/ethnicity, geographic location in the United States, and socioeconomic status. This national sample then was used to construct normative scores that were compiled into score charts that allow for comparison of students tested to the norming group. These charts also allow for norming based on age by month of the child.

The screen used with students also had reliability measurements taken that included standard error of measurement, internal consistency, and inter-rater reliability. An outline of this information is in Table 7.

Table 7.

Reliability Measurements for the Four-Year Old Child on the Brigance III Screen (French, 2013)

	Reliability Estimate	Standard Error of Measurement
Physical Development Domain	.82	5.76
Language Development	.96	2.94
Academic Skills/Cognitive Development	.93	3.83
Total Score	.97	2.56
Inter-rater Reliability	.93	Not Provided

Unlike the Brigance III which has a set number of test items administered in a one-to-one setting, Renaissance Learning's STAR 360 Literacy Assessment is administered on a computer and is adaptive, changing the difficulty of the question to match the unique level of the child. It is completed in a classroom setting with one teacher proctoring multiple test takers that work independently, and it takes less than thirty minutes to administer, similar to the Brigance III. It is intended to provide both interim and summative performance data in literacy achievement. It offers "estimates of reading comprehension, assesses reading achievement in reference to national norms, and it provides a measure of longitudinal growth" when administered over time with multiple administrations (Renaissance Learning, 2015). Unlike the Brigance, which measured pre-reading skills such as knowledge of the alphabet, this test measures the reading level of the child in a number of domains as shown in Table 8. Because the test is adaptive, it allows students to be tested at higher levels if they are ready for more difficult test questions.

Table 8.

Core Reading Domains and Skills for STAR 360 Assessment (Renaissance Learning, 2015)

Domain and Skill Set	Skill – Not differentiated by grade level
Word Knowledge	Uses context clues, uses structural analysis, understands synonyms, multi-meaning words, analogies, and idioms
Comprehension Strategies and Constructing Meaning	Makes Predictions, identifies and understands text features, recognizes an accurate summary of a text, understands vocabulary in context, draws conclusions, understands main ideas, understands details, extends meaning from generalizations, can differentiate between fact and opinion, understands cause and effect, can compare and contrast, and can identify and understand a sequence
Analyzing Literary Text	Identify and understand the elements of plot, setting, characterization, them, point of view, the difference between non-fiction, reality, fantasy, and genres of texts
Understanding Author's Craft	Understand figurative language, literary devices, and identify sensory detail
Analyzing Argument and Evaluating Text	Identify bias and logical fallacies, understand persuasion, evaluate reasoning and support, evaluate credibility

Calibration of the test items was last completed in the Fall of 2007 using a sample consisting of 3,404,602 students with 238,578 first graders.   Scaled scores were then created that span all grade levels from K-12. Percentile ranks and grade equivalents were derived from this scaled score obtained in the norming study (Renaissance Learning, 2014).

Reliability estimates were done in the spring of 2008, with 7,523 first grade students sampled. The generic reliability estimate was .91 with the split-half reliability estimate at .88. This was then subsequently done in the spring of 2014 for a newer version of the test with 100,000 first graders, and the generic reliability was at .95. The newer test had 34 test items rather than 25.

Because the Brigance III measures kindergarten readiness prior to entering kindergarten and not literacy ability directly, it was important to compare the predictability of the Brigance to the STAR 360 assessment. For this, a linear regression was used to see the linkage between pre-

test and post-test scores. The result was significant (.004) as shown in Table 12. This

demonstrates that the Brigance was significantly predictive of the test scores on the STAR 360

assessment despite the very different formats and domains measured.

While the assessments varied considerably, the cut scores were nationally norm-

referenced to measure grade level readiness.   The test scores could then be compared

considering cut scores to count the number of students that started below grade level equivalency

(GLE) compared to those that are at or above grade level equivalency on the STAR 360

assessment at the end of the first grade year. Figure 5 shows how test scores will be charted and

arranged for comparison. The grade level equivalency scores used were 65 on the Brigance III

Screen for entering kindergarteners and a 172 on the STAR 360 Language Arts Assessment for

May, the low range for grade level equivalency for students at the end of their first grade year

(STAR 360 Technical Manual, 2015).
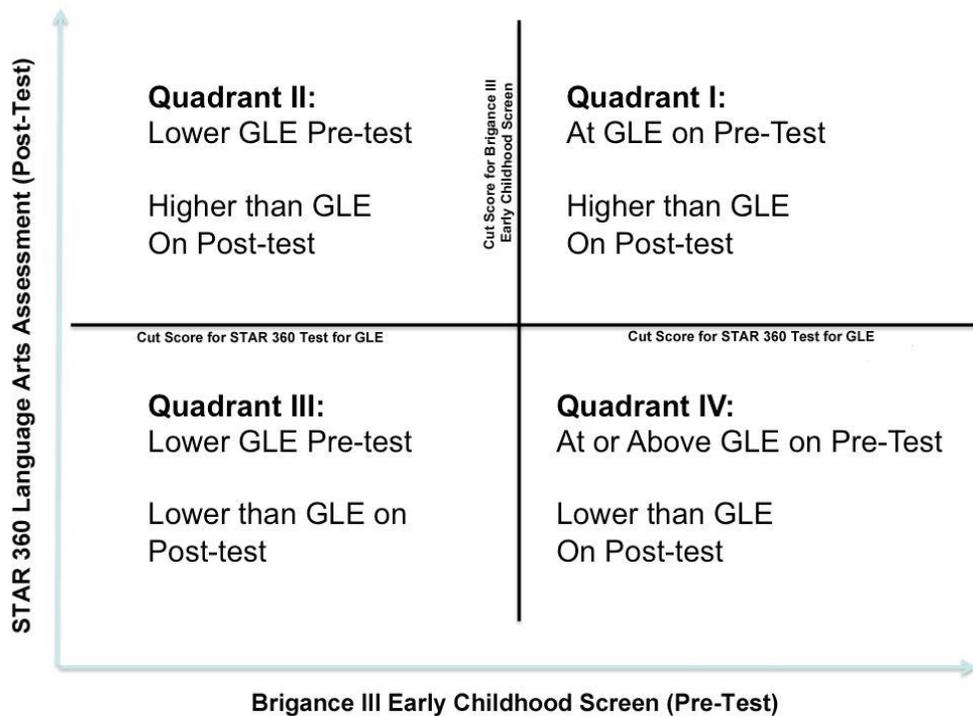
Figure 5. Charting diagram for Pre-Test/Post-Test Analysis of Grade Level Equivalency

Sampling Strategy

Like many educational research samples, ours is complex with a two-stage selection

process outlined in Figure 6. As seen in the figure, a cutoff score on the Brigance III Early

Childhood Screening instrument was used for the first stage of selection.   However, as is often

the case in educational research, parents could still elect to have their students join the treatment

group by paying tuition, represented as the Stage 2 selection process in Figure 6.
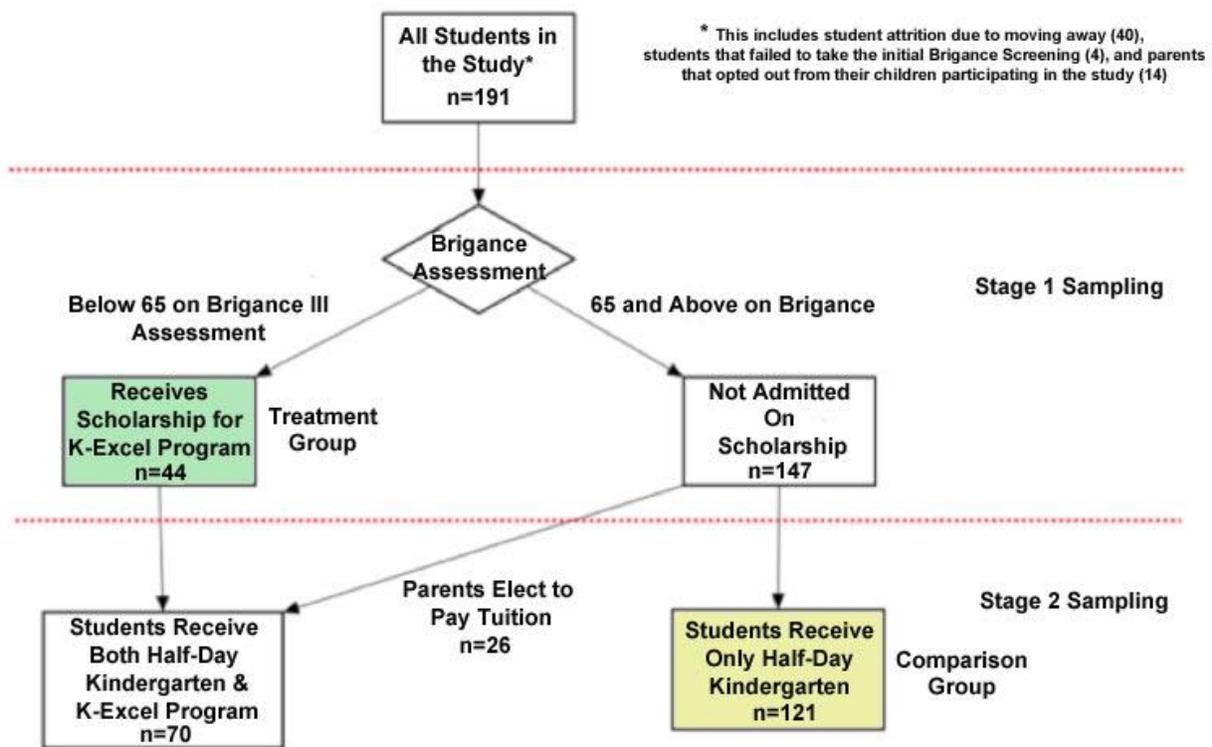
Figure 6. Outlined selection process for the K-Excel treatment

Because of this selection, three groups formed within the study: scholarship students, tuition

students, and students that were only enrolled in the half-day kindergarten program.

Use of cutoff scores. As seen in the figure, a cutoff score on the Brigance III Early

Childhood Screening instrument was used for the first stage of selection. This scale score

coincides with the age level equivalency of a child that is one to three months away from turning

five. This score was selected because entering kindergarteners are expected to be at the

developmental level of a five-year-old and the testing was done in the spring before students

would enter kindergarten.   Students that scored below a 65 were not at their age level

equivalency and were labeled as 'at-risk' by the district. These children were offered

scholarships to help bring them to readiness.

Other factors affecting the sample. Because the students were measured on the impact

of a kindergarten program in their first-grade student assessments, only the students enrolled for

both kindergarten and first grade years were included in the study. There were 45 kindergarten

students that transferred in between their kindergarten and first grade year. Additionally, there

were students that enrolled after the Brigance Assessment during their kindergarten year.

Therefore, both groups of students did not have the opportunity to qualify and receive the K-

Excel treatment and had to be omitted from the study. Additionally, there was attrition of

students during the two and half years between the pre-test and the post-test. Forty students had

moved in this timeframe. They also had to be omitted from the study since they had no post-test

data. The demographic makeup of the resulting population that was included in the study is

described in Table 9.

Mount Olive has a district factor grouping of GH, the third highest category of

community wealth in New Jersey, and the per capita income as reported by the 2010 US Census

is $42, 697 with only 4.6% considered as living in poverty. Therefore, it is not surprising that

the number of students on free and reduced lunch was quite small (9% of the students in the

study). Additionally, the district has a relatively small number of apartment complexes, leading

to a rental rate of only 16%. The ethnic makeup of the students in the sample were mostly white

students (71%) with Asian students making up the next group (14%). Other ethnic groups had a

much smaller representation in the sample (15%) comprised of multiple ethnicities (2%), black

(4%), and Latino (9%) students.

Table 9.

Demographic variables of the total student population included in the study (N=191)

Variable Set	Variables	Sums	Percentage
Family Structure	Separated/Unmarried	21	11%
	Older Siblings	103	54%
	Younger Siblings	36	19%
	Twins	8	4%
	Siblings	128	67%
Family SES Variables	Rented Home vs. Home Ownership*	31	16%
	Free Lunch	15	8%
	Reduced Lunch	2	1%
	Free/Reduced Lunch	17	9%
School Attended	Tinc	38	20%
	MTV	54	28%
	SS	33	17%
	CMS	66	35%
Age of Entry	Old for Grade – Red Shirt	12	6%
	Young for Grade	81	42%
English Exposure	LEP Identified	10	5%
	Non-English at Home	37	19%
Gender of Child	Gender	100	52%
Ethnicity of Child	White	136	71%
	Asian	27	14%
	Other*	28	15%

*Aggregated for Black, Hispanic, Multiracial due to low sample size

Treatment of tuition paying students in the study. A further consideration in sampling

was that some of the students that entered the treatment group through tuition were likely

different than the ones entering through scholarships. However, because the school district was

most concerned with addressing the needs of the at-risk students, it was decided not to include

tuition paying students in the quantitative analysis. The decision to omit tuition-paying students

was made after consideration of several factors. First, one known variable about the students

was that they had parents with the financial means and willingness to pay $5,000 tuition for the

program. Given that student performance is so closely linked to socio-economic status, it was

unlikely that the tuition-paying students that were deemed to be at-risk had the same financial

resources and parent support available to them. Secondly, the parents that enrolled their children

on a tuition-basis were knowledgeable enough to seek out and take the steps to enroll their

children in the K-Excel Program, unlike the parents of the students with scholarships that the

school notified about the program as well as the eligibility of their children. In certain cases,

parents had to be contacted multiple times to enroll their children with one case requiring a

home-visit from the director to enroll a child (Reuther, personal communication, July, 2013).

Despite such outreach, nine students still did not enroll in the K-Excel scholarship group despite

qualifying for the program. This was another indicator that the tuition-paying parents were

already involved in advantaging their children by seeking out opportunities to help their children

succeed while the scholarship students did not have parents that were actively advocating on

their behalf. Finally, by removing the tuition-paying students from the analysis, the sample size

still afforded enough data to complete the propensity score matching.

Seeking consent. One sampling concern resulted from the failure of parents to provide

informed consent letters allowing for student data to be used. Unfortunately, this cut down on

the sample size. To prevent parent non-responsiveness from being an issue, the researcher

utilized a variety of methods to contact parents starting with the informed consent letters along

with a cover letter asking for their assistance in completing the study (See Appendix A). Follow

up phone calls were made for any parents that did not respond to the letter. The purpose of the

phone call was to answer any questions the parents had about the study and to request that they

either complete the form or let the researcher know if they prefer not to have their child included.

Student data was not included as per IRB protocol without the express permission of the parents.

This process proved largely effective. The first phase of the study began with the

collection of signed parental informed consent letters in February of 2014, allowing student

performance data and demographic information of their children to be included in the study.

Initially, there was a relatively low rate of return for the letters by the cutoff date. There were

only 48 forms filled out. After this initial return, the researcher asked for assistance from the

teachers in getting compliance from those parents that did not fill out a form. This method

proved much more reliable, and the teachers were able to secure a much higher percentage of the

letters. This increased the return, and the researcher subsequently contacted via phone those that

still had not completed a form. At the end of this process, all but 14 of the families had given the

researcher permission to use children's demographic information and test scores within the

study. This represented 93% of those that were eligible to be in the study. Those parents that

would not allow their children's data to be used cited their general fear and distrust in how

student data might be used despite the thorough explanation from the researcher about the

confidential nature of the data.

Controlling for Group Differences Using Propensity Score Matching (PSM)

Given that the selection of students for the treatment group was not random, it was

anticipated that the resulting treatment and comparison groups would be different. Table 10

shows that this was the case and demonstrates the non-random impact of selection. Given these

differences, a quasi-experimental design is appropriate in giving an estimate of program

effectiveness after statistically controlling the samples. If the correct statistical methods are

chosen to control for group differences, such methods would give insight into the impact of the

program on student achievement (Patton, 2008). At first glance, a regression discontinuity study

would appear to be an appropriate method because a cut-score was used within the study.

However, the small sample size of the treatment group (n=44) as well as the limited accuracy of

the Brigance did not allow for this method to analyze the data (Schocket, 2008; Barnett, personal

communication, November 2013). Too few students are tightly grouped around the cut-off score

to study the differences in the two populations. Therefore, the outcomes would not provide the

internal validity needed to draw conclusions.

Table 10.

Comparison of Observable Characteristics Between Student Groups

Variable Set	Variables	Half-Day		Tuition		Scholarship	
		Sum	Percentage	Sum	Total	Sums	Percentage
Family Structure	Separated/Unmarried	11	9%	1	4%	9	20%
	Older Siblings	60	50%	16	62%	27	61%
	Younger Siblings	23	19%	5	19%	8	18%
	Twins	6	5%	1	4%	1	2%
	Siblings	75	62%	20	77%	33	75%
Family SES Variables	Rented Home	20	17%	0	0%	11	25%
	Free Lunch	10	8%	0	0%	5	11%
	Reduced Lunch	0	0%	0	0%	2	5%
	Free/Reduced Lunch	10	8%	0	0%	7	16%
School Attended	Tinc	25	21%	5	19%	8	18%
	MTV	40	33%	7	27%	7	16%
	SS	18	15%	8	31%	7	16%
	CMS	38	31%	6	23%	22	50%
Age of Entry	Red Shirt	10	8%	1	4%	1	2%
	Young for Grade	48	40%	8	31%	25	57%
English Exposure	LEP	4	3%	0	0%	6	14%
	Non-English at Home	19	16%	2	8%	16	36%
Gender	Gender	64	53%	13	50%	23	52%
Ethnicity of Child	White	86	71%	21	81%	29	66%
	Asian	18	15%	3	12%	6	14%
	Other*	17	14%	2	8%	9	20%

*Aggregated for Black, Hispanic, Multiracial due to low sample size

A better alternative given the context of the program, the small sample size, and the

limitations of the selection for involvement is to use propensity score matching (PSM), a method

of showing causal inference after controlling for any observable variables (Austin, 2011; Patton,

2008; Steiner et al., 2010).   The equation for propensity score matching is outlined in figure 7

along with an example of its use within educational research. When comparing two populations

that were not randomly selected, it is impossible to differentiate the program effects from group

differences without statistically controlling for those differences with such a tool. PSM matches

students between the treatment and comparison group based on their propensity, or likelihood, of

being assigned to the treatment group.   This likelihood is calculated based on the other

observable differences among participants. The purpose of using this tool was to balance the

differences between groups and minimize sampling bias by eliminating students that did not

have a pair between the groups (Gronostaj, Vock & Pant, 2016).

Expanded Form: **e(x)** = probability **(P)** that the treatment **(Z)** is conditional on **(|)** a set of covariates **(X)**

Short Form: **e(x) = P(Z=1 | X)**

Relationship of the Equation to K-Excel Assignment:

Assignment to a scholarship group (Z=1) has likely covariates that can be controlled for such as: ELL Status (X_1), Family SES Status (X_2), Ethnicity (X_3), Gender (X_4), and Age of Entry (X_5). By including these covariates in the equation, they can be statistically negated when a linear regression is completed with other applicants and the resulting groups of admittance (1) and denials (0). Each applicant is assigned a probability of being admitted to K-Excel on their observable differences. Regardless of the degree of covariance, by including it in the regression model, it is controlled for. Then, students with the same propensity score are considered to be statistically similar between the treatment and comparison groups.

Figure 7. Equation and Explanation of Propensity Score Matching

As shown in Figure 7, the propensity score for each child would be the probability of

students being enrolled in K-Excel given their observable characteristic variables such as ELL

status, SES status, ethnicity, and all other variables that are possible covariates and observable.

By their inclusion in the regression, they are controlled for through statistical methods.

This method led to an approximation of the effectiveness of K-Excel in bringing students

to grade level equivalency in first grade when the groups are compared in their reading scores.

However, it first involved running a regression analysis using enrollment in the K-Excel Program

(Z=1) as the dependent variable and controlling for all other observable variables (X) through

including them as independent variables. Since all the students in the treatment group could be

matched using this method, it allowed for a larger viable sample size. Also, many variables are

readily accessible from demographic data to allow for a best-fit match between students using

observable or known characteristics (Lamber, 2014; Austin, 2011).

      Determining relevant variables. One of the key issues during the first phase of the

study was to reduce selection bias by determining the covariates that impact student results and

selection into groups (Steiner et al., 2010). Since school administrators have access to student

records, they can readily generate student demographic data that helps with the creation of a

propensity score. Home demographics, free and reduced lunch status, ethnicity, and home

address could all be used to help develop the variables used for the propensity score matching.

Appendix E shows the variables used and the measured significance of each variable. Even with

the small sample size, both LEP (.004) and speaking a foreign language at home (.001) were

shown to be significant in the assignment of students to the treatment group. While other

variables did not demonstrate statistical significance, it may be due to the limited sample size.

This is an example where other studies have shown how ethnicity, SES, age of entry of the child,

and family characteristics impact student performance. By using the larger body of research, it

helped inform the design of this study. An advantage to using propensity score matching in this

case is that it takes all the variables into consideration and simultaneously weighs them against

one another to create matched groups given the sample provided.

      Aggregating groups. Preparing the propensity score match involved aggregating groups

of students because of the small sample size and limitations of the data that was accessible. The

Latino, black, and multiethnic populations in the sample were very small and would not balance

properly if taken as individual variables. However, each of these groups is shown to be

disadvantaged when it comes to educational attainment within the literature. By aggregating

these groups, the researcher could account for some of the effect without skewing the balance in

the matching. This demonstrates one disadvantage of completing a propensity score match on

such a limited sample size. Another example was seen in free and reduced lunch status. When

taken individually as free and reduced lunch variables, the variables would not balance.

However, when aggregated into a free/reduced lunch qualification, the balance improved. While

losing specificity within the sample, the overall balance improves and the researcher can use

variables that would otherwise be impossible to balance.   When working with small sample

sizes, there is a tradeoff of inclusivity verses specificity that cannot be avoided. However, the

need for insight from local data, no matter how limited, is necessary when making local

decisions.

Finding correlations between variables. The data in Appendix E shows the correlation

between the variables used in the propensity score matching. The variable for scholarship is the

dependent variable and can be used to assess the correlation between itself and the other

variables in the table. For example, students that were young for the grade, LEP, and spoke

different languages in the home were all significant determinants for entry into the scholarship

group. Additionally, correlations can be checked for strength.

Running the propensity score match. Once the variables were chosen, propensity score

matches were run using computer programs. SPSS, the propensity score bundle for SPSS, and

R-Essentials for SPPS were all used in conjunction to complete the propensity score match and

create visual representations of the data quality. By matching individuals based on their

observable differences from the treatment and comparison groups, the researcher attempted to

create balance on all covariates related to the treatment assignment with the goal of creating an

"ignorable treatment assignment" (Rosenbaum & Rubin, 1983). While exact matches would be ideal on all variables, such matches were improbable given the number of variables and limited sample size. Therefore, the propensity score, created as a single measure from all the variables determining placement, could be used to match similar individuals between groups.

Initially, we used a "greedy", 1:1, nearest neighbor match with a caliper of .2 to create like pairs between the treatment and comparison group. Unfortunately, this led to the exclusion of six students in the treatment group, further reducing an already small sample size as seen in Table 11. Both the caliper and way in which this propensity score matching is carried out by randomly choosing students in the treatment group to align with their nearest neighbor caused the students not to be paired.

Table 11.

Sample Sizes of 1:1 Greedy Nearest Neighbor Propensity Score Matching

Subsamples	All		Matched		Unmatched		Discarded	
	Control	Treated	Control	Treated	Control	Treated	Control	Treated
(all cases)	121	44	38	38	83	6	0	0

Through further analysis of the jitter plot generated during the PSM (Figure 8), the unmatched pairs could be visualized in relation to how far they were from one another in propensity score. Although they went unmatched due to the caliper and randomness of nearest neighbor sampling, there were similar unmatched individuals in the untreated group that visually looked to be close in proximity.

Distribution of Propensity Scores
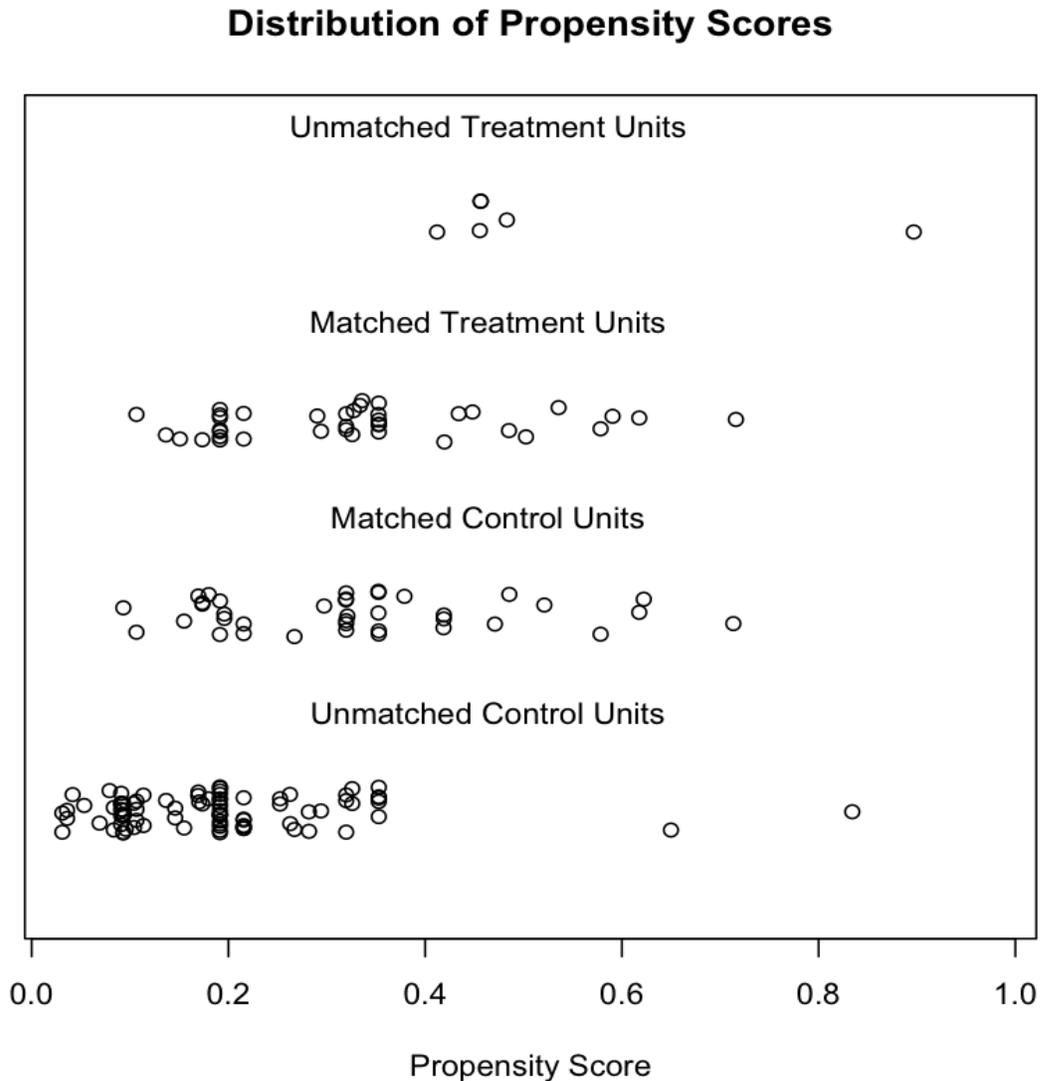
Figure 8. Jitter plot of individual propensity scores in the treated and control groups after using "greedy", nearest neighbor matching with a 1:1 ratio and caliper of .2

Thus, the researcher decided to try optimal pairing instead of nearest neighbor pairing. The

resulting jitter plot (Figure 9) was then compared. Unlike the "greedy" propensity score using a

single method of selection and a caliper, this method of PSM used the computer to create a best

match between all treatment units and the comparison groups. It resulted in no students from the

treatment group being omitted.

Distribution of Propensity Scores
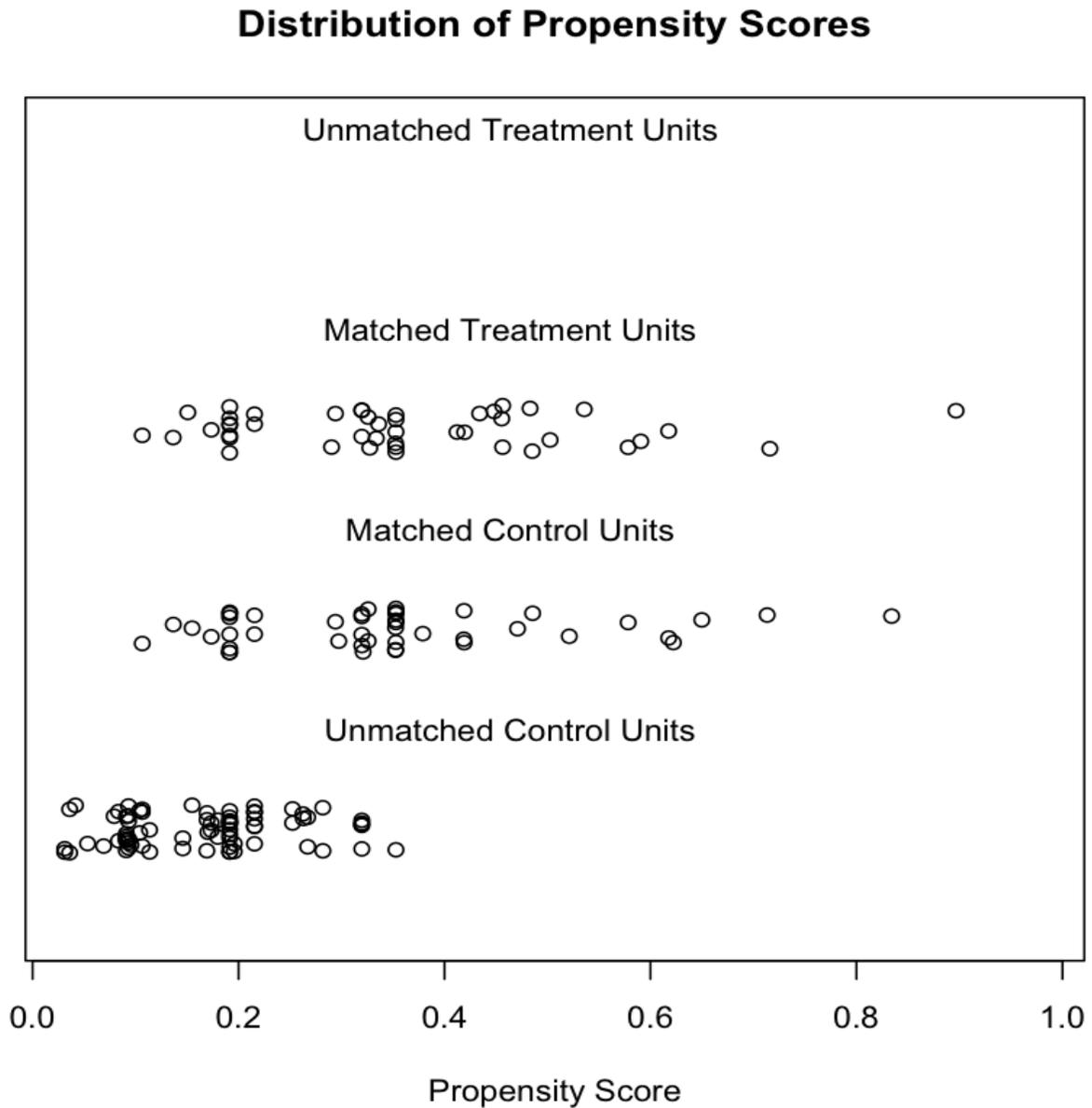
Figure 9. Jitter plot of an optimal propensity score match resulting in no unmatched students in the treatment group

Even though more students were included using optimal matching, it was important to check for overall balance between the groups since the inclusion of even a few students that did not fit might negatively affect the balance between groups. To check for this, dotplots were compared for the variables and then their standardized mean differences were compared. This comparison is shown in Figure 10.
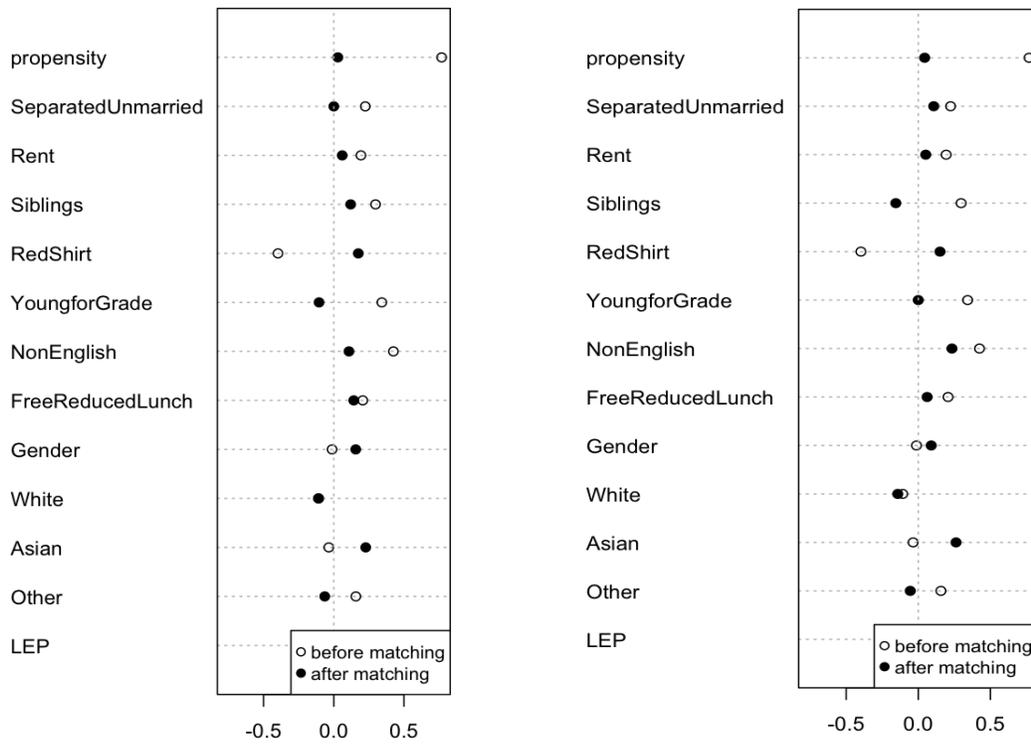
"Greedy" Nearest Neighbor Matching   Optimal Matching

Figure 10. Comparison of dotplots of mean differences for the variables in both optimal matching and nearest neighbor matching for the sample of students

As shown in Figure 10, neither matching method truly balanced the groups among all variables. However, there was improvement in balance despite the method that was used. In every case except that of Asian students in the nearest neighbor match, the propensity score matching improved the similarity between both groups.

While the "greedy" PSM using a caliper had stronger validity, the optimal PSM had a larger included sample. In order to evaluate which type of PSM was best for this study, the difference between propensity scores were compared between the matched pairs. Table 12 shows the comparison of methods and resulting closeness of the matches. Because the optimal PSM resulted in pairs that were much closer to one another without omitting samples from the treatment group, it was clearly a better method given the parameters of this study.

Table 12.

Measure of difference between propensity scores on matched pairs using two methods of PSM

	Nearest Neighbor Matching	Optimal Match
Mean Difference	0.0142	0.0123
Median Difference	0.0141	0.0003

After determining that the best procedures to use and running the match, the matched

pairs were graphed to determine if there were visual differences between the groups. Two best-

fit lines were used to estimate the differences in the pre-test/post-test scores between the groups

for comparison. The difference between the lines could be used to represent the difference in

pre-test and post-test scores that could be anticipated by any student. Subsequently, a linear

regression was run to see if there was significant impact from group enrollment on post-test

scores.

Measuring Effect Sizes using Cohen's *d*

After completing tests of significance to show the likelihood that our results differ from

chance expectations, it is important to determine the size of any observable effect. Effect size

measurements tell us the "relative magnitude" of experimental treatments (Thalheimer & Cook,

2002). In the case of this study, the relative magnitude of impact from the K-Excel Program on

literacy scores at the end of the first-grade year was measured using Cohen's *d*. Cohen's *d* has

two advantages according to Thalheimer and Cook (2002). The first is that it is widely popular,

making it the standard method for measuring effect size. The second is the scale at which Cohen

suggests for effect sizes with .2 being small, .5 a medium effect size, and .8 as a large effect size

makes it a convenient method of determining the magnitude of effect. Based on the literature

review, the magnitude of gains expected from K-Excel would be approximately .05, which

would be extremely small using Cohen's scale (Kay & Pennucci, 2014). By running Cohen's *d*,

it can be determined if this study supports the literature. Calculating Cohen's *d* requires us to

find the difference between two means divided by the standard deviation of the two conditions.

Figure 11 shows this equation.

$$Cohen's\ d = t\sqrt{\left(\frac{n_t + n_c}{n_t n_c}\right)\left(\frac{n_t + n_c}{n_t + n_c - 2}\right)}$$

t = *t* statistic
n = number of subjects
Subscripts: *t* refers to the treatment (K-Excel) and c refers to the comparison condition (Half-Day K)

Figure 11. Equation and Explanation of Cohen's *d*

Phase 2: Qualitative Methods

The second phase of this study began in March of 2015, and it consisted of parent and

first grade teacher interviews using developed and piloted semi-structured interview protocols

(Appendix B-D). The purpose was to explore the perceived effectiveness of the kindergarten

programs in order to answer the original research questions posed (Patton, 2008). The results of

these interviews comprise the entirety of the qualitative data and it is included to add a rich

description of the experiences of the first-grade children and families resulting from their

kindergarten program experiences.

Qualitative Sampling of Teachers

Two groups were sampled within this phase of the study: five first grade teachers and

twelve parents of first grade students that were involved in the first phase of the study were

selected. Teachers were invited to participate in the interview process if they agreed to sign an

informed consent letter, had at least three years of experience teaching in first grade, and are

tenured within the district. The experience level of the teachers is important since the teachers

will need a full understanding of what normal student development and learning is in the early

grades to accurately assess the differences between students that were in the K-Excel group and those that were not.

Even though the researcher had no direct supervisory responsibilities for any of the first-grade teachers, social desirability bias was a concern (Nederhof, 1985). If non-tenured teachers were selected for the study, there is a possibility that their desire to impress a district administrator would prevent them from answering honestly and independently of what the researcher's desired response might be. By only selecting tenured teachers with nothing to gain or lose from the researcher's perception of the teacher, could this bias be avoided.

Qualitative Sampling of Parents

Parent selection varied significantly from the teacher selection as it relied on the demographic data to identify groups. A total of twelve parents were interviewed with four representative parents from each group: parents that paid tuition, those families that had a scholarship to enroll their child, and those that had children that only attended the half-day program. As planned, participants were purposefully selected using some of the demographic information collected in the first stage of this study. Specifically, parents were chosen if they seemed to have representative characteristics of the larger group. However, this was balanced with the need to capture a variety of viewpoints and experiences from the parents. So, a mixture of unique perspectives and more representative perspectives were sought. For example, the tuition students had a disproportionate amount of low SES families represented (11 students). Therefore, a family was selected that fit this criterion even though they would not likely have been randomly chosen. Secondly, the vast majority of students were white (67%), Asian (14%) and Hispanic (11%). Therefore, representatives of each were chosen from the groups where they were concentrated. Eight of the eleven students identified as LEP were in the scholarship group. Therefore, this was an important group to include within this subset of interviews.

Comparison siblings were also sought because the parents could comment on how students in K-Excel compared with their peers that did not have K-Excel. Individual parent participants and their characteristics are outlined in Table 13. Parents were chosen for either representing their group or offering insight into unique groups and perspectives.

Table 13.

Characteristic of Parent Sampling

Participant Name	Group	Child Sex	Additional Characteristics of Child
Ms. Franco	Tuition Paying	Male	Comparison sibling, white
Ms. Lee	Tuition Paying	Female	Asian, old for grade
Ms. Brown	Tuition Paying	Female	Comparison sibling, Hispanic
Ms. Pratt	Tuition Paying	Female	Young for grade, comparison sibling, divorced mother
Ms. Kane	Scholarship	Male	Comparison sibling, white
Ms. Petro	Scholarship	Male	White, immigrant family
Ms. Sinek	Scholarship	Female	Comparison sibling, white
Mr. McMahon	Scholarship	Male	White, low SES, LEP
Ms. Freeman	Half-Day Only	Female	Young for grade, white
Ms. Harlee	Half-Day Only	Female	Young for grade, Asian, English is a second language in the home
Ms. Prospero	Half-Day Only	Male	Comparison sibling, white
Ms. Seggitt	Half-Day Only	Male	White, old for grade, parent originally opted out of the study

Because of the time it took to receive initial permission to include students in the sampling, the timing of the parent interviews was delayed until the children were in second grade. This was an advantage as it allowed the researcher to capture a more complete perspective from parents about how kindergarten not only led into first grade, but overall how it affected their early elementary careers into second grade as well.

Qualitative Data Collection and Analysis Methods

Detailed semi-structured interview protocols were developed and piloted during 2014 for both parents and teachers and resulted in three revisions of the semi-structured interview protocols that now comprise the qualitative analysis (Appendix B-D). The phone interviews were recorded. All of the recordings were then transcribed and provided to participants to review for clarity and consideration of revisions. This helped to ensure the validity of the interviews by allowing participants to review and revise their answers through member checking (Patton, 2008).

After the transcriptions were completed and shared with teachers and parents for review, pseudonyms were created using an online website (http://www.namegenerator.biz) to protect the actual identities of the parents and teachers that were interviewed. The transcripts were compiled and analyzed using Dedoose (www.dedoose.com) and the steps recommended by Creswell were utilized (2009). The data was organized and prepared, all data was read through multiple times to begin a detailed analysis with a coding scheme, descriptions were generated for the data, and themes were identified to formulate a narrative. Finally, interpretations were made to find meaning from the data (p. 185 – 190).   It was only after the quantitative and qualitative data was independently reviewed that common themes were found between them and overlapped to provide a more thorough understanding of the program evaluation.

In additional to the social desirability bias already discussed as the reason for interviewing only tenured teachers, the researcher was a co-planner of the K-Excel Program and served as an instructional leader in supporting parent nights and program implementation in the three years that the K-Excel Program has run. In many ways, he championed the importance of a full-day program as part of his job in ensuring enrollment in K-Excel.

Therefore, a personal agenda of evaluating a program that the researcher helped to create is a consideration when looking at bias. The researcher had to pay careful attention to minimizing the impact of confirmation bias, only looking at opinions that would support the assumptions made within the program design. Thus, the process of data collection and interpretation required a constant reevaluation of impressions from the interviews and a need to challenge preexisting assumptions and hypothesis as outlined in the Logic Model of K-Excel (Figure 2). This caused the researcher to continuously reflect on interview transcripts and to consider counterarguments about the perceived benefits of the program. It was through this process that inconsistencies were realized and identified in order to help minimize this bias.

Similar to the experience with teachers, social desirability bias could be a factor with parents (Nederhof, 1985). As a district leader in implementing the K-Excel Program, parents might be afraid of judgment if they had differing or negative opinions about the K-Excel Program leading to them only telling the researcher what they believed he wanted to hear about the program. Of particular risk were those parents that had their children enrolled in the K-Excel Program. They had seen the researcher in his role as a program supporter. It was less likely that the parents of half-day only kindergarten parents made this association since they had not witnessed the researcher in this role. While training an outside interviewer was considered, it was felt that the parents would be more likely to participate with someone they already had a relationship with and that the researcher knew best how to ask follow up questions from the participants because of his deep knowledge of the program. However, it was imperative that parents were informed that program improvement was the ultimate goal of the interview and that both positive and negative experiences in the various programs were important to hear about. The researcher also had to ensure that the parents and teachers felt comfortable in answering questions honestly with no repercussions, that the questions asked allowed for different

perspectives about both positive and negative aspects of kindergarten experience to be explored, and that the researcher would present dissenting opinions honestly within the findings. Each was discussed openly within the interviews. Careful attention was also given to the creation of interview questions that would not be leading to the parents and teachers.

Member checking was an integral part in trying to control bias. Participants were allowed to revise, clarify, change or omit any segment that the interviewee did not want in the study. Two teachers took advantage of this and made minor changes to their interviews. One teacher clarified wording used to describe students and another used the opportunity to include additional detail in her description of her K-Excel students. To further reduce social desirability bias, interview participants were informed that they would not be identified in any way and that the researcher would not disclose their identity. Only the researcher would know the respondent by name and this information and pseudonyms would be utilized.

Because the interview protocol and purpose were explained to the participants, the researcher felt that they were honest and thorough in their evaluations of the kindergarten programs. In particular, stating that the purpose was for improvement allowed for parents and teachers to believe that their honesty was needed to cause improvement within the programs. This can be seen in some of the more critical comments parents shared during the interviews.

CHAPTER IV

RESULTS

The K-Excel Program was built with the intent of positively impacting the students and

their families in multiple ways as outlined in the logic model of the program (Figure 2). The

power of a program evaluation is that it compares the anticipated outcomes of a model against

the reality of the empirical data collected. In the case of K-Excel, the academic, social, and

family effects that were anticipated were measured through quantitative and qualitative methods,

and it was shown that the outcomes were not entirely what was expected. Figure 12 shows the

areas that were supported within the study data (marked with a +) and those that were not

supported or had conflicting data (marked with an X). Each is described below in context of the

data collected.
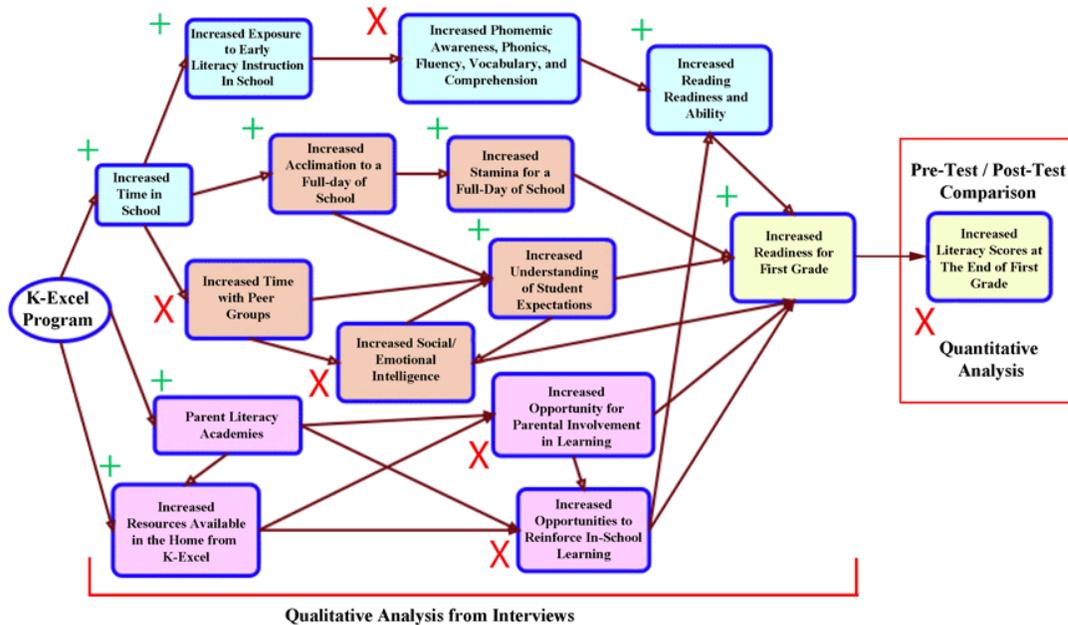
Figure 12. Logic model comparison to findings

Generally, the academic effects were short lived, there were inconsistent reports of social improvements from teachers, and the parent literacy academies did not seem to increase in-home support. However, the data helped to offer a more complete understanding of the program, its effects, and in conjunction with the literature, possible areas for improvement. Additionally, there were positive effects found in stamina, the ability for K-Excel to informally remediate and help students with the transition to first grade, and increased independence that seemed to result from the K-Excel Program.

Quantitative Findings

Initially, it appeared that K-Excel might have a positive effect for scholarship students and a deleterious effect on tuition-paying students. After charting all the students between the pre-test and post-test results (Figure 13), the percent of scholarship students meeting grade-level equivalency went up considerably from the number of students that were not at age level equivalency on the Brigance pre-test (0% to 66% increase in Grade Level Equivalency among this group). However, tuition paying students went from 3.8% below grade-level equivalency to 19.2% below grade-level equivalency on the post-test. On the surface, it appeared the scholarship students improved greatly while the students that were in K-Excel on a tuition basis did worse.
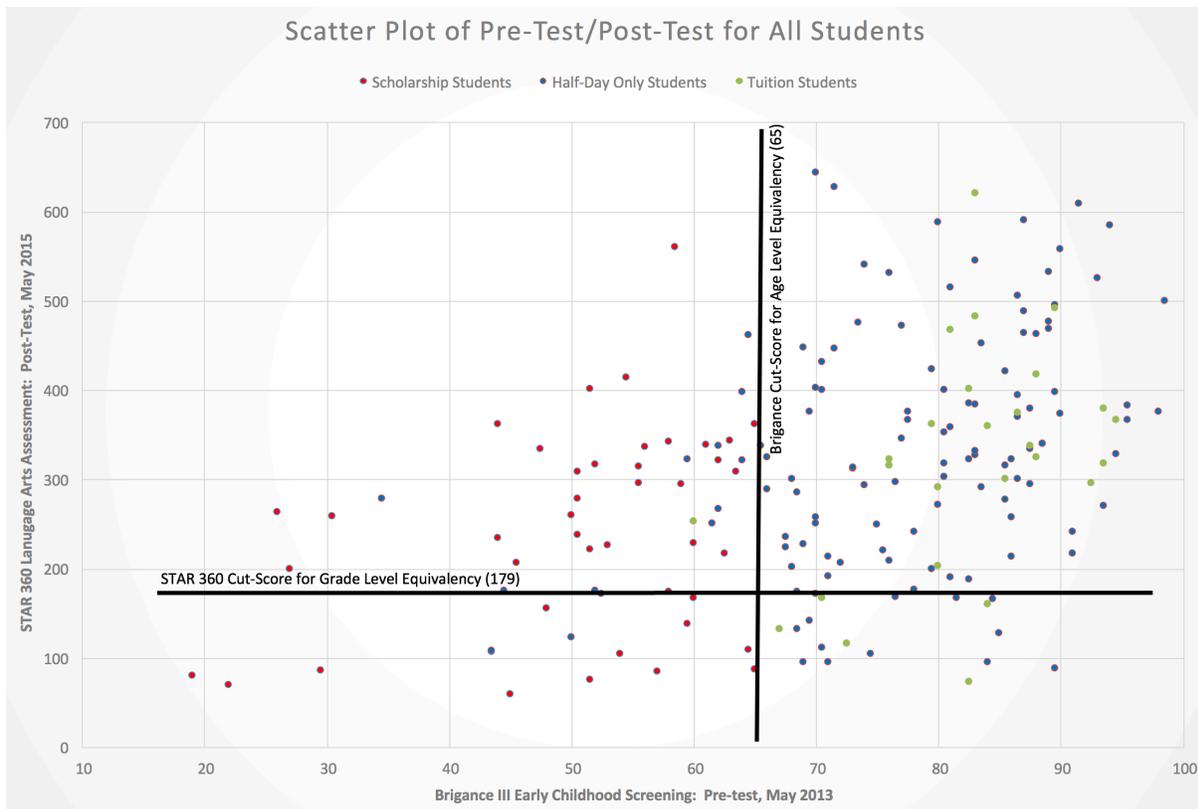
Figure 13. Pre-test and post-test results for all students

Further evidence was needed to compare the groups to see if K-Excel enrollment had the observed impact and if it was significant. The additional statistical methods of optimal propensity score matching (PSM) and linear regression helped ferret out these gains from other factors and showed that despite these gains in GLE among K-Excel scholarship recipients, they were not due to the K-Excel Program. Instead, the statistical data show that there is no evidence of a positive impact from K-Excel on the STAR 360 post-test results.

The strongest evidence for this finding came from comparing students that were similar between the groups (after optimal propensity score matching). Figure 14 shows this comparison. As shown in the figure, the best-fit line between the scholarship group and the comparison group had a minimal difference in trajectory and a loose fit, indicating a very small difference in

anticipated scores of the groups on the post-test and a great deal of variance among students from the pre-test to the post-test.
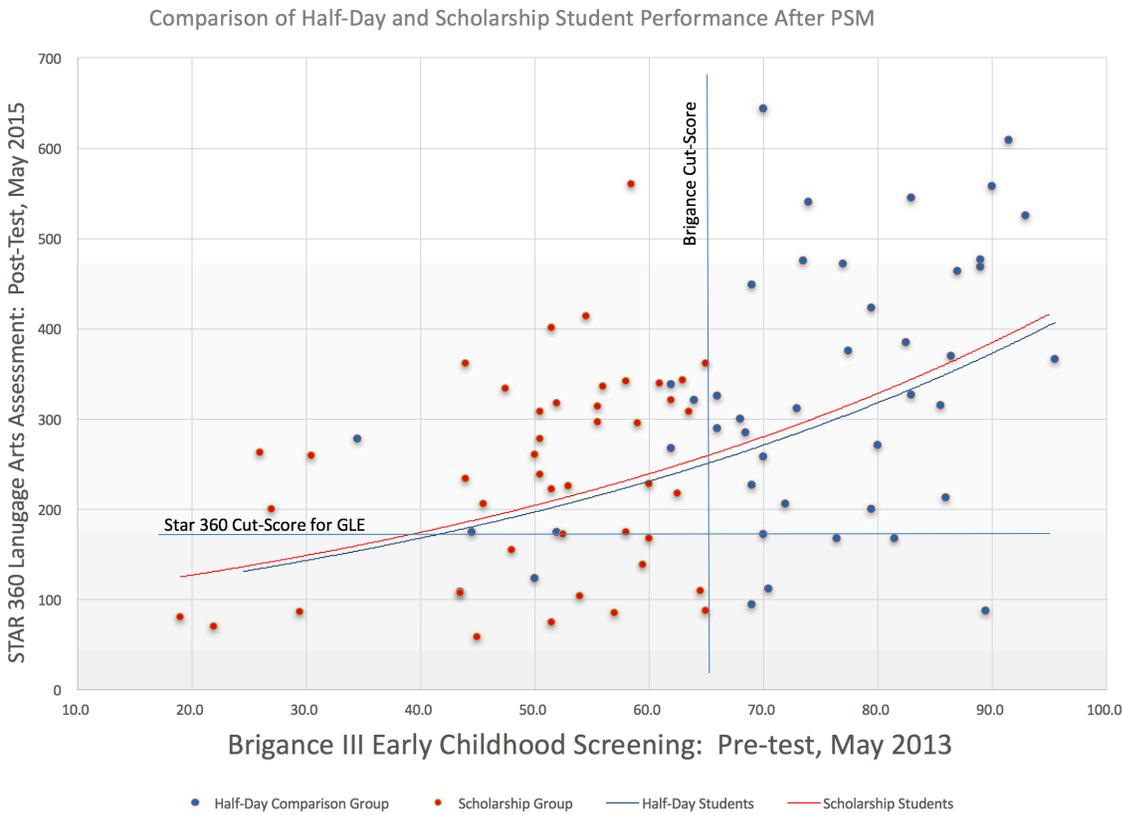
Figure 14. PSM Comparison of Scholarship Students to Half-Day Only Student Performance

To confirm this finding, a univariate linear regression was run for the group of students at 65 and below. If there was an impact from K-Excel, it would show significance in predicting the scores on the post-test. However, the result did not demonstrate significance with a value of .310 (Table 14). Therefore, K-Excel did not have the expected outcome on literacy that was hoped for at the end of the first-grade year for the scholarship recipients.

Table 14.

ANOVA Table of Significance for Students below 66 on the Brigance Pre-Test [a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13016.845	1	13016.845	1.050	.310[c]
	Residual	682098.208	55	12401.786		
	Total	695115.053	56			

a. Dependent Variable: @360
b. Selecting only cases for which Brigance < 66.0
c. Predictors: (Constant), Scholarship

Additionally, a regression analysis was conducted to investigate whether the scholarship was

associated with the post-test on the STAR 360, controlling for the Brigance pre-test and allowing

for interaction between the STAR 360 and the Brigance. Specifically, it checked if membership

in the scholarship group and pre-test scores together significantly impacted the post-test scores.

The results are shown in Table 15 and demonstrate the same lack of significance (.231). This

table also shows a significant correlation (.004) between the Brigance and the Star 360

assessment.

Table 15.
Between-Subjects Effects of Brigance Scores and Scholarship enrollment on STAR 360 ELA Post-test Results
Dependent Variable: @360

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	124516.25[a]	3	41505.415	3.855	.014
Intercept	268.253	1	268.253	.025	.875
Scholarship * Brigance	15789.696	1	15789.696	1.467	.231
Scholarship	12936.743	1	12936.743	1.202	.278
Brigance	98984.324	1	98984.324	9.194	.004
Error	570598.808	53	10766.015		
Total	4137151.00	57			
Corrected Total	695115.053	56			

a. R Squared = .179 (Adjusted R Squared = .133)

Effect Sizes

The effect size was calculated for the K-Excel program using the matched pairs from the scholarship group. The results of the t-test used for this calculation are shown in table 16. As seen in the table, the t value was 2.166 and the degrees of freedom were 82.506. These numbers were used to calculate the Cohen's *d* effect size to be .48. According to Cohen, this calculation is very close to a medium effect size of .5 (Thalheimer & Cook, 2002). While these findings seem to contrast with other studies such as Kay and Penucci's (2014), it is important to note that they were measuring the effect of a full-day program on all students, not the ones that were identified to be at-risk from low Brigance Scores. In this study, only the low scorers on scholarship were compared to half-day students, possibly explaining a larger effect size.

Tables 16. And 17.

T-Test results used to measure effect size

Group Statistics

	Scholarship	N	Mean	Std. Deviation	Std. Error Mean
@360	Half-Day	44	296.02	139.098	20.970
	Scholarship	44	237.52	112.888	17.019

Independent Samples Test

				t-test for Equality of Means			95% Confidence Interval of the Difference	
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
STAR 360 LA Assessment	Equal variances not assumed	2.166	82.506	.033	58.500	27.007	4.780	112.220

Effect of K-Excel on the Tuition Students' Post-test Scores

Even though the focus was on measuring the effect on scholarship students, it made sense to check for program impact with the tuition paying students as well to see if the program was having a different effect on students that started with higher pre-test scores. If it was shown not to make a difference with the lower proficiency students but did result in a positive correlation

for the tuition-paying students, it might indicate the K-Excel Program was disproportionately

helping the higher scoring students while only leaving the lower students behind.

　　　　Like the analysis of the scholarship group, a regression analysis was run with those

students above the 65 mark on the Brigance to determine if there was a significant difference in

test scores for those that were enrolled in K-Excel through tuition and those that were only

enrolled in the half-day program. Table 18 shows that no significance (.337) was found between

those students that were in K-Excel on a tuition basis and those that were only in the half-day

program on post-test scores.

Table 18.

Linear Regression of the Effect of Tuition Enrollment in K-Excel on STAR 360 Post-test scores

Coefficients[a,b]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	−99.743	109.376		−.912	.363
	Brigance2	5.411	1.354	.334	3.998	.000
	Tuition	−27.444	28.503	−.080	−.963	.337

a. Dependent Variable: @360
b. Selecting only cases for which Brigance >= 65.0

Additionally, a regression analysis was conducted to investigate whether the tuition enrollment

was associated with the post-test on the STAR 360, controlling for the Brigance pre-test and

allowing for interaction between the STAR 360 and the Brigance. The results are in Table 19

and reinforce that there was no significance (.451) when looking at K-Excel enrollment and

Brigance pre-test scores.

Table 19.

Between-Subjects Effects of Brigance Scores and Scholarship enrollment on post-test results for students scoring a 65 and above on Brigance Pre-Test

Tests of Between–Subjects Effects

Dependent Variable: @360

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	270557.98[a]	3	90185.993	5.557	.001
Intercept	25235.212	1	25235.212	1.555	.215
Tuition	11386.235	1	11386.235	.702	.404
Brigance	177761.635	1	177761.635	10.953	.001
Tuition * Brigance	9280.720	1	9280.720	.572	.451
Error	2093576.44	129	16229.275		
Total	17075099.0	133			
Corrected Total	2364134.42	132			

a. R Squared = .114 (Adjusted R Squared = .094)

This data raises important questions as to why K-Excel did not have statistically significant impact on literacy levels among the students in the program at the end of first grade. While other studies have shown atrophy of academic effects by the end of second grade, this study found no difference in scores after only one year of students leaving a full-day kindergarten program. A possible explanation for this was found in the interview data of the parents.

Qualitative Findings

Parental Support Differences Between Half-Day and Full-Day Parent Groups

The parents of the half-day only kindergarteners each talked about ways that they helped to supplement what was happening in the classroom, and every one of the parents interviewed felt that their children did not miss out academically because of their efforts. Each used reinforcement strategies for his or her child's learning that they felt made up for the half-day verses the full-day program. Ms. Harlee described how she and her husband consistently worked

with her daughter on reinforcing reading and the importance of reading at home. The child's

grandmother was also a retired teacher and was "well aware of what [her granddaughter] needed

to succeed" and worked with her throughout preschool. Thus, Ms. Harlee's daughter was

"scoring high in reading", and she attributed this more to the family support than the work of the

schools. Ms. Freeman built the reinforcement into the schedule every day where her daughter

would take the time to digest what was learned, complete the homework for practice, and then

explain what was learned back to the parents. The mother stated that her daughter "had a nice

recall" because of this schedule. Ms. Prospero described a more reactive approach. She realized

her son needed the extra time to run around and "get his energy out" after school, describing in

detail how a half-day program was best because it allowed for this. However, she sought out and

worked with the teacher on how best to strike the balance between academics and play. Thus,

she used the strategies shared by the teacher to target specific academic needs. Finally, Ms.

Suggitt used a more formal setting to augment the half-day kindergarten program, sending him to

the Goddard School for the second half of the day. It was clear that the parents had no time

between graduate school and running two businesses to reinforce academics themselves. So,

they paid to have him attend another program.

Ms. Suggitt's example also points to an important unknown variable within this study,

enrollment of half-day students in other formal programs outside of the school district. Because

this information was not tracked by the schools, it was not available for use within the study.

This point was reflected in the research of Votruba-Drzal, Li-Grining, and Maldonado-Carreno

(2008):

> If children's experiences outside school are related to their academic skills and
> their parents' selection of kindergarten, then the failure to take these important
> contexts into account when considering the effects of full- versus part-day
> kindergarten may produce misleading results (p. 959).

This could be a contributing factor as to why students in K-Excel appeared not to do better than half-day only students. Some of the students that were not in K-Excel were still receiving formal programs that provided a full-day experience.

Overall, the parents of the students in half-day only kindergarten did not believe their children were academically disadvantaged by only having a half-day of kindergarten.   They had found other ways to prepare their children either at home or through external programs. They each felt comfortable that their children kept up with academics and were solid in their foundation because of their kindergarten experiences.

Unlike the half-day kindergarten parents that had consistently supported and reinforced literacy and reading skills at home, only two of the eight K-Excel parents emphasized home enrichment strategies such as additional reading, library trips, and consistent one on one assistance with homework.   One parent that was an anomaly was a kindergarten teacher herself and acted upon the knowledge that she could impact her daughter's reading ability beyond the supports she received in K-Excel. Mr. Petro was the other parent that cited he had a major responsibility in having his children read at home all the time and that the school was only part of the reason for his son's success.

In contrast, four of the parents were silent about home assistance and resources and two of the parents in the K-Excel Program admitted to not assisting their children as much because of K-Excel. Ms. Kane believed that her son "was getting literacy skills reinforced at school". Therefore, she did not have to "spend family time" on those skills herself. She stated, "Weekends are now family time. If he weren't in K-Excel, it would be a different ballgame. I would be working with him every day after school and on weekends to reinforce what was going on in school." Whereas, Ms. Brown left enrichment up to her child. She stated, "She doesn't ask

me much to help her homework-wise, whereas I look at my middle child [who was in a half-day program] and he's constantly trying to ask me for homework help and tries to get me to actually do his homework." In this way, her child's independence was exposing her to less one on one assistance from the mother. With the other four parents interviewed, even when asked about the benefits of the parent academies, none of them connected what was taught during the parent evenings to tangible efforts they made to support what was happening in the classroom. This phenomenon of increased parental support among those parents with children enrolled only in half-day programs is modeled in figure 14. These findings indicate that students are getting the assistance they need regardless of the group enrollment. In the case of half-day students, their parents are augmenting their schooling themselves or through other formal outside programs. In the case of K-Excel parents, the program itself is augmenting the half-day kindergarten program and replacing what the half-day kindergarten parents were doing. This offers one possible explanation for a lack of significance between the groups in the post-test results.
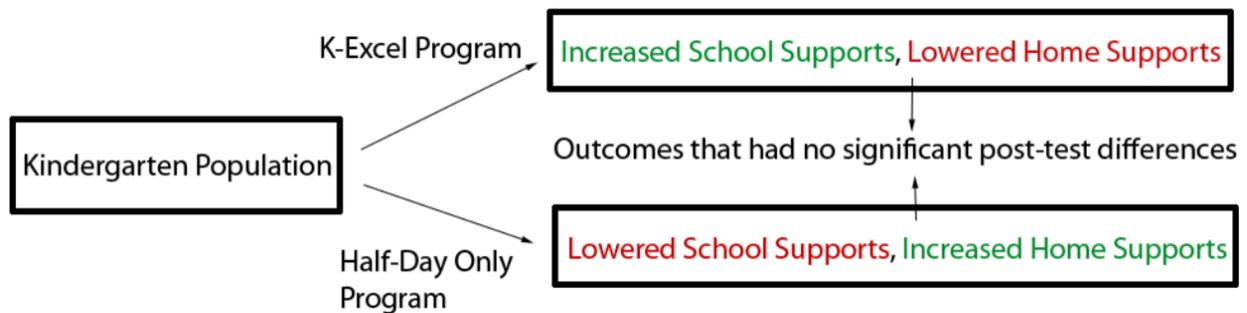
Figure 15. Pathways of home and school supports between K-Excel and half-day students

Increased Reading Readiness (K-Excel Specific Impacts).

When teachers discussed the literacy skills of K-Excel, they noted improvements and personal growth resulting from K-Excel. Teachers reported that K-Excel students seemed to enter more in the middle reading groups than the low ones. There was a smattering of exceptions

that were both higher and lower than the mid-range, but in general they felt that students in K-Excel were well prepared for first grade.

Collectively, the five teachers that were interviewed had nineteen of the former K-Excel students in their classes. Of the nineteen, the teachers identified only five of the students as having more significant reading or learning challenges with three eventually requiring special education services. The other fourteen students that had K-Excel seemed to be success stories and were meeting grade level expectations with only classroom-based assistance. They entered first grade in the middle level reading groups or in some cases above grade level. Of note was the degree of success the four ELL students experienced resulting from K-Excel. Three of them wound up excelling in language arts by the end of first grade, and the fourth made it into the mid-range reading group despite being diagnosed with ADHD as well as his struggle in learning English.

The teachers consistently attributed the success of students to the informal accommodations that were made for the students in both kindergarten and first grade. Of note were Ms. Cushman's observations. She served on the Intervention and Referral Services Committee as well as a first-grade teacher. In this role, she was witness to the many accommodations given to the struggling readers not only from her own classroom but also from the other teachers in kindergarten and first grade. She recognized through her participation on the committee that K-Excel was providing an "extra layer of support" and that it was having a positive effect on students. She also acknowledged that a few of the students would have likely been classified if it had not been for the K-Excel Program. She stated,

> They come and they've had nothing [in the way of supports]. If you can catch the low bunnies and give them the opportunity, it can only be a positive effect. It may not be a cure-all, but [K-Excel] is an extra layer. If you don't give them that extra support in Kindergarten, what happens in first grade?

Other teachers such as Ms. Swenson also described the work of her colleagues to offer informal

supports. She noted a kindergarten colleague's work with a student that was not doing well in

the whole group setting because he "wouldn't want help" and instead "put up a wall". So, the

teacher would send the child to a reading specialist for one on one support when it was

necessary. She stated,

> He met with [the reading specialist] and he would read with her, and he was better, too, in
> that small group. I think it was that in the classroom, he was just embarrassed that he
> wasn't keeping up with the other kids.

Although the student remained in the low group for the remainder of the year, he made steady

progress and was not referred to special education.

Ms. Cushman and Ms. Swenson's examples offer insight into something the quantitative

data did not show, K-Excel providing extra informal supports and helping those students that

may not have the same level of support in the home to succeed. The teachers were noting

important improvements among those students in the K-Excel Program. If the program did

lower the rate of special education referrals while giving the student what they needed

informally, it was an efficient method of addressing the needs of the students without the

expensive cost of testing and classifying a student.

Overall Increase in Grade Level Equivalency by The End of First Grade

While the quantitative data demonstrates that the K-Excel Program made no significant

impact on test scores at the end of first grade, there was evidence that an increasing number of

students overall were meeting grade level equivalency. While 58 students were below age level

equivalency on the Brigance pre-test, by the end of first grade, only 39 students failed to score at

their expected GLE on the STAR 360 assessment. From a growth standpoint, the population of

students below GLE dropped by 32.8%. These students had "caught up" by the end of first

grade. A possible explanation for this rate of success was found within the teacher interviews.

Positive Impacts from Increased Rigor and Expectations

The stories of the teachers helped to explain the improvement in the grade level equivalency of the students. In this case, it seemed to be both the increasing rigor and expectations of the curriculum as well as the stated impact the K-Excel Program was having on some of the students that brought the group higher.

Although the teachers were unaware of the quantitative findings above, all the teachers interviewed described a change in the rigor and expectations of the language arts curriculum and how it positively impacted the readiness of their students from kindergarten. Students were coming in better prepared to read in more recent years. Ms. Bruker stated, "It just seems like every year more of them come in really reading or very much ready to get the boost in instruction in literacy." Ms. Cushman also supported this observation by stating, "All of my kids, even my low-level kids, were reading independently in books where there was more than just a sentence on a page." She went on to say that they were all "mid-range" this year.

The teachers also commented on the struggles students experienced in more distant times and the time it took to teach them basic reading compared with today. Ms. Cushman stated,

> We had to teach consonants, we had to teach the letters, before even getting into short vowels, like short a. And then it was spending a LONG time on short A. Then, over the years, as new programs came down to Kindergarten, the shared reading, the guided reading, the work with phonics instruction and phonemic awareness, before even the addition of the Journeys Reading Program, every year was a little bit more of an advanced start for those kids.

This advanced start allowed for the teachers in first grade to teach at a higher level. Per Ms. Feder, her lowest students were much higher than previous years and all came in reading. She stated, "I looked at their running records and their book reports – I know they can read. And I also know that I used to have kids who left my classroom, when I first started teaching in the 90s, they left my [first grade] classroom without reading". She stated, "I think part of it is our

whole curriculum, our whole attitude about it district-wide. We do a lot more literacy instruction than we ever used to." This systemic and incremental change was noted by all the teachers interviewed, and they felt that it did impact what they could do as first grade teachers. Ms. Burker stated, "Even going back to my reading specialist days, I would raise the benchmark each year to determine which kids I would accept, or when I was back in first grade, which students I would recommend to the reading specialist." Because kids were coming in with higher and higher abilities, it shifted the bar for referrals and increased the overall expectations of the children. When discussing referrals, she stated:

> In prior years, it was kids who had only one or two short vowels and had a bunch of holes in their consonant skills. In more recent years, they have four of the five short vowels and know most of the consonants. They might just mix up 'Y' and 'W'.

Ms. Jones compared her students that went through the Mount Olive curriculum to those students that had transferred into the district after kindergarten. She noted that three of the four transfer students in her class were her lowest readers this year, and she believed that it was because they did not have the reading curriculum that the others had been exposed to in Mount Olive's program. She mentioned that the "sight words" were already mastered by the students that had a kindergarten program in Mount Olive while the others were "not as far along".

The teacher stories of how the curriculum and expectations evolved offered a reasonable explanation as to why the overall proficiency rate would increase by the end of first grade. It seemed to be the result of the high expectations and curriculum, not the extra time from the K-

Other Benefits of K-Excel

Beyond literacy, there were several positive outcomes related to the K-Excel Program that the teachers discussed through their interviews. Stamina, self-efficacy, independence, and even computer skills were sighted as being noticeably higher for K-Excel participants than their peers that were only in a half-day kindergarten program. Additionally, the program itself

afforded kids additional time to get resources and support from the school, contributing to what the teachers described as a reduced referral rate to special education and other related services. Instead, students were receiving the interventions they needed in an informal and organic way.

While language arts instruction was a primary concern in creating the K-Excel Program, a number of other benefits were also reported by the teachers that were discussed in their comparison of kindergarten groups. Although they were more social and emotional, they collectively help students with the skills necessary for school and are important factors to consider within the program review.

Increased stamina. Teachers reported that students that attended full-day kindergarten have better stamina for a full-day in first grade. Almost every teacher (four of the five) recognized and discussed how students transitioned into first grade better if they were coming from full day programs such as K-Excel. They also mentioned that the increasing numbers of students that were enrolled in preschool was also helping with preparing students for a full-day of first grade. Over time, the teachers felt that the percentage of students that were previously exposed to full-day programs was increasing, resulting in a decrease in the percentages of students in their classes that needed extra support with the transition to a full day. The only dissenting opinion came from Ms. Burker, who noted no real change from previous years. Instead, she described consistently having to support kids in the first month of school during the transition. While the other teachers mentioned similar supports were necessary in the first months, it seemed to be short lived and improving over time.

Increased independence. Teachers and parents reported that students had greater self-efficacy and independence if they attended a full-day kindergarten program. They came in better prepared for a full-day and were not as dependent on their parents. Ms. Swenson noted a trend of decreased separation anxiety, where students could separate more from parents and were more

independent. This was also supported by Ms. Feder, who said that there has been "less crying"

in recent years because of the expansion of full-day programs. This trend of greater

independence was substantiated not only through the teacher interviews but also through parent

interviews and seemed to be a consistent benefit resulting from the K-Excel Program.

Increased comfort with building resources. Students in the K-Excel Program were

reported to have more exposure to the tablets used in the classroom and were more familiar with

the resources of the building. Ms. Feder noted that the kids that were in K-Excel quickly became

the technology mentors for their peers, something she thinks helped to raise self-confidence

among them as well as greatly assisted the teachers when using technology. They "helped keep

the other kids on track". Ms. Feder also noted that the K-Excel students were more comfortable

with school personnel and their roles. They knew the principal, were familiar with the reading

specialist, and knew where the nurse's office was. She contrasted this with the students who

were only in half-day kindergarten. Those children had fewer connections and less of a

knowledge of the resources in the building.

Social Impact from K-Excel.

There was no clear reported advantage socially that resulted from K-Excel. Outside of

increased independence and stamina for a full-day program, the teachers were skeptical of social

benefits resulting from K-Excel. Ms. Burker and Ms. Jones felt unsure if K-Excel had any social

impact at all due to the increasing rigor of the academics. Ms. Jones stated, "I don't know if

socially it made any difference because they were working so hard on the academic skills." She

went on to describe how the academics have pushed the "play out of the program" and she

expressed her desire for a changed curriculum that was balanced between academics and play.

She stated, "I would love to see a full-day program that allows the kids a little more play, a few

more old-school, developmentally appropriate activities that we've kind of stopped doing

because we have so much [sic] more curricular demands." Similarly, Ms. Feder did not feel that the full day made a difference socially. In her experience, two of her three K-Excel students had "high social and behavioral problems". However, she also acknowledged that she did not know their starting points before she had them.

Ms. Swenson felt a similar lament at the lack of play. When she previously taught kindergarten, students could socialize more through the play centers with building blocks, dress up clothes, and a kitchen center. She contrasted this with the current curriculum and felt that there was less time for such activities that develop social play skills. She also noted that the recess time went from a forty-minute teacher-monitored recess to a twenty-minute aide-monitored recess. She stated that this caused students' social skills in these last few years "to be lacking". She explained that conflict resolution and important character skills were reinforced in the past by the teachers on the playground. In contrast, they now had to deal with the "fallout" when the kids came back into their classrooms after recess. Ms. Burker also confirmed this sentiment by saying that there was no time for "science and socializing" in kindergarten. "When you put in lunch and specials for kindergarten, they are there for 2.5 hours". She went on to say, "If we had the ability to offer them more than 2.5 hours of really nice instructional time with a few nice breaks in there, it would be a good thing." It was her belief that because K-Excel only focused on literacy skills that it was not enough to make a difference socially.

Parent Perceptions and Satisfaction with Kindergarten Programs

Twelve parent interviews were conducted between those parents with children in K-Excel (8 interviews) and those that were in only half-day kindergarten (4 interviews). The interviews were then analyzed to evaluate the benefits of each program. Overall, parent satisfaction was extremely high, regardless of the type of program that was chosen for each child. While there are minor exceptions within the narrative, the parents consistently described their children as

"loving school" during kindergarten and beyond. The interviews were complimentary of the

teachers and the academic and social growth that they witnessed among their children. Even

parents that enrolled their children only in half-day kindergarten felt that their children were well

prepared both academically and socially.

Choice was beneficial. The choice of programs allowed parents to have control and say

in what was best for their individual children. They weighed unique family situations and what

they thought would be best for the individual child. One of the striking features of the parent

interviews was the depth to which parents considered the two programs. Family finances,

emotional independence of the child, the need for families to work, and even special academic

struggles that children were anticipated to have were components of the decisions made by

parents. In retrospect, they all felt that they made the right choice for their individual situations.

While most parents thought a full-day program for all was generally best, it was clear that

this was not universal as some parents chose the half-day program deliberately. Specifically,

Ms. Prospero wanted only a half-day program and thinks that it was a perfect match for her child

and family situation. Ms. Pratt stated she would have made the same choice if she had the option

of not working. She felt that it would have been better for her daughter based on the issue of

transition that she knew her daughter was going to struggle with in entering school. Ms.

Freeman also felt that a full day program was not necessary for all students. She viewed

kindergarten as a place of play and of exploration and was fearful that it would be too academic

if made mandatory. She stated, "I think if kindergarten were forced into a full-day thing, it

would not be a true kindergarten in the sense of the word". She feared that such a program

would only reinforce academics. She noted that kindergarten was "not even mandated in our

state" as a reason for Mount Olive not to mandate it locally. These parents seemed to appreciate

the ability to make the educational decisions for their children, and they viewed positively

having the option of a half-day program.

Taking this option away could limit the quality of the outcomes and resources available

from the home. A specific example of this was seen in the Harlee Family, where the daughter

was tutored one-on-one by her grandmother, a retired school teacher, in reading and literacy.

This support is likely better than what the child would receive in the other half of the school day

through K-Excel. By mandating a full-day program for all students, such opportunities would be

diminished.

There were effective early intervention strategies. Throughout the interviews, there

was evidence of a variety of early interventions being used within the kindergarten programs and

beyond. There were multiple examples where students received services for occupational

therapy, reading and math remediation in first grade, pullouts for enrichment in kindergarten, and

where special education teachers used their expertise to help the children informally with social

problems and anxiety.   Ms. McMahan provided one such example where her son faced

significant reading comprehension difficulties. He had the ability to read, "but he wasn't able to

comprehend what he was reading." The mother felt that K-Excel helped in that regard and her

son got the supports he needed during the kindergarten year and subsequently in first and second

grade from the classroom teachers. The mother was happy that her son "gets what he needs

without being classified." Each time early interventions were recommended and implemented,

the parents felt that it had the desired effect and had positive outcomes. The evidence was

plentiful within the interviews about the breadth and depth of these early interventions as well as

their effectiveness. Not a single parent expressed a concern that the treatment was not effective

or that a need was missed entirely. Even when parents were being critical of an aspect of the

program, they also brought forward examples of how the schools did work to address the

concern. They were happy with the school program and its ability at addressing the needs of the children. This overall feeling demonstrates that no matter which program students were in, the parents felt that Mount Olive Public Schools were offering an appropriate kindergarten education for their children and addressing unique concerns appropriately.

Findings of Tuition Paying Parent Interviews

This group was categorized as parents who enrolled their children in K-Excel but also paid tuition because the students were above age level equivalency on the Brigance pre-test. The purpose of these interviews was to see the extent to which the parents found value in the program and if improvements needed to be made to entice parents to enroll their children.

Quick adaptation to a full-day. All of the tuition-paying families had enrolled their children in preschool and two of them for multiple years prior to kindergarten. So, schooling was not a new concept for the children, and each parent described the transition to kindergarten as positive, "no big transition", "fine", and overall something that children adapted to quickly. Despite the ease of the children in transitioning, Ms. Pratt had serious trepidation about her daughter's ability to adapt to a full-day program because her daughter was "young for the grade", and her daughter did have a slight transition period. However, after a brief adjustment of a month where she fell asleep on the couch when coming home from fatigue, "she got used to the schedule and she was fine." She was then able to make it through the full day. So, overall, the transition of these students into kindergarten was viewed as not a large issue among the tuition paying families, and the students adapted quickly to a full-day program.

Academic benefits. Three of the four parents interviewed focused on academics as being the prime motivator in enrolling their children. Ms. Franco enrolled her child because she felt that the academics in a public school would be better than alternative programs. For Ms. Lee, it was the fear of her child not reading because of dyslexia that was the primary impetus.

She feared the repercussions if she did not enroll her daughter in a literacy intensive program.

Thus, she enrolled her in the K-Excel Program. The mother believes that K-Excel helped her

transition into first grade "seamlessly". She was reported to be at grade level and never was

classified for dyslexia, which the mother attributed to the extra help offered in K-Excel. For Ms.

Brown, it was the need for her child "to be challenged" in a way that she was not getting at home

with her mother, something that she believed would happen within the context of a full school

day. Ms. Pratt was also concerned with the reading level of her child. Her daughter had a

September birthday and is one of the youngest in her class. Therefore, she expected her to

struggle and was concerned with her daughter's reading level during kindergarten. However, she

too transitioned well into first and second grades and is achieving at grade level. Ms. Pratt

stated, "I think if she hadn't been in [K-Excel], it would have been touch and go. I think it might

not have been until first grade that she was reading." Instead, she was reading and writing at the

end of kindergarten and knew her letters and phonics "because of the literacy focus".

Ms. Franco also recognized the importance of the K-Excel Program in proactively

addressing academic needs.   She stated:

> "A lot of people I don't think understand what [K-Excel] is for. People will be
> like, 'It's just for daycare.' It's not just for daycare because I have a parent that
> would come and pick him up at 12:00 when school was over. It really doesn't
> matter to me. It matters to me what's going to happen if he can't read in third
> grade, or if he is already behind. That's when it matters!"

So, even though she did not enroll him in the program to address a perceived deficiency, she was

fearful of him not having every opportunity to be successful and viewed the K-Excel Program as

a way of helping to ensure he was ready academically.

While both Ms. Franco and Ms. Brown were not concerned with potential learning

problems when enrolling their children, they attributed stronger literacy skills to the K-Excel

Program and its academics. They compared their children that attended K-Excel to their older

siblings that only had half-day kindergarten and both felt that it made a difference. Although

they did not explain specifically what was different between the experiences, they expressed

their belief in the quality of the program.

For Ms. Pratt, the reason for enrollment was a combination of factors. Ms. Pratt was

going back to work full-time, just having moved back from Virginia and going through a

divorce. She was concerned about the right program for her daughter due to the transition the

family was going through. Ms. Pratt shared that her daughter wanted to be "like the big kids"

and go full-time like her sister, who was attending school as a third grader. Ms. Pratt said, "the

K-Excel Program gave her a good home base and a good anchor; a good, positive environment

for her that she really needed at that particular time." So, the reason for enrollment had more to

do with the situational needs of the family. While the mother benefitted financially from

working full-time, her daughter benefitted from the increased structure and support during a year

of transition.   Ms. Pratt stated that if she were staying home there would be no need for K-

Excel. She would have likely kept her child home because of her trepidation in how her

daughter would handle a full day of school. However, she was pleased with the ultimate

outcome and felt that her daughter was well supported during her transition to New Jersey as

well as her academic progress.

Smooth first grade transition. Ms. Franco, Ms. Lee, and Ms. Pratt noted that the

transition into first grade was easy and not problematic, citing the exposure to a full-day program

in kindergarten as a reason for this among their children as well as their grade level reading

ability. All of them seemed to be successful both academically and socially, helped along by the

K-Excel Program.

Ms. Brown described a more challenging transition where her daughter struggled with her first-grade teacher and was earmarked for extra math and language arts help through a pullout program. She described her frustration at the news:

> I completely didn't understand because [my daughter] had gone through K-Excel and had nothing but glowing reports… She wasn't there – and I'm not saying this in a negative way – because her test scores going into kindergarten were low and she needed to get a scholarship. She was there because I needed her to be there, and it was good for her to reinforce what she learned.

Ms. Brown thought that the money she paid and the experience of a full-day program should have placed her daughter above other students who were without the K-Excel Program. She also suspected that her daughter was "bored with repetition" in the first-grade class and just didn't get along with the teacher. Despite this belief, she went along with the school recommendation anyway and allowed her daughter to receive extra supports. Her daughter enjoyed the special attention and was exited from the pullout program within three months. She now describes her "back up exceeding the reading level", and she had a "great year in second grade". She subsequently enrolled her youngest son in the K-Excel Program because of her belief in the effectiveness of the K-Excel teacher.

Perceived social and emotional effects of K-Excel. Unlike the teachers, the parents were positive about the social effects of K-Excel. All of the parents in the tuition group referenced social and emotional benefits to their children from being in K-Excel. Ms. Lee summed it up by stating, "[My daughter] was less reliant on us… more self-sufficient, able to cooperate more with other kids, listening to rules and following directions." A common theme was in the independence of their children, mentioned by Ms. Lee and Ms. Brown. Both parents referenced the idea that being separated from parents for a full school day helped their children problem solve and work independently. Secondly, they felt that their children could socialize more effectively and acted more mature when compared with their peers. The clearest example

of this was seen when Ms. Franco stated the difference was very apparent to her. She claimed to be able to identify the type of kindergarten the children attended "and know exactly who they are by their behavior." She stated that the children that only went two days a week to pre-kindergarten and were in the half-day kindergarten programs were less mature than those that had more exposure to school. She felt that the difference in maturity was noticeable to her, and her son did not want to play with them as well because of the maturity difference. She also compared her two children as well in this way. She stated, "The one who did go for the K-Excel Program is a little bit more socially advanced." Ms. Pratt also recognized other social benefits in terms of how her daughter made friends. She stated that her daughter's closest friends came from K-Excel and that she was unsure if they would have been as close from just a half-day program. She felt that the extra time during the day with her peers helped solidify her social network and helped her find friends after moving from Virginia.

Negative impact of the age of entry policy. Ms. Lee was the only one that was upset with the kindergarten year, not because of the price of tuition or the quality of the program but because of the impact the cut-off age policy had on the family. Mount Olive School District will only enroll students for kindergarten if they are five before October 1 and first grade if they are six before October 1, but the parent wanted her enrolled sooner. Specifically, because she had concerns that her daughter would be dyslexic. Thus, she enrolled her privately at the Goddard School. She stated with annoyance, "[My daughter] missed the school cutoff, so she actually did a kindergarten year prior to kindergarten in Mount Olive." Ms. Lee went on to describe that she felt the K-Excel Program was helpful but that she did foster some resentment over the policy of not allowing children into kindergarten based on their needs.

K-Excel was of value for tuition-paying parents. Tuition for the K-Excel Program was $5000 for the school year. There was a variety of financial and family situations represented in the sample even though none of the families qualified for free or reduced lunch and they all had a single-family home that they owned. Two of the four interviews discussed directly the impact this tuition costs had on the family. Ms. Franco initially described it as a "burden" for the family but then took a step back after rationalizing the cost when compared to alternative childcare. She stated, "I would have paid for him to go to another half-day program somewhere else so that he could have a full-day experience". She later stated, "I just feel like the size of the group and a real school setting was just a better foundation for him." Through these statements, it was clear that she valued the quality of the program for the cost, but the impact of paying for K-Excel was still felt within the family.

Contrasting this perspective was that of Ms. Lee. She enrolled her child because her daughter had "high markers for dyslexia" and felt that enrolling her in a full day kindergarten program was worth the sacrifice financially. She stated that she enrolled her "based upon the doctor's and the neurologist's advice" to get a program with a "ton of reading". Therefore, K-Excel appealed to her family. According to Ms. Lee, she needed a "higher level of reading than she was already at". However, this came with a cost. She stated,

> I felt like the cost of [K-Excel] was extraordinary. We, as a family, sacrificed tremendously to put her in that program, not because I needed extra childcare, but because of what she was going through and what she needed according to the doctors.

Ms. Lee went on to also question the overall value of the program when asked about offering it to everyone. She referred to a statement from administration that "[the children] would learn everything they needed to learn to get to first grade and that [K-Excel] was just supplemental". While she recognized that her child benefited from the program, she noted that others with only half-day programs were "just as prepared and just as ready" as her daughter was.

The two interviews that did not mention the tuition costs still mentioned benefits from the full-day program related to finances. Working from home, Ms. Brown could maintain a full-time job and be more productive while the kids were at school. She also mentioned that her children didn't have to go to before or after care because just those hours were enough to keep up with her job. Ms. Pratt was just returning to work as a full-time teacher when her daughter entered kindergarten, something necessitated by her recent divorce. So, the cost of tuition was not brought up directly as a factor, but the cost was likely factored into her necessity to work.

The interview data indicates that tuition–paying parents were ultimately appreciative of the program when considering cost. While they would have preferred it to be paid for by the district, and in some cases, they had to sacrifice to meet the tuition, each mentioned the benefits they witnessed through the program. Even Ms. Lee, who had the strongest concerns about the program wound up subsequently enrolling her youngest child in K-Excel. This is evidence that she still believed that the benefits outweighed the costs. Because the parents did perceive social and emotional growth in their children, they felt better about the program costs. They also appreciated the academic supports and convenience that the program offered for families. Comparing the K-Excel Program to other childcare options, the other programs would have been less convenient, requiring students to be transferred to other schools after the half-day kindergarten program or enrolling full time in another program that would cost even more money for the families.

Findings of Scholarship Recipient Interviews

The sample consisted of a less affluent socio-economic group overall than that of the tuition-paying parents. While none of the tuition-paying families rented their home or qualified for the free or reduced lunch program, 25% of the scholarship families were in rental homes with 16% of the families qualifying for free and reduced lunch.

More time learning will equate to better academic preparedness. Unlike the tuition-paying parents, the scholarship parents supported the notion of full-day kindergarten for all. Mr. Petro focused on the importance of academic rigor saying, "What is he going to do at home? He is going to come home and play. He needs to be pushed. Full day, more learning, it's better!" This father equated additional time to additional learning and was in full support of the impact that a full-day program has on learning. Ms. Kane felt more that it was nuanced and the extra time could accelerate student learning only if they were ready for it. She described how her own son flourished with the extra time and how it "accelerated his learning" and "picked up the pace" of his learning in Kindergarten. Ms. Sineker described similar advantages by saying, "I think they learn more with a full-day program." "The learning curve was completely different between my child that had a full-day and my children that didn't."

Increased opportunity to socialize. Unlike the others, Ms. McMahan focused on the social benefits of a full day program, citing that kids do not have enough opportunities to interact socially. "They are in their homes all day, and a full day program encourages them to interact more".   She went on to describe how her own son is an only child and how difficult it was for him to initiate interactions with other students, but through K-Excel he did much better. It even assisted in improving a speech problem. Ms. McMahan stated, "I figure more talking with kids and being at school will definitely help with his speech problem rather than staying at home. [Going full day] cleared that up."

Scholarships increased family opportunity.   While it was unknown if any of the participants would have paid tuition to have their child participate in K-Excel, three of the families discussed how the scholarship made a tangible difference in their lives. Ms. Sineker shared that her daughter would have done a half-day if it was not for the scholarship. However, she became a believer in the effectiveness of the program when comparing her older son's

experience in only a half-day program to what she witnessed from her daughter's experience in

K-Excel. Ms. Sineker stated,

> I watched him go through half-day kindergarten, and I often said he walked out knowing less that what he walked in knowing because I felt the kindergarten program back then did nothing for him. With the full-day, [my daughter] walked out knowing so much more and already reading at a first grade reading level.

The scholarship conferred upon this child the chance to attend a program they would not have

otherwise been involved in, and this mother attributed the visible gains to the K-Excel Program

and academic focus of kindergarten. While these were more indirect impacts from the

scholarship, Ms. McMahan mentioned directly the impact that the scholarship had on his family

finances. This family was one of the few families in the sample that qualified for the Free and

Reduced Lunch Program. Not only did it help that her son could attend the program for free, but

she was also able to work until 3:30 each day to help them get ahead financially. This double

benefit of an improved program and ability for the parents to work longer to provide for the

family was unique among all the interviews, but it shows that a side-effect of offering the

scholarships was the financial improvement of at least one of the families.

Increased confidence and independence. Every one of the parents in this subgroup

mentioned confidence as a major area of growth among their children. This was seen clearly in

how the students would tackle difficult tasks independently.   Ms. Kane stated, "[My son] is

confident in himself to read. He told me a long time ago during Kindergarten, 'You are not

allowed to help me with this Mommy. I have to do it all by myself.' It was shocking how

independent he had become." A similar story was shared by Ms. Sineker. She stated, "She

doesn't ask me much to help with her homework. Whereas, I look at my middle child [who was

in a half-day kindergarten program] and he's constantly trying to ask me for homework help and

even tried to get me to actually do his homework." Mr. Petro also noted that his son was

"confident in his ability to read and knows what he is doing." This confidence not only was

mentioned in academics; it was also a social factor.   Mr. Petro said, "Before he was kind of shy.

He stayed home and wouldn't play with others. Now, he is pretty good and has friends." Ms.

McMahan also mentioned shyness as a major factor with her son. "He was a little shy with kids.

He was a little withdrawn. In the group, he would jump around but wouldn't interact. Being that

he had a full day of kindergarten, it definitely helped a lot. It helped him socialize."

     Increased literacy readiness. Ms. Kane was very complimentary of the K-Excel

Program stating, "I don't see anything [the teachers] are falling short on. They are supporting

literacy in every way." She mentioned how serious her son was taking his reading and how his

reading skills were reinforced through sight words and how the reading strategies from his small

guided reading groups carried over to his writing tasks. Overall, she was very pleased with his

progress as a reader as result of his kindergarten year. Similarly, Ms. McMahan mentioned that

K-Excel gave his son "that early boost where by the time he hit first grade, he was ready to go."

     Increased emotional maturity. The parents felt that the teachers helped their children to

learn coping skills and maturity. Ms. Kane's son used to get frustrated easily, but it was

addressed in the K-Excel Program through a teacher who had experience working with autistic

children. Since then, her son has been calmer and has learned to control his anger and frustration

more in the other grades. She felt that the teachers watched for the "whole child", not just the

academics as shown in this example. Similarly, Ms. Kane stated, "In my eyes, the program is

addressing everything. They are getting social interaction from small group work, play time,

lunchtime."   Although this contrasted with what the teachers reported, the parents seemed to

trust the impact of the teachers in this area.

     Suggestions for improvement. This group was vocal about suggestions that they

believed would help the program. Two of the parents mentioned the need for more mathematics.

Ms. Kane stated, "I think it would be great to have math. It's from the bottom up that we build

things. K-Excel is not addressing math at all. That is definitely something that I would work in

time for." This was supported by Ms. Sineker who also felt that the math would be an

appropriate focus as well as the language arts. She went on to explain how her daughter

"struggles" with math and perhaps would have done better if it had been a focus in K-Excel.

Also, Ms. Kane provided suggestions about how to specifically improve the literacy program by

providing students leveled books to take home nightly as she does in the district she works for.

She felt that such a program would help the children immensely and shared that it was a strategy

she supported her own child with. She stated, "I borrow books from school that I bring home so

[my son] has books at home. This is K-Excel and Mount Olive. It drives me crazy that there are

no books sent home that are at the required reading level." She was concerned that most parents

would not know what to read with their children and that it could be a major support of the

program.

Findings from Half-Day Kindergarten Interviews

Unlike the K-Excel groups, these parents had students that did not qualify for a

scholarship and did not pay tuition to have their children attend K-Excel. Thus, the students only

attended Mount Olive Schools for two and a half hours a day, receiving less formal instruction in

Mount Olive Public Schools.

The inconvenience of half-day kindergarten. Three of the four parents found the

scheduling of a half-day to be challenging and potentially disruptive to working parents. Ms.

Harlee had an unusual situation to accommodate the half-day program. Her husband worked

shift-work and could stay home in the morning to watch their daughter. Then, her daughter

would attend PM kindergarten and then after-care before the mother finally finished her work

and could pick her up. While they were late days, and the mother was on an opposite schedule

of her husband, there was an upshot:

> I think it was a little more relaxing [for my daughter], in the sense that she didn't
> have to get up early because she was in the afternoon kindergarten. So, she got to
> watch TV and hang out with her Dad in the morning, and then go to school.

This schedule worked to "reinforce their relationship" and provided time for the father to help

with homework and get to spend more time with his daughter than he would have otherwise had

time to do if he was working different hours or she was in a full-time program.

Ms. Suggitt was much more vocal about her unhappiness with scheduling around a half-

day program. She stated, "I do think the half day is a crock! You know, at this point what we

pay in taxes and for what's accomplished, I think the kids should be in full day." She went on to

describe her worst-case scenario for her family – if her daughter was scheduled for PM

kindergarten. She stated that such a schedule "would have completely wreaked havoc on our

work schedules". Even though her child was in AM kindergarten, she was no less disturbed by

the thought saying that "it would have been gravely inconvenient" and expensive to find a

different alternative for childcare.

Ms. Freeman was more magnanimous regarding the burden even though she had to

disrupt her work schedule to pick up her daughter. Instead of viewing it as a challenge to

schedule, she viewed it as part of her responsibility as a parent to arrange childcare and

transportation. However, she recognized the issue is a real challenge for other parents. Ms.

Freeman stated, "I think that if you are a working parent that the middle of the day is very

difficult for them. I was a working parent, but I made it happen." Of the parents interviewed,

only Ms. Prospero worked from home and had no issues with the schedule. She was instead

positive about the schedule and enjoyed having her son home for part of the day.

Social stressors with classroom management. While academically the students all seemed to do well, two of the students experienced social anxiety when their peers misbehaved or had to be corrected by the teacher. Ms. Freeman and Ms. Harlee both described an "impatience" their daughters had with their peers in class. Ms. Freeman would get upset during the school day when the teacher had to correct the behaviors of others and come home and feel the need to tell her parents about the behavior and how it frustrated her. Ms. Harlee said that her daughter "takes things to heart" and would internalize when teachers were upset with her peers even though she was not the target or focus by the teachers. Both examples raise a question about the emotional maturity of the students and their ability to place into social context the behaviors they were observing among their peers.   While it is uncertain to know if a full-day program would help these two children with the social issues, it would at least provide additional opportunities for the children to interact with their peers under the supervision of a teacher and perhaps lead to more intervention points with social issues. The same issues were not noted in the populations that were in the K-Excel Program.

Social isolation among parents. One of the interesting findings in this subgroup was that three of the four parents were socially isolated from other parents in Kindergarten and disconnected to peer support because of their minimal interactions with other parents and their own work schedules. Ms. Freeman does not have a cell phone and admitted to having "limited contact with other parents". Ms. Harlee stated, "I was working and there really weren't that many kindergarteners in after care. As a result, I didn't really network with kindergarten parents." Ms. Suggitt found a support network through Goddard School but "didn't know any of the families of the kids [her son] was in kindergarten with." Each admitted that more social interaction would have been welcome and when the idea for parent nights was discussed, they were universally supportive of the idea. The one exception was Ms. Prospero. Her son was

involved in athletics, and she knew many of the parents through sports. She also volunteered to

help in the kindergarten classroom twice a week where she met other kindergarten parents. She

had the time and exposure to make connections where the other working mothers were too busy.

Academic confidence in their children. It seemed that of all the groups, these parents

had the greatest confidence in the academic performance of their children. Only minor

weaknesses were raised such as needing a little extra time in writing to become stronger, but

none of the parents were worried that students were "below grade level" or in danger of having a

learning disorder like was seen in the K-Excel interviews. Instead they considered their children

to be overall strong in academic performance when compared to their peers.

This perception carried through to how they described the overall program. Three of

them stated that their children "loved kindergarten" and genuinely felt cared about by the

teacher. The only exception was Ms. Freeman, whose daughter was struggling with some

anxiety during her transition into kindergarten. She never had preschool and demonstrated

anxiety around taking the bus both to and from school. However, there were no issues in the

classroom and "she really had a great time in kindergarten" outside of this initial anxiety and

transition. Ms. Freeman stated, "I didn't get any indication from her first grade teachers that she

was having any struggles at all". It was simply a smooth transition for her daughter into first

grade academically even though she had a tougher time socially.

Negative impact of the age of entry policy. The only frustration raised by this group

other than the difficulty in scheduling a half-day program, was that of Ms. Suggitt. Similar to

Ms. Lee, she described a situation where her son missed the age cutoff for enrolling in Mount

Olive and like Ms. Lee, was enrolled by his parents in the full-day kindergarten program at

Goddard School. While Ms. Lee was critical of the policy that caused him to repeat

kindergarten, Ms. Suggitt focused more on her son's academic needs and wanted more support in

extending his learning during the kindergarten year. She stated, "I think he had already learned everything. It was basically like a repeat year for him." In his case, he came in already knowing how to read, and she described him as being "bored" during the kindergarten year. To assist with this, the teacher arranged a pullout program that would give him extra challenges, but the mother still felt that he was in a holding pattern as most of the teaching was geared towards the "middle". Ultimately, she described her son as still being "slightly above average" in second grade, but she questions if he could not have been placed on a higher trajectory if he was challenged more in kindergarten.

Comparison of the Findings to the Initial Logic Model

In the design of the K-Excel Program, a logic model was used to identify possible outcomes from the program (Figure 2). As a result of the data collected, it can be compared and assessed with the actual data to revise the model. The proposed pathways that would lead students to improved readiness for first grade and subsequent achievement were identified in this model to include increased parent involvement, increased exposure to language arts components, and increased social and emotional outcomes. It was found through the interview data that the teachers perceived the increased time on literacy helped students acclimate easier to first grade because of their literacy skills. More students started in higher reading groups and came in more prepared as a result of the K-Excel Program. While this was also due to a change in the curriculum, the perception overall was that the full day helped with literacy preparation. Additionally, students coming from a full-day kindergarten program were reported to adapt more easily to a full day of school in first grade and were more independent and confident.

Not all aspects of the logic model were supported by the data. Of particular note was that the parent nights were effective at letting the parents of K-Excel know what was happening in the classroom and what resources to use, but none of the parents discussed how this knowledge

translated into concrete actions they took to support their children. In comparison to the half-day

parents, the K-Excel parents seemed less likely to reinforce what was happening in the classroom

at home. There was even a counter-example where one parent left the academics up to the

school because she already felt that her child was in a full-day program and, therefore, was

already ahead of her peers.

Additionally, the notion of increased peer time leading to increased social and emotional

intelligence was not supported by the teachers. It was felt that there was so much emphasis on

the academics that play and social skills were not reinforced. This contrasted with what the

parents observed.

While not all the data was supportive of the original model proposed, it offers important

insight into areas for improvement and refinement within the program. It also offers important

ways that this data can be expanded upon through future studies that help to guide program

decisions within Mount Olive.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to examine the perceived and actual benefits resulting from the K-Excel Program to recommend program improvements for the district. It was learned through the study that Mount Olive Public Schools has been changing their curriculum and expectations over time to be more rigorous, resulting in successful outcomes regardless of the full or half day programs. At the same time, a variety of informal strategies are used in kindergarten and first grade to differentiate the supports for individual students, and parents could choose either a half or full-day program, further differentiating the supports that students received. Perhaps due to the choice of programs and the fact that students were meeting rigorous expectations, the parents and teachers had positive viewpoints of the quality of the kindergarten programs. However, several areas were also identified for improvement in the program design. Specifically, the parent involvement needs to be improved for those students in the full-day program as well as the accessibility to the program for students that other research suggests would most benefit from a full-day.

The Politics of Evaluation

Patton (2008) describes in rich detail the ways that politics impact the evaluation process, noting that the only non-political studies are ones where "no one cares about the program, no one knows about the program, no money is at stake, and no power or authority is at stake" (p. 537). During this study, the politics around Mount Olive kindergarten programs was fiercely debated in the community, and it is important to consider this debate when making recommendations.

During this study, the political and fiscal impacts were playing out in board meetings and within the community. On one side of the debate, there was a contingency of families seeking

full-day kindergarten paid for by the schools. Their argument centered on the fact that Mount

Olive was one of only two districts left in the county without full day programs funded through

taxes. However, if the board was to institute such a change it would come with a significant cost

to the school district budget to build classroom space and fund yearly teacher salaries which

would start at $800,000 in the first year.

Despite the costs, this parent group mounted yearly attacks on the board of education to

institute a full-day kindergarten program, leading to a crescendo and fevered pitch in the spring

of 2016.   Parents had organized a petition and were showing up at board meetings throughout

the spring. This organized parental pressure led the superintendent and board of education to

arrange a $7.5 million referendum in September of 2016 that would put the costs of a full-day

program and classroom construction back on the taxpayers. This referendum would permanently

increase the budget enough to pay for the program. It was defeated 1,796 to 865 votes, meaning

that the community did not vote to raise taxes to pay for the program (Garber, 2016). Despite

this referendum defeat, there continues to be pressure on the board and superintendent from

various stakeholders that want it to be carved from the existing budget, a move that would still

require classrooms to be constructed and a yearly annual expense to fund salaries, a number that

would be expected to increase each subsequent year (L. Reynolds, personal communication,

October 4, 2016).

There continues to be counter-pressure from other community members to not transition

to a full-day kindergarten program. The town childcare facility that manages K-Excel benefits

financially from the arrangement by collecting the K-Excel fees and operating at no cost within

the schools. They receive profits from the difference between the tuition costs and the costs of

employing teachers and aides. This financial incentive was enough to cause the director to speak

out publically against adopting full-day kindergarten, write an editorial to the local newspaper

asking people to vote down the referendum, and lobby parents to come to board meetings in support of K-Excel and to speak out against full-day kindergarten. Other parents and board members have also spoken out against full-day kindergarten, citing the deep cuts that would be required to implement the program (Robinson, personal communication December 3, 2016). These cuts would only become more destructive over time as the costs for health care and salaries rise at a higher rate than taxable revenue within the district. As of 2015, the district has already been working at a deficit (Reynolds, personal communication, March 3, 2017).

This study also identified additional parents that wanted the choice of a half-day program for their children. However, they were publically silent, not voicing their support of choice and the benefits of a half-day program at public board meetings because they already had what they wanted through the current system, the option for a half-day kindergarten experience. While it is impossible to see how large this group was from the small qualitative sampling within this study, the fact that this sentiment exists in the parent population indicates that the parents that are pushing for full-day kindergarten are not speaking on behalf of the entire parent population.

Formulating Recommendations

Given this highly politicized environment of perceived winners and losers if full-day kindergarten is implemented, Patton recommends working with stakeholders to "negotiate win/win scenarios" (Patton, 2008, p. 540). Given the outcomes discussed in Chapter IV, the results are not definitive in supporting or refuting the benefits of full-day kindergarten. As seen within the qualitative interviews, the impact is much more nuanced and offers varying degrees of impact for different families and students based on their unique situations. While long-term literacy effects were not distinguishable between groups at the end of first grade, the full-day program did help with transition into first grade academically, socially, and emotionally for certain students. These students did not fall behind because of the program. Instead, they

maintained an academic trajectory like their peers. Additionally, some students were said to have avoided special education classification while still getting what they needed through informal supports. While a cost-benefit analysis examining the savings from students avoiding classification was beyond the scope of this study, it is likely that such a finding may have saved the district both time and money in remediation and special education costs.

Through the careful consideration of each of these points, recommendations were formulated to offer a win-win outcome for the stakeholders and recommended actions for the superintendent and board of education to improve the district kindergarten programs. These recommendations are made with consideration of the political and economic restrictions currently felt by the district.

Recommendation #1: Maintain a Choice of Programs

A one size fits all program should be avoided despite the parental pressures for the district to pay for all students to have a full day program. As shown in the interview data, not all parents want a full-day program and not all students need a full day program to be successful. As noted in the half-day parent interviews, parents sometimes prefer the time with their children and the ability to provide them the reinforcement and resources of their choosing. In addition, studies show that choice contributes to increased parental satisfaction with school (Vasallo, 2000; Wolf, 2008). Just like the findings with school choice, this study supports the notion that many parents carefully weighed options and could select the program that best matched their own needs and the needs of their children. Thus, the parents had a high level of belief in the school program that their child enrolled in. This confidence in the schools and the programs was consistent with the fact that overall, grade level equivalency rates rose among this cohort of students from the pre-test to post-test results.

Recommendation #2: Increase Access to K-Excel

It was clear through this study that K-Excel was important for some students. Specifically, the data suggested that students with special needs, ELL students, and students from families that lacked the time to devote to their children at home likely benefitted the most from full-day programs as seen in the qualitative interviews and within the literature (Gottfried, 2016; Cannon, Jacknowitz, and Painter, 2011; Lahaie, 2008; Lareau, 2011). Additionally, the effect size supported the notion that students who scored low on the Brigance and were on scholarship benefitted from the program with a low to medium effect size of .48.

Even though many of these students were enrolled for scholarships because they scored below the cutoff on the Brigance, it is recommended to extend scholarships beyond only cutoff scores from the screening instrument. Automatically providing scholarships to students on free and reduced lunch, students that are classified with learning disabilities, and who are English Language Learners will help to ensure that the students who would benefit the most from the K-Excel Program receive access to it. In the current cohort, this proposal would have increased K-Excel enrollment by four additional ELL students and ten additional students on the National School Lunch Program. The increased operating cost would amount to approximately $35,000. While this seems high, it is much lower than the costs that would be incurred by instituting a full-day kindergarten program for all students.

Recommendation #3: Create Additional Classroom Space for K-Excel

K-Excel has now had two consecutive years of waitlists from parents wanting to get their children into the program. Since the choice of programs was found to be so important and there is a need to enroll more students who would benefit from the program through scholarships, it is imperative that the schools provide enough classroom space to accommodate the growing demand.

There are two options to remediate this issue. The first is for the principals in each school to seek out scheduling efficiencies within their buildings that could result in additional classroom space. For example, fifty-two students could be split between two classrooms (26 students per class) instead of three (18 students in one class). To permit this, current classroom size policies could be adjusted slightly by the board of education. The second option is to construct or renovate new classrooms as the program expands. To finance this, it is recommended that the district begins charging the outside vendor that provides K-Excel a rental rate for the use of classroom space which would in turn fund new classroom space construction and renovation over time. Initial funds could either come from capital improvement funds all at once and then repaid over time through the rental fees or the construction and renovation can be incremental.

Recommendation #4: Create Home Reading Libraries

The research shows that "learning experiences in the context of the home environment play a central role in shaping the development of children's academic skills during preschool and early elementary school years" (Votruba-Drzal, Li-Grining & Maldonado-Carreno, 2008, p. 958). Although the K-Excel Program attempted to promote parental involvement through the parent nights, there was little evidence of follow through into the home, and this is a clear area where improvement can be made. Ms. Kane suggested one such improvement during her interview by recommending a home library loan program. She explained that parents struggle to find books that are at the appropriate reading level or build the correct skills to supplement what happens in the classroom. Additionally, working parents are busy and would be more likely to use resources if readily provided. To remediate this, she discussed a strategy used in the district where she teaches of sending home book bags once a week that are tailored to the individual needs of the child.

This strategy was also supported within the research as a way of helping both the children and the parents learn new reading strategies. According to Meyer et al. (2016):

> the combination of well-designed materials (e.g. guided-discussion bookmarks, reading records) and a classroom lending library may not only supplement a grade-level curriculum but also may encourage family participation in shared book reading and promote communication between home and school (p. 272).

Additionally, when the reading reinforces the in-school learning, the students were found to connect the reading in meaningful ways within the classroom by recalling more from their personal experiences. The authors suggest that a systematic method be implemented by librarians, parents and fellow teachers to create a high-quality list of resources as well as ways to inform parents about the strategies they should use at home with the readings. Such a system could work in Mount Olive to strengthen the home-school partnership, a strategy not yet utilized.

Recommendation #5: Continue to Provide Quality Curriculum and Professional Development

While the teachers and parents were pleased with the curriculum, the quality is the most important factor, not the quantity (Kauertz, 2005). According to Davies and Cress (2010):

> Through the purposeful integration of academics into carefully selected play activities, children are able to learn specific concepts, skills, and abilities. The balance between academics and other important learning objectives is often a fundamental issue (p. 19).

The researchers argue that the way to meet academic standards and help students to grow socially is through this play-work model. Having observed the K-Excel classrooms, this model is currently employed throughout the program. However, by offering additional professional development and ensuring that the observation model used emphasizes and coaches teachers to focus on these methods, the social outcomes observed can improve without sacrificing the academic learning that was clearly shown to be a strength in the current kindergarten model.

Recommendation #6: Create Informational Pre-school Outreach Programs

Helping parents select the right program and time for enrollment is incredibly important. Through this study and in the context of the larger political debate about the importance of full-day kindergarten, a number of issues were raised that demonstrated that some parents did not have a clear understanding of how their decisions would impact their children over time or a realistic understanding of the advantages of a full-day kindergarten program. For example, one parent enrolled a student in a private full-day kindergarten program a year earlier than Mount Olive's enrollment policy allowed. The purpose noted was to ensure he would have the challenge he needed. Then, the child had to repeat their kindergarten year because they were not old enough for first grade, leaving the child bored in school. Other examples were seen in parent red-shirting their children. Even though this initially helps students academically, the long-term benefits are disputed, but it ultimately causes a student to enter the work force a year later than he or she likely would have (Dagli & Jones, 2013). By arranging parent advisory and information nights through local pre-school groups, parents can gain more guidance and support in making the decisions that avoid some of these pitfalls. This can be supported with parent pamphlets that outline the research and help parents best evaluate what is right for them and their children.

Another reason that this step is advised is to ensure that the parents in the community have a clear understanding of what full-day kindergarten does and does not lead to in the way of student achievement. The parent groups seeking a full-day kindergarten program have espoused its importance with academics and that it is needed for students to compete in the rigorous curriculum of the district. However, the literature and my study have shown that full-day kindergarten is not necessary for every child and that some parents provide external learning opportunities that may be better than what they get from more time in a structured classroom. As

for the rigors of the curriculum, the teachers have reported that both the standards of what is

expected and the rigor of the curriculum has been significantly improved over time and that

students in Mount Olive are stronger than the transfer students that enter our schools from other

districts.

Limitations of the Study

A key limitation of causal studies in education such as this one is the inability to

randomly assign students. In the case of this study, PSM had to be utilized to approximate a

random assignment. However, this process attempted to control for all outside circumstances

that could predict a score on the Brigance Early Childhood Screen and, ultimately, a post-test.

This is a significant limitation considering the complexity of variables that could influence a

child's academics beyond just the extra literacy time in K-Excel. Unknown variables included

preschool enrollment, a measurement of parental involvement outside of the classroom, and even

enrollment in other programs outside of the hours the children spent in Mount Olive schools.

Because these variables were not available to the researcher, they could not be balanced in the

PSM. While these factors may be controlled in future studies, the degree to which they seemed

to impact the study was not realized until the qualitative interviews demonstrated their

importance. Such a finding reinforces the importance of mixed method studies and exemplifies

how the qualitative findings can help to enhance the quantitative components of future studies.

A second limitation of this evaluation is that its intent is to inform local policy and

decision makers. It is not intended to generalize to other communities or suburban districts the

recommendations mentioned here. As shown in the research, the context of this evaluation is

unique to Mount Olive and even the local politics and financial standing of the district must be

taken into consideration when offering recommendations. Therefore, no claim can be made that

the findings would be consistent in other communities or that the same recommendations should

be made to other programs. However, what may be of value to other practitioners are the

research methods employed to systematically and carefully measure the quality of the program.

Additionally, the way in which recommendations were reached may also be helpful in

demonstrating how the larger political and fiscal contexts of the district along with the local

research and literature can come together to offer possible program improvements.

Future Research Considerations

A number of studies can build upon this initial study to further evaluate the K-Excel

Program and its value within the schools. At the time of this research, it was the first K-Excel

cohort that was being measured. However, since this study began, additional years of data are

now available to be compiled and compared to see if the findings remain consistent from year to

year and to further assess areas for improvement.

A second extension to this research study comes from the findings that some students

were reported to have avoided special education classification because they received early

interventions through the K-Excel Program that they would not have received in half-day

kindergarten. It would be important if this were confirmed as the savings from early

interventions that prevented subsequent special education classifications and possibly retention

might be considerable. Such a study would be important in considering the overall worth of the

K-Excel Program if the claims were further studied and substantiated.

A third recommended extension is to examine in greater detail the outside supports that

children receive that might be important to their academic development. In particular, collecting

data on preschool enrollment, the amount of time families devoted in the home to academics, and

registration information from other programs that help students academically after the school day

would all be helpful in parsing out the effects not only of K-Excel but those outside supports as

well. A much more comprehensive study of the entire home-school ecology would likely offer

greater insight into the effects of a full-day kindergarten program on suburban students.

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APPENDIX A

Parental Permission Cover Letter

Mount Olive Township School District
"Children are our first priority"

Peter J. Hughes, Director of Curriculum & Instruction
(973) 691-4008 Extension 8611, phughes@mtoliveboe.org
89 Route 46, Budd Lake, NJ 07828

Date

Dear Parent or Guardian:

I am writing today to first thank you for agreeing to have your child participate in my study of K-Excel. Your willingness to support this study will help inform us about the effectiveness of the program.

I am also writing to invite you to participate in the second phase of the study. I am administering short phone interviews with select parents to follow up on your family's experiences during the kindergarten and first grade years. The interview will only last between fifteen and thirty minutes, but it will offer important insight into your thoughts on our early childhood programs and help us to improve them. I will be contacting you later this week to see if you would be interested in sharing your experiences and to possibly schedule a follow up time for a more thorough interview.

Although participation is completely voluntary, I hope that you will be willing to share your story and help us improve our programs. I look forward to speaking with you!

Sincerely,

Peter J. Hughes

Appendix B

Interview Protocol for K-Excel Parents

Thank you so much for agreeing to speak with me. As you know from my previous letter, I am looking at the overall effectiveness of the kindergarten programs as part of my coursework for Rutgers and would like to ask some follow up questions about your experiences and the experiences of your child during both the kindergarten year and their current time in first grade. In particular, I am looking to describe the individual experiences of families that have participated in our half-day kindergarten programs compared to our K-Excel Program. If you choose to participate, your information will be confidential, meaning that it will not be shared in a way that identifies you or your child. The interview will take between fifteen and thirty minutes of time depending on your answers, and you can choose to not participate at any time.

Although there is no perceived risk to participate, I will provide you with a transcript of the interview, and you will be able to edit or ask for sections to be removed from the interview at any time. The anticipated benefit from participating in this research comes in knowing that you are helping Mount Olive School District evaluate and improve their Kindergarten offerings, and your input is valuable!

1. Did your child attend preschool before coming to Mount Olive? Describe the program length and any information you have about what was taught.
2. What did (child's name) think of school last year?
3. In what ways did having your child in a full-day of school help or inconvenience you during the Kindergarten year?
4. How did (child's name) adjust to a full day of school last year?
5. What does (child's name) think of school this year in first grade?
6. From your perspective, how well did (child's name) transition into first grade (generally)?
7. One of the primary goals of the K-Excel Program was to improve readiness for first grade by increasing reading preparedness. Do you think your child was better prepared for first grade in the area of reading as a result of K-Excel Program?
8. In other academic areas, do you feel that your child was well prepared through the full-day program, please explain?
9. Do you feel that enrollment in a full-day program rather than a half-day program had an impact on your child's academic development? If so, please explain.
10. Do you feel that enrollment in a full-day program rather than a half-day program had an impact on your child's social development? If so, please explain.
11. Do you feel that enrollment in a half-day program rather than a full-day program had an impact your child's emotional growth and maturity? If so, please explain.
12. Other than the areas I have asked about, are there other benefits you would attribute to your child being in the K-Excel Program?
13. In your opinion, do you feel that Mount Olive Schools should move to a full-day kindergarten model for all children? Why or why not?
14. In what ways have the evening parent meetings during the kindergarten year benefited or inconvenienced you as a parent?

15. Have you maintained connections made through the parent nights into the first grade year?
16. During the kindergarten year, how easy was it to partner with the schools and support what was happening in the classroom with activities at home?
17. Do you think it would be beneficial for parents to have a night program that helps them network both among themselves and with school personnel?
18. At this time, I have asked you a number of topics pertaining to the kindergarten programs. Is there anything that I did not ask that you think is important to tell me?

Appendix C

Interview Protocol for Half-Day Parents

Thank you so much for agreeing to speak with me. As you know from my previous letter, I am looking at the overall effectiveness of the kindergarten programs as part of my coursework for Rutgers and would like to ask some follow up questions about your experiences and the experiences of your child during both the kindergarten year and their current time in first grade. In particular, I am looking to describe the individual experiences of families that have participated in our half-day kindergarten programs compared to our K-Excel Program. If you choose to participate, your information will be confidential, meaning that it will not be shared in a way that identifies you or your child. The interview will take between fifteen and thirty minutes of time depending on your answers, and you can choose to not participate at any time.

Although there is no perceived risk to participate, I will provide you with a transcript of the interview, and you will be able to edit or ask for sections to be removed from the interview at any time. The anticipated benefit from participating in this research comes in knowing that you are helping Mount Olive School District evaluate and improve their Kindergarten offerings, and your input is valuable!

1. Did your child attend preschool before coming to Mount Olive? Describe the program length and any information you have about what was taught.
2. What did (child's name) think of school last year?
3. In what ways did having your child in a half-day of school help or inconvenience you during the Kindergarten year?
4. How did (child's name) adjust to a half-day of school last year?
5. Please describe (child's name) adjustment to a full-day of school this year?
6. What does (child's name) think of school now that he/she is in first grade?
7. From your perspective, how well did (child's name) transition into first grade (generally)?
8. One of the primary goals in kindergarten is to prepare children to read in first grade. Do you think your child was well prepared for first grade in the area of reading as a result of the half-day kindergarten program?
9. In other academic areas, do you feel that your child was well prepared through the half-day kindergarten program, please explain?
10. Do you feel that enrollment in a half-day program rather than a full-day program had an impact on your child's academic development? If so, please explain.
11. Do you feel that enrollment in a half-day program rather than a full-day program had an impact on your child's social development? If so, please explain.
12. Do you feel that enrollment in a half-day program rather than a full-day program had an impact your child's emotional growth and maturity? If so, please explain.
13. Other than the areas I have asked about, are there other benefits you would attribute to your child being in the half-day kindergarten program at Mount Olive?
14. In your opinion, do you feel that Mount Olive Schools should move to a full-day kindergarten model for all children? Why or why not?
15. During the kindergarten year, were you able to network with other parents of kindergarteners? If so, how?

16. During the kindergarten year, how easy was it to partner with the schools and support what was happening in the classroom with activities at home?
17. Do you think it would be beneficial for parents to have a night program that helps them network both among themselves and with school personnel?
18. At this time, I have asked you a number of topics pertaining to the kindergarten program. Is there anything that I did not ask that you think is important to tell me?

Appendix D

Interview Protocol for First Grade Teachers

Thank you so much for agreeing to speak with me. As you know from my previous letter, I am looking at the overall effectiveness of the kindergarten programs as part of my coursework for Rutgers and would like to ask you about your observations of the children in your first grade classroom. If you choose to participate, your information will be confidential, meaning that it will not be shared in a way that identifies you or any of your students. The interview will take between fifteen and thirty minutes of time depending on your answers, and you can choose to not participate at any time.

Although there is no perceived risk to participate, I will provide you with a transcript of the interview, and you will be able to edit or ask for sections to be removed from the interview at any time. The anticipated benefit from participating in this research comes in knowing that you are helping Mount Olive School District evaluate and improve their Kindergarten offerings, and your input is valuable!

1. First of all, are you willing to continue to participate in the interview and allow for me to record your answers so they can be transcribed later?

2. Tell me a little about your professional background in early childhood education.

3. From your perspective, how well did your students transition into first grade (generally)?

4. Did you notice any differences in the way the kids adjusted this year?

5. If I showed you a current roster of your students, do you know which students were in the K-Excel Program last year? (Note - - I will ensure that the teacher knows which students were involved in the program at this time if they did not already know)

6. One of the primary goals of the K-Excel Program was to improve readiness for first grade by increasing reading preparedness. Did you notice a difference in the students entering this year in the area of reading? Can you provide me one or two examples?

7. Were your lowest reading level students lower, about the same, or higher than the previous groups that you taught? How do you know?

8. Do you feel that enrollment in a full-day program rather than a half-day program had an impact on your students' academic development in other areas? If so, please explain.

9. Do you feel that enrollment in a full-day program rather than a half-day program had an impact on your students' social development? If so, please explain.

10. Do you feel that enrollment in a half-day program rather than a full-day program had an impact your students' emotional growth and maturity? If so, please explain.

11. Other than the areas I have asked about, are there other benefits you would attribute to your students being in the K-Excel Program?

12. In your opinion, do you feel that Mount Olive Schools should move to a full-day kindergarten model for all children? Why or why not?

13. One component of the K-Excel Program focused on working on parenting skills. Have you noticed a difference with the parents from the K-Excel group in the way parents communicated with you? Please describe.

14. Do you think it would be beneficial for all parents in Kindergarten to have a night program that helps them network both among themselves and with school personnel?

15. At this time, I have asked you a number of topics pertaining to the kindergarten programs. Is there anything that I did not ask that you think is important to tell me?

Appendix E

ANOVA Analysis of Variables

		Sum of Squares	df	Mean Square	F	Sig.
Separated/Unmarried	Between Groups	.372	1	.372	2.990	.085
	Within Groups	23.523	189	.124		
	Total	23.895	190			
Rental Housing	Between Groups	.440	1	.440	3.255	.073
	Within Groups	25.529	189	.135		
	Total	25.969	190			
Siblings	Between Groups	.364	1	.364	1.646	.201
	Within Groups	41.855	189	.221		
	Total	42.220	190			
Red Shirt	Between Groups	.092	1	.092	1.558	.214
	Within Groups	11.154	189	.059		
	Total	11.246	190			
Young for Grade	Between Groups	1.187	1	1.187	4.935	.028
	Within Groups	45.462	189	.241		
	Total	46.649	190			
Non-English	Between Groups	1.651	1	1.651	11.070	.001
	Within Groups	28.182	189	.149		
	Total	29.832	190			
LEP	Between Groups	.403	1	.403	8.405	.004
	Within Groups	9.073	189	.048		
	Total	9.476	190			
Gender	Between Groups	.000	1	.000	.000	.990
	Within Groups	47.644	189	.252		
	Total	47.644	190			
White	Between Groups	.160	1	.160	.777	.379
	Within Groups	39.002	189	.206		
	Total	39.162	190			
Asian	Between Groups	.001	1	.001	.012	.914
	Within Groups	23.182	189	.123		
	Total	23.183	190			
Other Ethnicity*	Between Groups	.192	1	.192	1.531	.218
	Within Groups	23.703	189	.125		
	Total	23.895	190			
Free/Reduced Lunch	Between Groups	.281	1	.281	3.490	.063
	Within Groups	15.206	189	.080		
	Total	15.487	190			

* Due to low sample size, this variable is comprised of Black, Latino, Hispanic, and Multiracial Students

Appendix F - Correlation Table of Variables used in the PSM

		Scholar-ship	Tuition	Separated/ Unmarried	Rent Home	Sib-lings	Red Shirt	Young for Grade	Non-English	LEP	Gender	White	Asian	Other Ethnicity	Free/ Reduced Lunch
Scholarship	Pearson Correlation	1	-.217**	.125	.130	.093	-.090	.160*	.235**	.206**	-.001	-.064	-.008	.090	.135
	Sig. (2-tailed)		.003	.085	.073	.201	.214	.028	.001	.004	.990	.379	.914	.218	.063
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Tuition	Pearson Correlation	-.217**	1	-.078	-.175*	.084	-.040	-.093	-.117	-.093	-.019	.084	-.030	-.078	-.124
	Sig. (2-tailed)	.003		.282	.016	.250	.584	.198	.106	.199	.797	.249	.684	.282	.087
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Separated/ Unmarried	Pearson Correlation	.125	-.078	1	.299**	-.056	-.046	.004	.209**	.168*	.069	-.129	.172*	-.004	.286**
	Sig. (2-tailed)	.085	.282		.000	.445	.525	.959	.004	.020	.340	.076	.018	.952	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Rents Home	Pearson Correlation	.130	-.175*	.299**	1	-.174*	-.114	.139	.323**	.152*	-.007	-.065	.107	-.022	.361**
	Sig. (2-tailed)	.073	.016	.000		.016	.116	.054	.000	.036	.928	.372	.142	.764	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Siblings	Pearson Correlation	.093	.084	-.056	-.174*	1	.090	-.051	-.135	-.085	.111	.095	-.195**	.070	-.015
	Sig. (2-tailed)	.201	.250	.445	.016		.216	.480	.062	.242	.126	.192	.007	.333	.833
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Red Shirt	Pearson Correlation	-.090	-.040	-.046	-.114	.090	1	-.222**	-.127	-.061	.161*	.117	-.105	-.046	.071
	Sig. (2-tailed)	.214	.584	.525	.116	.216		.002	.080	.403	.026	.107	.148	.525	.332
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Young for Grade	Pearson Correlation	.160*	-.093	.004	.139	-.051	-.222**	1	.116	-.011	-.178*	.031	.017	-.056	-.045
	Sig. (2-tailed)	.028	.198	.959	.054	.480	.002		.112	.875	.014	.670	.818	.440	.537
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Non-English	Pearson Correlation	.235**	-.117	.209**	.323**	-.135	-.127	.116	1	.480**	.096	-.478**	.448**	.171*	.219**
	Sig. (2-tailed)	.001	.106	.004	.000	.062	.080	.112		.000	.185	.000	.000	.018	.002
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
LEP	Pearson Correlation	.206**	-.093	.168*	.152*	-.085	-.061	-.011	.480**	1	.083	-.318**	.309**	.102	.257**
	Sig. (2-tailed)	.004	.199	.020	.036	.242	.403	.875	.000		.253	.000	.000	.161	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Gender	Pearson Correlation	-.001	-.019	.069	-.007	.111	.161*	-.178*	.096	.083	1	-.028	.026	.010	.040
	Sig. (2-tailed)	.990	.797	.340	.928	.126	.026	.014	.185	.253		.702	.721	.890	.578
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
White	Pearson Correlation	-.064	.084	-.129	-.065	.095	.117	.031	-.478**	-.318**	-.028	1	-.638**	-.652**	-.207**
	Sig. (2-tailed)	.379	.249	.076	.372	.192	.107	.670	.000	.000	.702		.000	.000	.004
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Asian	Pearson Correlation	-.008	-.030	.172*	.107	-.195**	-.105	.017	.448**	.309**	.026	-.638**	1	-.168*	.031
	Sig. (2-tailed)	.914	.684	.018	.142	.007	.148	.818	.000	.000	.721	.000		.020	.665
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Other Ethnicity*	Pearson Correlation	.090	-.078	-.004	-.022	.070	-.046	-.056	.171*	.102	.010	-.652**	-.168*	1	.234**
	Sig. (2-tailed)	.218	.282	.952	.764	.333	.525	.440	.018	.161	.890	.000	.020		.001
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191
Free/ Reduced Lunch	Pearson Correlation	.135	-.124	.286**	.361**	-.015	.071	-.045	.219**	.257**	.040	-.207**	.031	.234**	1
	Sig. (2-tailed)	.063	.087	.000	.000	.833	.332	.537	.002	.000	.578	.004	.665	.001	
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191

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

'. Correlation is significant at the 0.05 level (2-tailed).