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**The Effect of Public School Preschool, Private School Preschool,
and No Preschool Attendance on Kindergarten Students'
Academic Achievement as Measured by Fall, Winter, and Spring
MAP Scores**

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The Effect of Public School Preschool, Private School Preschool, and No Preschool
Attendance on Kindergarten Students' Academic Achievement as Measured by Fall,
Winter, and Spring MAP Scores

By

Matthew W. Fenster, ED. D.

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

For a Degree of Doctor of Education

Major: Educational Administration

Under the Supervision of Dr. Jeanne L. Surface, Ed.D.

Omaha, NE

October 2014

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Abstract

The Effect of Public School Preschool, Private School Preschool, and No Preschool Attendance on Kindergarten Students' Academic Achievement as Measured by Fall, Winter, and Spring MAP Scores

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University of Nebraska, 2014

Advisor: Dr. Jeanne L. Surface, Ed.D.

The purpose of this study is to evaluate the effect of public school preschool, private school preschool, and no preschool attendance on kindergarten students' academic achievement as measured by fall, winter, and spring Measures of Academic Progress (MAP) Test scores.

The independent variable conditions for the study were the research district's kindergarten students who attended the research district's school-wide preschool program, who attend a formal private preschool program and who did not attend a preschool program.

The studies dependent variables are academic achievement. Achievement data was analyzed using the following dependent measures: reading skills, math skills, as measured on the Measures of Academic Progress Assessment that is given to all kindergarten students in the research district in the fall, winter, and spring.

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Chapter One

Introduction

During the 2008 campaign for the presidency, Barack Obama promised to help states implement taxpayer-funded universal preschool for all children. As president, Obama bolstered this commitment to early childhood education when he signed the American Recovery and Reinvestment Act of 2009. This Act provided \$5 billion in funding for early childhood programs (Burke, 2009). In addition, President Obama's Early Learning Challenge Grant program pledges to provide additional financial support to early education initiatives with the ultimate goal of supporting each individual states efforts to provide free preschool education to all three and four year old children, regardless of family income. And most recently, in his 2013 State of the Union Address, President Obama took his commitment a step further by calling for universal preschool education. With this amount of federal support pushing to provide free preschool to all children, the question quickly arises: Does the type and amount of preschool exposure affect a child's achievement during their kindergarten year?

Background

Over the past several years, participation in preschool programs has become more and more common. Barnett (2008) shared that in 1960, "just 10% of the nation's three and four year olds were enrolled in any type of classroom. A half a century later, nearly three-quarters of children enroll in preschool classrooms at age four and about half do so at age three and public support for these programs has grown dramatically."

Nevertheless, participation remains far from universal and policies vary across states. In addition, the format of preschool programs can vary greatly from private child care, to

private (paid) preschools, to Head Start, and to free state run preschools. Regardless of the type of preschool program a child attends, various studies show that well-designed preschool programs serving three and four year olds can improve readiness and raise performance on academic achievement tests in the early elementary grades. In addition to academic achievement, preschool programs have also demonstrated a positive impact through reduced rates of grade retention and special education placements as well as higher rates of high school graduation (Laosa, 2005).

Purpose of the Study

The purpose of this study is to evaluate the effect of public school preschool, private school preschool, and no preschool attendance on kindergarten students' academic achievement as measured by fall, winter, and spring Measures of Academic Progress (MAP) Test scores.

Research Question

The research question will be used to analyze achievement of kindergarten students who participated in different preschool programs.

Research Question #1. Are the fall, winter, and spring kindergarten MAP reading scores congruent or different for students who participated in the research district preschool program, a private preschool program, or no preschool program?

Research Question #2. Are the fall, winter, and spring kindergarten MAP mathematics scores congruent or different for students who participated in the research district preschool program, a private preschool program, or no preschool program?

Definition of Terms

Creative Curriculum for Preschool. Creative Curriculum for Preschool is a preschool curriculum published by Teaching Strategies L.L.C. It is comprised of 38 objectives for development and learning, and is aligned with the Head Start Child Development and Early Learning Framework as well as the Common Core State Standards.

Early Childhood Environmental Rating Scale (ECERS-R). ECERS-R is an evaluation tool that measures the day-to-day quality of preschools and childcare programs.

Educare. Educare is a research-based, full-day, year round group of schools that prepare young, at-risk children for school.

Measures of Academic Achievement (MAP) for Primary Grades. MAP tests are online, computer-based assessments that include Screening (diagnostic) tests, Skills Checklist (diagnostic) tests, and Survey w/Goals (adaptive) tests in Reading and Mathematics. Each assessment takes approximately 15-30 minutes to complete. The MAP assessment adapts to each individual student and his or her ability, measuring what the student knows and needs to learn. The MAP test allows us to measure individual student academic growth over time, independent of grade level or age. Individual scores are available immediately after testing, so teachers are provided with timely access to information they will use for instructional planning and school improvement.

Preschool. The term preschool refers to the first formal academic classroom-based learning environment that a child customarily attends. It begins around the age of three or four in order to prepare for the more academically intensive kindergarten, the

traditional "first" class that school children participate in. Preschool is not required. On the other hand, it acts as a way to prepare children to better succeed in a kindergarten. Preschool classes focus on enhancing a child's (1) social development, (2) physical development, (3) emotional development, and (4) cognitive development. They commonly follow a set of organization-created teaching standards in shaping curriculum and instructional activities/goals

Teaching Strategies GOLD. Teaching Strategies GOLD is a comprehensive early childhood assessment system that is based on 38 objectives that include predictors of school success. The assessment is aligned with the Common Core State Standards, the state early learning guidelines, and the Head Start Child Development and Early Learning Framework.

Universal Preschool. The term universal preschool refers to an international movement to make access to preschool available to all families.

Assumptions

This study had numerous strong features. All kindergarteners in the research district had equal opportunity to be included in the random sample used in the study. Participating students all took the same assessments at a similar time due to their classroom teachers following of the research districts assessment guidelines. It is also assumed that students who attended the research district's preschool or a private preschool would score higher on kindergarten assessments than those who did not attend preschool. It is also assumed that students who attend a private preschool would score higher than students who attend the research district's preschool due to the fact that

students who attend the research district's preschool either qualify for special education services or meet the targeted Title I criteria for services. As an administrator at this district, the researcher had ethical access to the student outcome data.

Delimitations of the Study

This study was delimited to the random sample of kindergarten students who began and completed the 2013-2014 school year at the research district. All kindergarten students who attend the research district must take the Measures of Academic Progress (MAP) assessments.

Limitations of the Study

The sample for this study was confined to the research district's kindergarten students who began and completed the 2013-2014 school year. Each of the assessments that were included in the study have been deemed reliable and valid by both the research district and Nebraska's Department of Education. Teachers giving the assessments had been trained in the proper assessment procedures and tests were given at a similar time as directed through the research district's curriculum guides.

Significance of the Study

This study has the potential to contribute to research, practice, and policy. It is of significant interest to educators and parents who want to better understand the impact preschool has on academic achievement.

Contribution to research. Various studies have offered conclusions about the effects that preschool has on academic achievement. The results of this study may inform the theoretical literature on the effectiveness of preschool on future academic achievement.

Contribution to practice. Based on the outcomes of this study, the research school's district may decide whether to complete the implementation of preschool programs at each the elementary schools.

Contribution to policy. Local level policy will be impacted by this study. If the results show that preschool has a positive impact on the academic achievement of students in kindergarten and beyond, a discussion should be generated to consider the expansion of the program to other district elementary schools.

Organization of the Study

The literature review relevant to this study is presented in Chapter 2. This chapter reviews professional literature on Universal Preschool, High Quality Preschools, Kindergarten Readiness, The Effect if Preschool Exposure on Kindergarten Learning, and a Description of the Research District's Preschool and Kindergarten Programs. Chapter 3 describes the research design, methodology, and procedures used to gather and analyze the data of the study. Chapter 4 will report the research results, and Chapter 5 will provide conclusions and a discussion of the research findings.

Chapter Two

Literature Review

Universal Preschool

In his 2013 State of the Union Address, President Obama called for universal preschool education. He said that his administration plans on “working with states to make high-quality preschool available to every child in America” and he proposed to make federal funds available to improve preschool access and quality for children from low and moderate income families (Obama, 2013). This call for universal preschool is not new, as the concept in the United States first began back in the 1960’s. At that time, preschools began to target children with disabilities as well as students from low-income households (Henry, Gordon, & Rickman 2006). Since that time, great debate has occurred regarding the actual impact preschool has on student early learning. Numerous studies have focused on the various benefits of high quality preschool programs for economically disadvantaged children. Many of these studies have found significant positive returns for every dollar spent, but less clear is whether these benefits are the same for children from middle to upper income families as most studies seem to have focused on students who come from poverty.

The three most common longitudinal studies cited when discussing the benefits of universal preschool are 1) the High/Scope Perry Preschool Study, 2) the Abecedarian Project, and 3) the Chicago Child-Parent Centers study. The *Perry Preschool* Project provided a carefully designed half-day preschool program to children from low socio-economic backgrounds, living in Michigan from 1962 to 1967. The project offered small class sizes, teacher home visits, and detailed advice on how parents could assist with the

growth of their child. In following these students through the age of 40 years old, compared to the control group, students participating in the Perry program were much more likely to graduate from high school, be gainfully employed and were less likely to experience teen pregnancies and commit crimes as adults (Bracey & Stellar, 2003).

The *Carolina Abecedarian Project* focused on full day, year round preschool for children of low socio-economics born between 1972 and 1977. Activities in the project focused on social, emotional, and cognitive areas of development but gave particular emphasis to language development. This longitudinal study followed up with participants at age 12, 15, and 21. Major findings of the study showed that compared to the control group, intervention children had higher cognitive test scores from toddler years to age 21, had higher academic achievement in both reading and math in the primary grades through your adulthood, completed more years of education, and were more likely to attend a four year school (Campbell, Ramey, Pungello, & Miller-Johnson, 2002).

Finally, the *Chicago Child-Parent Centers (CPC)* study, which began in 1983, provided preschool education in public schools as well as family support services to low-income families in high-poverty neighborhoods. This longitudinal study followed up with participants at age 21. Major findings showed that compared to the control group, intervention students showed significantly higher rates of school completion, lower rates of juvenile criminality, and lower rates of grade retention (Reynolds, Temple, Robertson, & Mann, 2002).

A longitudinal study with less encouraging results focused on the federally funded Head Start program. This 2012 published study showed that though those receiving

services performed better at the time of kindergarten entrance, but this better performance faded as students progressed through school and was undetectable by the time they reach 3rd grade. Results of this study however were questioned and even considered flawed by many. Their reasoning was that the particular control group in this study was not barred from participating in Head Start with about “13.8 % of four-year-olds and 17.8 % of three year olds” spending a portion of their year in Head Start (Puma, Bell, & et al., 2012).

There are many research studies that highlight the importance of providing universal preschool for all, as well as those which challenge this notion. With the belief that early education improves school readiness and achievement, idea of universal preschool will undoubtedly continue to be a debate for some time to come.

High Quality Preschools

As the old saying goes, anything worth doing is worth doing well. With the call for universal preschools, so comes the call for those universal preschool programs to be of high quality. High quality universal preschool programs are believed to improve kindergarten readiness, lower grade retention and drop out rates, as well as increase academic achievement in the areas of math and literacy through adulthood (Casco, 2010; Diamond & Powell 2011). Research also consistently suggests that children attending high-quality center-based preschools perform better on cognitive tests than children in lower quality settings (NICHD & Duncan, 2003). Furthermore, various studies demonstrate that exposing children to low-quality preschool programs contribute to negative outcomes such as lower achievement, decreased eagerness to learn, and increases in behavior problems (Herbst & Tekin, 2010). So if student success and

achievement is tied to the quality of the preschool program, what does a high quality preschool look like and how is it measured?

The most widely accepted approaches in measuring the quality of a preschool program focus on the aspects of structure quality and process quality. Structure quality is generally regulated through the various State mandates put in place such as Nebraska's Rule 11 (2007), which are Nebraska's regulations for early childhood education.

Structure quality specifically looks at such areas as curriculum content, adult to child ratios, physical space, teacher qualifications, as well as staff supervision and professional growth opportunities (Vandell & Wolf, 2002).

Process quality on the other hand focuses on the actual experiences that a child has throughout their school day. It is often measured through such indicators as classroom climate, teacher/child interactions, peer-to-peer interactions, parent relationship, professional development, and health and safety procedures. For the past 30 years, the Early Childhood Environmental Rating Scale (ECERS), (Cryer, Clifford, & Harms, 2005) has been the most commonly used tool for measuring the process quality of an early childhood program. The ECERS measure uses a forty-three-item scale that measures classroom instruction, structure, hygiene, student-adult interactions, and daily routines (Henry, et al., 2006)

Kindergarten Readiness

Questions that linger in a parents mind before sending their child to school; *Is my child ready to go to school? What skills do they need before they start? What can I teach them to be ready for kindergarten?* Just like gaps in school achievement, research also indicates there are gaps in school readiness. Some children are more prepared to

enter kindergarten than others; this indicates the school readiness gap. (Cross & Conn-Powers, 2011). The following examines school readiness in its components, learning guidelines, and socio-economic impact.

The key to preparing a child for school may not be teaching them their ABC's and 123's. Research is pointing to the importance of social emotional development in the reign of school readiness. Children should be able to identify their emotions, develop play skills, and have opportunity for interactions with peers. Akerman and Barnett (2005) explained that school readiness involves more than academics. Their study showed that teachers rated the importance of a child's maturity in social emotional development higher than the need for their knowledge of letters and numbers (Akerman and Barnett, 2005). Many times parents will focus on their child recalling more of the academic pieces of learning, yet developmentally they are not ready. The academics will come but first the students need to be able to focus and attain to the lesson (Akerman and Barnett, 2005).

With many working parents, children are left with caregivers at an early age. To help lead the way in education, researchers have identified key components children should develop at different age milestones. Much like K-12 curriculum standards, many states have developed Early Learning Guidelines for birth to three and preschool (three to five year olds). The guidelines are provided for early care and education providers to help define the skills and abilities children should develop prior to kindergarten. (Dailey, Burkhauser, & Halle, 2010) In addition to early educators teaching our children, heightening a parent's awareness of these guidelines would benefit them in knowing the developmental areas their child should be working toward.

Come as you are kindergarten is the expectation for many school districts. With that, educators have to be equipped to help all students succeed no matter how prepared they are when they enter the classroom. One important realization that teachers have to consider is that students are from diverse backgrounds and that could make an impact on school readiness. Daily, et al. (2010) report that, school readiness factors also attribute to family status, quality of care prior to kindergarten, and resources available to at risk families prior to entering kindergarten. Socioeconomic status becomes a factor if the community does not have the resources available to support early development and learning. This in turn could be where achievement gaps in student achievement begin.

The *In the Running* project pointed to the benefits of helping children develop cognitive, social emotional, and attention skills before starting school, although they may not completely catch up to their better performing peers (Halle, Hair, Buchinal, Anderson, & Zaslow, 2012). Research supports that school readiness skills are very important prior to students starting school. For some students in which outcomes will be a challenge, school could be the best intervention to help them progress in their skills. Providing opportunities for our young children to attend school and develop these skills early on may be the answer. Early learning can play a critical role in helping students attain these skills. Halle, et al (2012) explains their research points to the interest in raising skills of low-income students in an effort to prepare them for future educational success. Perhaps following the early learning guidelines will assist our providers in reaching more students before they begin kindergarten, therefore helping to close the school readiness gap.

Overall, research points to early learning development as a very important factor in school readiness. Providing students with early opportunities of social emotional skill development is essential. The impact that socio economic status plays on early learning shows up in research as a school readiness gap. It is important that educators try to close this gap by providing learning opportunities and resources to these families. School readiness is more than academics; school readiness involves the multiple faucets in the early stages of development built into the developing child, who is essentially then prepared for school.

The Effect of Preschool Exposure on Kindergarten Learning

The importance of early childhood education continues to be a leading topic in education. School readiness, closing the achievement gap, and school success may all relate back to early childhood in some way. One area of study that has researchers rounding up evidence is in preschool effectiveness. The following describes findings in research studies conducted around the effect of preschool exposure to kindergarten learning.

Multiple studies have been conducted in regard to achievement of children who attended preschool, daycare, or did not attend either. One study was conducted in Virginia Beach City public schools where it compared students who attended the Early Discoveries program, preschool program, and those who had no preschool experience. Kindergarten screening results revealed that those who participated in the Early Discoveries program and preschool program achieved higher scores on the Preschool screening, thus indicating better kindergarten preparedness (Janicki, & Banicky, 2013). Another study revealed that students who attended effective preschool programs proved

gains in cognitive and language abilities. There was no research to prove that more than one year of preschool affected student progress (Barnett, 2008).

Program effectiveness seemed to be a primary factor in preschool effectiveness and student progress. Programs putting fewer resources into the classroom did not often have positive results. Structure and resources alone are not sufficient for high levels of educational effectiveness. Attention must be focused on what teachers teach, teacher student interactions, ongoing staff development and those who support them in a continuous improvement process (Janicki, & Banicky, 2013). Some districts have evaluation tools in place to ensure program procedures and expectations are effective.

Although the initiative for universal preschool is at hand, it is not the reality for all districts at this time. With limited funding some districts have gone to a lottery system or screening for identification of risk factors to determine how to serve the most disadvantaged in their community. Researchers have also looked at the effectiveness of preschool for at risk students, as they prepare for kindergarten. Maria Donovan Fitzpatrick (2008) stated that preschool contributed to students having increased scores in math and reading and show to be more likely on grade level for groups of disadvantaged children living in small towns and rural areas. Other research shows that there is agreement in that early childhood programs can produce gains in disadvantaged children's performance and some programs have seen a reduction in later grade retention and special education placement (Barnett, 1995).

While the research does point to the positive effects of preschool at programs end and leading in to kindergarten, there has been minimal research on longitudinal data to reveal long-term outcomes (Office of the Assistant Secretary for Planning and

Evaluation, Office of Human Services Policy, & US Department of Health and Human Services, 2014). More research has looked at the long-term effects on important life outcomes in late adolescence. The studies did show that children who attended Head Start have a higher rate of graduation, college attendance, and employment. It went on to say that they had decreases in behavior problems, grade retention, and criminal activity when compared to similar children who did not attend Head Start (Office of the Assistant Secretary for Planning and Evaluation, Office of Human Services Policy, & US Department of Health and Human Services, 2014).

The research reveals many positive positions about the effect of preschool exposure to kindergarten learning being beneficial. With appropriate resources and quality training provided to preschool staff, effective preschools are proving increased gains in student achievement. Unfortunately funding is a barrier at this time in some communities that are not able to support universal preschool. The research confirms positive effects of student kindergarten preparedness, with high importance in the benefits to disadvantaged populations. Effective preschools could be key in preparing students for school, closing the achievement gap, and setting the stage for education success (Barnett, 1995).

Description of District's Preschool and Kindergarten Program

The research district provides both high quality preschool and kindergarten programs, which meet all Nebraska Department of Education requirements, for its students and their families. The district currently operates 12 preschool programs in 11 of its elementary school buildings. Each of these preschool classrooms use the Creative Curriculum for Preschool, follow all Nebraska Rule 11 requirements, and are evaluated

yearly using the state mandated ECERS-R evaluation as well as the Teaching Strategies GOLD assessment. District preschools currently serve students with verified disabilities or meet Targeted Title I criteria. Current preschool enrollment in the district is 141 students.

The district currently runs both morning and afternoon sessions in each of its preschool classrooms. Morning sessions run from 9:00 a.m. to 11:45 a.m. and afternoon sessions run from 12:00 p.m. until 2:45 p.m. All programs offer lunch from 11:30 a.m. to 12:15 p.m. for each of its preschool students. District preschool programs follow the district calendar and are in session from August through May. Summer school is offered to all incoming and exiting preschool students as well. Preschool programs are staffed with one certified early childhood special educator as well as two paraprofessionals.

The research district currently operates 35 kindergarten classrooms across its 15 elementary school buildings, which are open to any kindergarten age student living within the research district attendance boundaries. Classrooms follow all State kindergarten early learning guidelines as well as meet all Nebraska Rule 10 (2012) requirements, which are the regulations and procedures for the accreditation of schools within the State of Nebraska. These full day programs follow the district calendar and are in session from 8:10 a.m. to 3:10 p.m. daily. One certified kindergarten teacher and one paraprofessional staff each classroom. Current kindergarten enrollment is 770 students.

Chapter Three

Methodology

This chapter described participants, procedures, independent variable descriptions, dependent measures and instrumentation, research questions, and data analysis.

Purpose of the Study

The purpose of this study was to evaluate the effect of public school preschool, private school preschool, and no preschool attendance on student's academic achievement as measured by fall, winter, and spring Measures of Academic Progress (MAP) Test scores.

Research Design

This 3-group quantitative comparative efficacy study design is displayed in the following notation:

Group 1	Y_1	X_1	O_1	O_2	O_3
Group 2	Y_2	X_1	O_1	O_2	O_3
Group 3	Y_3	X_1	O_1	O_2	O_3

Group 1: Students were randomly selected ($n = 30$) from those kindergarten students who attended a research district preschool program ($N = 123$).

Group 2: Students were randomly selected ($n = 30$) from those kindergarten students who attended a private preschool program ($N = 199$).

Group 3: Students were randomly selected ($n = 30$) from those kindergarten students who did not attend a preschool program ($N = 105$).

Study constant:

X_1 : Kindergarten age participants enrolled in the same school district kindergarten program

Independent variables:

Y_1 : Students participated in a research district preschool program

Y_2 : Students participated in private preschool program

Y_3 : Students did not participate in a preschool program

Dependent variables:

O_1 : Fall Measures of Academic Progress (MAP) progress scores for reading and mathematics

O_2 : Winter Measures of Academic Progress (MAP) progress scores for reading and mathematics

O_3 : Spring Measures of Academic Progress (MAP) progress scores for reading and mathematics

Participants

Number of Participants. Students from the 2013-2014 kindergarten class who were enrolled in a district preschool program, a private preschool program, or no preschool program were eligible to take part in this study ($N = 427$). Study participants consisted of three randomly selected groups. Of the 427 students eligible to take part in the study, 123 were classified as students who attended the research district's school-wide preschool program ($n = 123$, 28.8% of participants), 199 were classified as students

who attended a private preschool program ($n = 199$, 46.6% of participants), and 105 were classified as not attending a preschool program ($n = 105$, 24.5% of participants).

Random samples were used which allows the researcher to make generalizations about the populations from which they were selected (Gravetter & Wallnau, 2013). A random number generator was used to select the sample from each of the program groups. This ensured that each student in the different preschool program groups had an equal chance of being chosen (Best & Kahn, 2006).

Gender of participants. Of the possible 427 participants, 46% were female ($n = 196$), and 54% were male ($n = 231$). These numbers are representative (or somewhat different than) of the district gender averages for kindergarten, which are 48% female and 52% male.

Age range of participants. All students in the study were from ages four to six and were registered kindergarteners at the research district during the 2013-2014 school year.

Racial and ethnic origin of participants. Of the total number of possible participants ($N = 427$), 1.9% were American Indian/Alaskan Native, 2.3% were Asian, 9.0% were Black; not Hispanic, 10.0% were Hispanic, and 1.8% were Native Hawaiian or Pacific Islander, and 74.8% were White; not Hispanic. It is expected that the randomly selected kindergarteners participating in this study will mirror the district's demographics.

Method of participant identification. All of the possible participants ($N = 427$) were enrolled in kindergarten during the 2013-2014 school year and had to remain enrolled throughout the entire school year. Code numbers were used to track and identify

students and their performance. No students were identified by name and no information was released beyond the scope of this study.

The study analyzed data from the research district's fall, winter, and spring Measures of Academic Progress (MAP) scores.

Research Question

The research question will be used to analyze achievement of kindergarten students who participated in different preschool programs.

Research Question #1. Are the fall, winter, and spring kindergarten MAP reading scores congruent or different for students who participated in the research district preschool program, a private preschool program, or no preschool program?

Research Question #2. Are the fall, winter, and spring kindergarten MAP mathematics scores congruent or different for students who participated in the research district preschool program, a private preschool program, or no preschool program?

Analysis. Data was analyzed using a Two-Way Repeated Measure (ANOVA) with factors of time (fall, winter, spring) and groups (students attending a research district preschool, students who attended a private preschool, and students who did not attend preschool). ANOVA is a parametric test of significance used to determine whether a significant difference exists between two or more means at a selected probability level. An ANOVA was selected, as it is efficient and keeps the error rate under control (Gravetter & Wallnau, 2013). Because of the small sample size, the significance level is .05.

Data Collection Procedures

All study Measures of Academic Progress data was retrospective, archival, and routinely collected school information. Permission from the appropriate school research personnel was obtained. Aggregated group data, descriptive statistics, and parametric statistical analysis was used and reported with means and standard deviations in tables. The independent variable conditions for the study were the research district's kindergarten students who attended the research district's school-wide preschool program, who attended a formal private preschool program and who did not attend a preschool program. The three groups will be mixed in the research district's 35 kindergarten classrooms and at no time were differentiated in any way. However, because two of the district's schools did not complete the winter MAP testing they were excluded from the study, thus only 31 kindergarten classrooms participated. The same district-approved curriculum was used throughout the school year.

The studies dependent variables are academic achievement. Achievement data was analyzed using the following dependent measures: reading skills, math skills, as measured on the Measures of Academic Progress Assessment that is given to all kindergarten students in the research district in the fall, winter, and spring.

Chapter Four

Results

The importance of early childhood education continues to be a leading topic in education. School readiness, closing the achievement gap, and school success may all relate back to early childhood in some way. In his 2013 State of the Union Address, President Obama called for universal preschool education. He said that his administration plans on “working with states to make high-quality preschool available to every child in America” and he proposed to make federal funds available to improve preschool access and quality for children from low and moderate income families (Obama, 2013). With this continued focus, the great debate regarding the actual impact preschool has on student early learning is likely to only grow and the demand for quality research on the topic will only grow as well.

Purpose of Study

The purpose of this study was to evaluate the effect of public school preschool, private school preschool, and no preschool attendance on student’s academic achievement as measured by fall, winter, and spring Measures of Academic Progress (MAP) Test scores.

Research Question

The research questions were used to analyze achievement of kindergarten students who participated in different preschool programs.

Research Question #1. Are the fall, winter, and spring kindergarten MAP reading scores congruent or different for students who participated in the research district preschool program, a private preschool program, or no preschool program?

The means and standard deviations for fall, winter, and spring reading MAP assessments for the three preschool groups are displayed in table 1. Repeated measures two-way nova results showing the difference of fall, winter, and spring reading MAP scores for three preschools of the study are displayed in table 2. As seen in table 2, there was a significant main effect for time $F(2,174) = 208.88, p < .01, \eta^2 = 0.71$. There was also a significant main effect for the preschools $F(2,87) = 5.24, p < .01, \eta^2 = 0.11$. There was a significant interaction between time and preschools $F(4,174) = 2.91, p = 0.02, \eta^2 = 0.06$. Post hoc analysis indicated that there was a significant difference between fall to winter, and winter to spring, kindergarten reading scores for all groups, $p < .01$. There was also a significant overall difference between reading scores for the research district's preschool and the private preschool, $p < .01$, but no overall difference between the research district's preschool and no preschool or the private preschool and no preschool.

Pair Wise Comparisons indicated that on the fall assessment, there was a significant difference between and research district's program ($M = 138.00, SD = 7.92$) and the private preschool program ($M = 144.87, SD = 8.93$). There was no significant difference between research district's preschool and no preschool program, and private preschool program and no preschool program. On the winter assessment, there was a significant difference between the research district's preschool ($M = 147.70, SD = 9.54$) private preschool ($M = 156.77, SD = 9.58$). There was no significant difference between the research district's preschool and no preschool, and private preschool program and no preschool program. On the spring assessment, there was no significant difference among any of the programs.

Research Question #2. Are the fall, winter, and spring kindergarten MAP mathematics scores congruent or different for students who participated in the research district preschool program, a private preschool program, or no preschool program?

The means and standard deviations for fall, winter, and spring math MAP assessments for the three program preschool are displayed in table 3. Repeated measures two-way nova results showing the difference of fall, winter, and spring math MAP scores for the three preschools of the study are displayed in table 4. As seen in table 4, there was a significant main effect for time $F(2, 174) = 257.90, p < .01, \eta^2 = 0.75$. There was no significant main effect for the preschools $F(2,87) = 2.71, p = .07, \eta^2 = 0.06$. There was no significant interaction between time and preschool $F(4,174) = 1.53, p = .20, \eta^2 = 0.03$. Post hoc analysis indicated that there was an overall significant difference between fall to winter, and winter to spring, on the Kindergarten reading scores, $p < .001$.

Pairwise comparisons indicate that on the winter mathematics assessment there was a significant difference between the research district's preschool ($M = 147.80, SD = 11.15$) and the private preschool ($M = 155.27, SD = 9.94$). Also, as with the reading assessment, there was a significant difference from fall to winter, winter to spring, and fall to spring on the mathematics assessment scores for each group.

*Table 1**Descriptive Statistics for Measures of Academic Progress**MAP Reading*

	Research District's Preschool		Private Preschool		No Preschool	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Fall	138.00	7.92	144.87	8.93	142.90	9.42
Winter	147.70	9.54	156.77	9.58	150.97	10.86
Spring	157.70	9.10	161.93	10.96	163.93	11.09

Table 2

ANOVA for Measures of Academic Progress Reading

Source of Variation	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Within Subjects					
Time	2	8354.06	208.88	<.01	0.71
Time*Preschool	4	116.37	2.91	.02	0.06
Error	174	40.25			
Between Subjects					
Preschool	2	1078.85	5.24	<.01	0.11
Error	87	40.00			

Table 3

Descriptive Statistics for Measures of Academic Progress

MAP Math

	Research District's Preschool		Private Preschool		No Preschool	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Fall	139.43	8.32	144.30	10.32	141.97	9.95
Winter	147.80	11.15	155.27	9.94	151.10	10.45
Spring	156.43	12.24	161.97	13.76	162.03	11.59

*Table 4**ANOVA for Measures of Academic Progress Math*

Source of Variation	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Within Subjects					
Time	2	7493.38	257.90	<.01	0.75
Time*Preschool	4	44.39	1.53	.20	0.03
Error	174	29.06			
Between Subjects					
Preschool	2	818.885	2.71	.07	0.06
Error	87	302.06			

Chapter 5

Conclusion and Discussion

In his 2013 State of the Union Address, President Obama called for universal preschool education. With this continued focus, the great debate regarding the actual impact preschool has on student early learning is likely to only grow and the demand for quality research on the topic will only grow as well.

The purpose of this study was to evaluate the effect of public school preschool, private school preschool, and no preschool attendance on kindergarten students' academic achievement as measured by fall, winter, and spring Measures of Academic Progress (MAP) Test scores. Of the possible four hundred and twenty seven students to participate in this study, a sample of ninety students was selected.

Conclusions

The following conclusions may be drawn from the study for the following research questions.

Research Question #1. Are the fall, winter, and spring kindergarten MAP Reading scores congruent or different for students who participated in the research district preschool program, a private preschool program, or no preschool program?

This research question was used to determine whether or not attending the research district's preschool, a private preschool, or no preschool effects kindergarten achievement in the area of reading. All students, regardless of the type of preschool they attended or did not attend made significant reading achievement throughout their kindergarten school year. However, those who attended a private preschool performed significantly better than those in the research district's preschool on the fall and winter

MAP assessment. This difference was not significant during the spring MAP assessment. There was no significant difference in the performance of those who attended the district's preschool or a private preschool when compared to those who did not attend preschool. It is important to understand that student's who attended the research district's preschool have a verified disability, or qualify due to targeted at-risk factors.

Research Question #2. Are the fall, winter, and spring kindergarten MAP Mathematics scores congruent or different for students who participated in the research district Preschool program, a private Preschool program, or no Preschool program?

This research question was used to determine whether or not attending the research district's preschool, a private preschool, or no preschool effects Kindergarten achievement in the area of math. All students, regardless of the type of preschool they attended or did not attend made significant math achievement throughout their kindergarten school year. However, unlike the results found for reading, there was only a significant difference in the performance of those who attended the district's preschool and those who did not attend preschool in the winter MAP assessment. Other than these two groups on this one assessment, there was not significant difference between groups on any other assessment. Again, it is important to note that student's who attended the research district's preschool have a verified disability, or meet the targeted at-risk factors.

Discussion

This study supports the research that attending high quality preschool programs does promote student achievement in later grades. Though it appears that attending preschool does make a difference in kindergarten achievement, it is important to note there are other factors that may affect student achievement.

In this study, the kindergarten MAP data showed that all groups made significant growth in reading and math both from fall to winter, and from winter to spring. The data revealed that students who attended private preschools scored significantly better than those who attended public preschools early in the school year, but that gap closed by the spring assessment. Lastly, study data showed that students who did not attend preschool did not score significantly different than either the research district preschool or private preschool. Although the data showed differences between the various groups' progress, there are many factors that must be considered as to why these differences occurred.

Within the researcher's district boundaries, there are a variety of private preschool programs. When looking at the impact that attending these private preschools have on student achievement, the following factors need to be taken into consideration. Each of these programs has different expectations, a variety of curriculums, and various teacher certification requirements. The private preschools also have tuition requirements, which can restrict the enrollment of children whose families cannot afford to pay. Private preschools also can offer both full and half day programming, which can dramatically influence student progress simply because of the length of their instructional day. In addition, private preschool programs are not required to use the State mandated curriculum that public preschools are required to use, thus curriculum is chosen by each individual private program and varies from program to program. Lastly, it is important to note that many private preschool programs do not serve students with disabilities, and if they do, the required special education services are provided by the public school system in either the child's home, or at the private preschool.

There are also many factors that must be considered when reviewing the student achievement results of students who attended the research district's preschool. The public school preschool program in the researcher's district is free of charge, serving students who qualify for special education and students identified with at-risk factors through a screening process. Special education students receive services from an early childhood special education teacher within the regular education classroom. The curriculum and assessment are followed as set by the Nebraska Department of Education.

As far as students who did not attend preschool, it is unknown what learning experiences these children may have had prior to kindergarten, so speculating on how these experiences impact student achievement data would be premature.

Though students who attended public preschools and those not attending preschools did not perform as high as students who attended private preschool, all groups made advances. When considering background and dynamics of the groups, this may be an important and exciting area for consideration as well. Students in the public preschool are students with verified disabilities or students identified at-risk through a screening process. These students receive preschool services due to having some type of significant delay, thus their progress rate would not be expected to match typically developing peers. Students, who could not afford private preschool or did not qualify for public preschool through the screening process, may have been denied the opportunity for early learning exposure completely. Yet these students showed significant gains as well. This speaks highly of both the research district's kindergarten program.

With significant gains by all groups in the study, it is important to celebrate the quality teaching and the quality curriculum being taught in the research district's

preschool. All kindergarten classes are full day sessions and follow the Nebraska Department of Education curriculum requirements. Intervention and special education time is built in the schedule to help those students in need. With students beginning kindergarten at all different developmental levels, it is important to have a tool like the MAP assessment in place to measure ongoing achievement.

The history of preschool programs date back to 1960's when preschool was offered to students with disabilities and low-income households (Henry, et al., 2006). Fast forward to 2014 and the reality is that this practice unfortunately remains static for some preschool programs. Private preschools are available if families can afford them, otherwise public preschools are limited on funding, therefore forcing them to set guidelines as to who attends.

A common question that is asked by policymakers is: is the money invested in preschool really worth it (Barnett, 2008). Multiple studies, like this study, continue to prove over and over again that high quality preschool with qualified teachers, indeed improves school readiness, especially with students in poverty. With President Obama's call for universal preschool education in his 2013 State of the Union Address, there is hope that federal funds will soon be made available to improve preschool quality and access to our young learners (Obama, 2013).

Implications for Practice

This study supports the research that reveals attending preschool programs does promote student achievement. Though it appears that attending preschool does make a difference in kindergarten achievement, it should be noted that there are other important factors that play into that achievement.

Research consistently pointed to the importance of early childhood program quality and school readiness preparation. In preschool, teaching appropriate developmental stages of learning, supportive teacher-child interactions, providing up-to-date professional development to staff, and getting parents involved in their child's education, are all contributing factors that lay the foundation for future student achievement. The research also confirms that these elements are true for all populations including low income, ethnic, and racial groups (Office of the Assistant Secretary for Planning and Evaluation, Office of Human Services Policy, & US Department of Health and Human Services, 2014).

Implications for Policy

The many benefits of high quality preschool programs are referenced in this study. Allocating more funds for the expansion of early childhood programming in the State will be important moving forward. As the research indicated, high quality teachers along with effective preschool programs can make an impact on our student's future success, both short term and long term (Barnett, 1995). The Research District's preschool program currently has enrollment capacity restrictions and is limited to half-day programs for students with verified disabilities or who meet the targeted at-risk factors due to funding. This leaves many students in the community to seek private preschool programs or they just simply do not attend preschool.

With the rising demands on student achievement, it is now more important than ever to ensure children are prepared for the strict academic focus in school. It is important to note that the research indicated that preschool preparedness involves more than academics; rather it stated focusing on social emotional development is most

important (Akerman and Barnett, 2005). Preschool programs need to have the resources, training, and tools, which focus on social emotional and early learning development of our youngest learners. Students need to be taught how to play, share, interact, regulate emotions, and follow routines. Students will then be more developmentally prepared to learn the academics (Laosa, 2005).

Implications for Further Research

This study confirmed research that supports preschool benefits student achievement, like the ASPE Research brief which revealed findings that identified short and long term positive impacts on student outcomes (Office of the Assistant Secretary for Planning and Evaluation, Office of Human Services Policy, & US Department of Health and Human Services, 2014). Future research topics which maybe drawn from this study may include: a) the benefits of attending preschool for more than one year, and b) do full day preschool programs benefit student achievement more than half-day programs. Researcher W. Steven Barnett indicated that there was no research to support if more than one year of preschool made a difference with student success (2008). While exploring these concepts, looking at different populations of students such as special education, ethnicity, and poverty may provide worthwhile findings as well.

As everything seems to come down to money, another area of focus could be how to expand or access more funds for early childhood education. Preschool programs that are currently funded to provide qualified staff and quality programming in the early years, are a major benefit to our youngest learners and communities. Research says that quality programming and teaching are essential for student achievement. While the opposite also holds true, that exposing children to poor programming and poor teaching

have a negative influence on student achievement and their motivation to learn (Herbst & Tekin, 2010). Programs like the research district's Early Childhood Program, Head Start, or Educare, which serve children birth to five years old not only require strict program requirements; they also have strict parent involvement requirements. These programs embrace students in developmental learning early on, thus providing them a strong opportunity for school success. Future research on how to expand funds to open more quality programs like these is crucial, especially in communities with at-risk populations.

Research District's Kindergarten Achievement Success. This Research demonstrates that kindergarten student's are showing significant growth regardless of where they attended preschool or if they attended at all. It also demonstrates that though students who attend the research district's preschool have verified disabilities or meet the targeted at-risk factors, they achieve at the same rate as those students without disabilities who did not attend preschool. This success demonstrates the importance of early intervention and the difference these high quality early childhood programs make.

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