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The Impact of a Kindergarten Intervention Program on Student Reading Achievement in Primary Grades

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THE IMPACT OF A KINDERGARTEN INTERVENTION PROGRAM ON STUDENT
READING ACHIEVEMENT IN PRIMARY GRADES

By
Tammy S. Voisin

A DISSERTATION
Presented to the Faculty of
The Graduate College of the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Education
Major: Educational Administration

Under the Supervision of Dr. Peter J. Smith

Omaha, Nebraska
July, 2014

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Abstract

THE IMPACT OF A KINDERGARTEN INTERVENTION PROGRAM ON STUDENT READING ACHIEVEMENT IN PRIMARY GRADES

Tammy S. Voisin, Ed. D.

University of Nebraska, 2014

Advisor: Dr. Peter J. Smith

One of the biggest issues in education today is that no common structure exists to serve students before they reach their fifth birthday. There exists opportunities for children to receive social, emotional and educational instruction, but there are no requirements to participate. Commonly, parents of children that have the financial means take advantage of pre-Kindergarten opportunities, but not every family has that benefit. Researchers have discovered this to be the most critical time in terms of social, psychological and intellectual development in young children. For some students, waiting until they enter Kindergarten to intervene is too late.

The purpose of this quantitative study was to explore the effects of a Kindergarten intervention program on student cohort reading achievement scores for primary grades from Summer 2011 to Spring 2013. Thus, this study compared groups mean scale scores on AIMSweb assessments for students who did participate in the Jump Start program to mean scale scores on the AIMSweb assessments on groups of students that did not participate in the Jump Start program. The study also took into account those students from both groups that did and did not participate in a summer intervention.

There were no statistically significant differences of student scores between students that received the Jump Start intervention and those that did not receive the Jump Start intervention.

This study suggests that with the needed program for students that are at-risk, the students in these groups were able to perform at similar levels as their peers that did not meet the at-risk criteria. The study suggests further research on the effects of the Jump Start intervention with larger groups of students, which will be possible as the program grows each year. The study also suggests consideration of district policy on the allocation of dollars to expand this Jump Start program.

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CHAPTER ONE

Introduction

A Downward Spiral

A new group of children enter Kindergarten. On the first day of school they are excited, hopeful and wish to please their teacher. The teacher knows there are students in her class that are already starting to read, a handful that know the letters of the alphabet and their sounds, and a small group that cannot identify any letters at all. She also knows that some of these children live in poverty, some had parents who were not able to send their children to preschool due to financial stress, some did not own any books in the home, and others could not afford the time to read to their children due to working numerous jobs to make ends meet. The teacher divides students into groups based on their literacy skills and starts to intervene right away with those students that seem to already be behind. The students that started behind remain in literacy intervention for their entire Kindergarten year. As these groups of children promote from Kindergarten to 1st grade to 2nd grade, their progress in literacy is different. The students with more exposure to literacy prior to Kindergarten make progress at a proficient or advanced rate. The students that started Kindergarten without any literacy knowledge, those that were in intervention right away, have labored progress and continue to lag behind. Each summer these children are referred to the summer school program, but those that do not attend lose skills, and it may take up to 9 weeks to recoup them; time in which their peers gain skills. As the children that are on grade level start to read and discuss books, the children who struggle start to lose interest and the motivation to read. By the time 3rd grade rolls around, the children that started Kindergarten behind find themselves at the bottom of a

downward spiral with little to no chance to reach success later in school (Torgesen, 2004).

What if we could change this downward spiral for children with limited literacy exposure prior to Kindergarten? Flash back to this same group of children as they enter Kindergarten. This time, let's pretend that the group of children that started behind had been identified by researched factors for children at-risk of slow literacy development, and been enrolled in a Jump Start program prior to Kindergarten. These children would have attended school in the classroom they were soon to begin Kindergarten in, taught by the exact teacher that would be greeting them on the first day of Kindergarten, and instructed in the exact literacy skills they are lacking. The children have an advantage, because only children that qualify are enrolled in Jump Start; therefore the teacher to student ratio is low, which means more individualized attention for each student. This Jump Start to Kindergarten will help provide them basic skills they had not acquired prior, will help connect their parents to the school community, will help their self-esteem as they will now be viewed as leaders on the first day of school already knowing routines, already having established a relationship with the teacher, already have some friends, and perhaps most importantly will give their teachers knowledge on what exact interventions they are in need of from the very first day of school. Now, these children don't start school quite so far behind; they are more prepared, motivated and have a much better chance of not ending up in the downward spiral.

Purpose of the Study

The purpose of this quantitative study was to explore the effects of a Kindergarten intervention program on student cohort reading achievement scores for primary grades from Summer 2011 to Spring 2013.

This study analyzed the scores of four groups of students from three research district's elementary schools. All four groups of students were comprised of research district students who entered Kindergarten during the 2011-2012 school year and were still enrolled in the research district in the spring of grade 1 during the 2012-2013 school year. Students enrolled in the research district in both grade levels were determined through a match of student identification numbers from the research district-secure Nebraska Staff and Student Records System (NSSRS). Group 1 was comprised of research district students who participated in the Jump Start program during the summer of 2011, and who participated in a summer school intervention during the summer of 2012. Group 2 was comprised of research district students who participated in the Jump Start program during the summer of 2011, and who did not participate in a summer school intervention during the summer of 2012. Group 3 was comprised of research district students who did not participate in the Jump Start program during the summer of 2011, and who participated in a summer school intervention during the summer of 2012. Group 4 was comprised of research district students who did not participate in the Jump Start program during the summer of 2011, and did not participate in a summer school intervention during the summer of 2012. Data from the norm-referenced, standardized AIMSweb® assessment system from years 2011 and 2012 was used. Students who took

the AIMSweb® assessments in 2011 and 2012 received the same general curriculum.

All cohort students completed Kindergarten and 1st grade in the study district.

Conceptual Framework

For decades researchers have studied the importance of listening to rich spoken language in both the home and in preschool. In the home, research suggests little ones learn from the conversations they hear and also the language they hear during shared literacy time, which is then built upon in preschool. It has also been well documented that there are differences in skills students bring to Kindergarten depending on their social class (Whitehurst & Lonigan, 1998). Intervening with students before they enter Kindergarten can give students skills to be better matched to peers from more advantaged backgrounds.

This study incorporates two distinct but related concepts related to student achievement in the early grades. These concepts include the impact of poverty and other risk conditions, and the benefits of early intervention in addressing acquisition of reading and language skills.

Even though reading is a skill which most of the general population take for granted, for some subgroups the skill is much more difficult and at times is not obtainable. Even though early language and literacy development can be complicated for typically developing children in middle class and wealthy families, poverty and its implications create more unique situations for teachers and parents to overcome regarding a child's literacy development. Dalhouse & Risko (2008) reported that as many as 13 million American children are living in poverty, and more and more American

families are going to find themselves in in difficult financial predicaments due to the struggling economy.

Most of the children that enter Kindergarten that are identified as being at-risk for reading failure are from two groups. Torgesen (2004) suggests that one of these factors includes the disadvantages that beset children who come from poverty. Hodgkinson (2003) identified additional risk factors for low student achievement in young children. Besides poverty, these factors include low birth weight, living with a single parent, living with a teen mothers, transience, low wage jobs, unemployment, lack of access to health care, poor nutrition, low parent education levels, and lack of contact with English as the primary language spoken in the home. Exposure to multiple risk factors has a strong negative link to students entering school without the foundation for success. However, Hodgkinson (2003) believes that among all of these factors poverty outweighs and magnifies the other risk factors.

Poverty can play devastating effects on early literacy in areas such as the structure of language, letter recognition and print awareness (Hawken, Johnston & McDonnell, 2005). These early literacy skills are crucial to developing higher levels of literacy and are skills that are not well developed in language poor environments. Fewer than 5% of children who receive proper exposure to the foundational skills during early childhood will experience reading difficulties (Landry, Swank, Smith, Assel, & Gunnewig, 2006). Implications of this research should have a huge impact on the programs and instruction offered. However, the current number of students who come to school with a gap in early literacy skills is in the 20-30% range (Landry, et al., 2006).

The Jump Start program outlined in this research is not what is usually described as a preschool program. The Jump Start to Kindergarten program studied here helps provide students preparing to attend kindergarten the basic skills they had not yet acquired. It helps connect their parents to the school community and helps the students' self-esteem. This program also gives their teachers knowledge on what exact interventions they are in need of from the very first day of school. It has been shown that high quality prekindergarten experiences for children can have many positive effects on their future academic and social success. Children who participate in high quality preschool experiences are likely to perform better in math and reading, less likely to require special education, less likely to have discipline problems, and more likely to have good school attendance (Reynolds, 2000). Preschool education can have lasting effects not only in the short term but also long into adulthood (Reynolds, 1994). Studies have shown higher rates of high school completion, lower rates of violence, reduced access to Medicaid, higher levels of academic achievement, and higher parent involvement for those students who attend preschool (Reynolds, 2000).

Another advantage of early intervention programs is a low child-staff ratio that allows the teacher to focus on the educational program rather than behavior and engagement modifications, and gives teachers knowledge on what interventions will be beneficial for the students they from the very first day of school (Campbell, Pungello, Miller-Johnson, Burchinal, 2001; Torgesen, 2004).

Literature Related to the Study Purpose

One of the biggest issues in education today is that no common structure exists to serve students before they reach their fifth birthday. There exists opportunities for

children to receive social, emotional and educational instruction, but there are no requirements to participate. Commonly, parents of children that have the financial means take advantage of pre-Kindergarten opportunities, but not every family has that benefit. Researchers have discovered this to be the most critical time in terms of social, psychological and intellectual development in young children. For some students, waiting until they enter Kindergarten to intervene is too late.

Harold Hodgkinson, a researcher with the Institute of Educational Leadership, delved into the first five years of a child's life and refers to a group of children he calls *Children's Class of 2000*. This class is defined by Census 2000 data, and within this group he examined how poverty and family instability prevent equality of opportunity in education and therefore life. As an outcome of this research, Hodgkinson has identified risk factors for young children. Included in the risk factors are poverty, coming from a single parent home, having a teen mother, transience, low wage job for parents, low parent education levels and lack of contact with English as the primary language, among others (Hodgkinson, 2003). Poverty affected 1/3 of the "class" overall, and was found to magnify all other risk factors.

In 2010-2011 the research district put a program in place to help address this area of need in three elementary schools. The research district is made up of 14 elementary schools. Of these 14 elementary schools, three of the schools were identified in 2010-2011 as schools with the highest number of students at risk of not achieving their full potential based on the percentage of students qualifying for free or reduced lunches and mobility. These two criteria were selected based on poverty having a domino effect on most other risk factors. For example, if a family qualifies for free or reduced lunches,

they meet the criteria for living in poverty. This same family may live in poverty due to a single parent as head of household, one or more parents not holding a high school diploma and therefore not able to hold down a high paying job, or one or more parents being a teen parent and therefore had to drop out of high school. According to the State of the Schools Report for 2011-2012, these schools had a significantly higher percentage of students that qualify for free or reduced lunch (35.33%, 56.01% and 37.59%) as compared to the district average (21.62%). Also, one of these schools had a significantly higher mobility rate (19.34%) as compared to the district average (8.4%). These percentages continue to be more diverse as the years progress. In 2012-2013 the percentage of students that qualify for free or reduced lunch has risen (44.79%, 59.39% and 47.31%) as compared to the district average (21.75%). Mobility has also risen (20.97%) as compared to the district average (8.54%) (Nebraska Department of Education, 2012).

Another area that must be addressed with this population is what occurs over the summer months. In the research district, summer break begins the first week in June and continues until school starts a few weeks into August. Students typically experience about 10 weeks off of school; a transition time before entering the next school year. Students from families that have the financial means to continue learning experiences, take advantage of those. These students may go to the local zoo, attend summer camps, visit museums, engage in literacy-based activities such as the reading club at the local library that encourages books to be read independently, or participate in read aloud time at the library where the rich language of books is shared by an adult and guided discussions are taking place. Some participate in summer sports, and perfect their skills

in swimming; both socially engaging activities. Most of the children in the families that are at-risk do not take advantage of those opportunities, because the parents have to work sometimes several jobs and the children are placed in daycare or stay home alone where watching television or playing video games takes up most of their day. Richard Allington conducted research that found that students from poor families start school in the fall as much as three months behind where they left off prior to summer break, as compared to students from more advantaged homes who actually gained skills over the summer break (2003). If you duplicate this effect over the course of the elementary years alone, a widening achievement gap will emerge between poor and advantaged children that cannot be made up during the school year. Children from poor homes will enter middle school as much as three years behind their peers from more advantaged homes (Smith, 2011/2012; Horizons, 2011). If we could find a way to provide at-risk children similar opportunities as children not at-risk during the summer months, we could prevent the loss of learning we typically see in that population (Goodwin, 2011).

Research Questions

The following research questions were used to explore the effects of the Jump Start program and Summer School on student groups' scores on AIMSweb® assessments from Fall 2011 to Spring 2013.

Overarching Research Question 1: Do students entering Kindergarten who participate in the Jump Start Program have congruent or different letter sound fluency and letter naming fluency as students who do not participate in the Jump Start Program?

Sub-Question 1a: Do students entering Kindergarten who participate in the Jump Start Program have congruent or different letter sound fluency as students who do not participate in the Jump Start Program?

Sub-Question 1b: Do students entering Kindergarten who participate in the Jump Start Program have congruent or different letter naming fluency as students who do not participate in the Jump Start Program?

Overarching Research Question 2: Is the Rate of Improvement (ROI) in letter sound fluency and letter naming fluency during their Kindergarten year for students participating in the Jump Start Program congruent or different from students not participating in the Jump Start Program?

Sub-Question 2a: Do students entering Kindergarten who participate in the Jump Start Program have congruent or different Rate of Improvement (ROI) in letter sound fluency as students who do not participate in the Jump Start Program?

Sub-Question 2b: Do students entering Kindergarten who participate in the Jump Start Program have congruent or different Rate of Improvement (ROI) in letter naming fluency as students who do not participate in the Jump Start Program?

Overarching Research Question 3: Do students entering first grade who participate in the Jump Start Program without summer intervention, students who participate in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start program without summer intervention have congruent or different letter sound fluency, nonsense word fluency, phoneme segmentation fluency, and letter naming fluency scores?

Sub Question 3a: Do students entering first grade who participate in the Jump Start Program without summer intervention, students who participate in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start program without summer intervention have congruent or different letter sound fluency scores?

Sub Question 3b: Do students entering first grade who participate in the Jump Start Program without summer intervention, students who participate in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start program without summer intervention have congruent or different nonsense word fluency scores?

Sub Question 3c: Do students entering first grade who participate in the Jump Start Program without summer intervention, students who participate in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start program without summer intervention have congruent or different phoneme segmentation fluency score?

Sub Question 3d: Do students entering first grade who participate in the Jump Start Program without summer intervention, students who participate in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start

program without summer intervention have congruent or different letter naming fluency scores?

Overarching Research Question 4: Is the Rate of Improvement (ROI) in nonsense word fluency during their first grade year for students participating in the Jump Start Program congruent or different from the ROI in nonsense word fluency of students not participating in the Jump Start Program?

Overarching Research Question 5: At the end of 1st grade, are the raw scores on the Reading Curriculum Based Measurement congruent or different for students who participate in the Jump Start Program without summer intervention, students who participate in the Jump Start Program with summer intervention, students who do not participate in the Jump Start Program without summer intervention, and students who do not participate in the Jump Start Program with summer intervention?

Overarching Research Question 6: At the end of 1st grade, is the frequency of students who score in the above average, average, and below average range on the Reading Curriculum Based Measurement congruent or different for students who participate in the Jump Start Program without summer intervention, students who participate in the Jump Start Program with summer intervention, students who do not participate in the Jump Start Program with summer intervention, and students who do not participate in the Jump Start Program without summer intervention?

Definition of Terms

Summer Intervention: Students who participate in Jump Start as pre-Kindergarten students are automatically enrolled in Summer Intervention. Summer Intervention is a half-day teacher lead program with other grade level students in an

elementary school setting over the course of summer vacation. Students receive instruction using research based literacy interventions.

Jump Start: Students who meet at risk criteria attend a program 3 weeks prior to the beginning of their Kindergarten year at their home school setting. The Jump Start program includes instruction in literacy, math, music and movement, and instruction on school routines. As part of the Jump Start program, teachers engage the parents in home visits once during the 3 week intervention and then twice each school year through the student's 3rd grade year.

AIMSweb®: A web-based assessment program for universal screening, progress monitoring, and data management. **AIMSweb®** provides student achievement data based on direct student assessment in four literacy readiness areas: letter sound fluency, letter naming fluency, phoneme segmentation fluency, nonsense word fluency, and one reading assessment: Reading Curriculum Based Measurement.

AIMSweb® Letter Sound Fluency: This assessment measures the ability to name letter sounds given a single letter in a set amount of time.

AIMSweb® Letter Naming Fluency: This assessment measures the ability to name letters given a single letter in a set amount of time.

AIMSweb® Phoneme Segmentation Fluency: This assessment measures the ability to verbally segment a word into the sounds of that word in a set amount of time.

AIMSweb® Nonsense Word Fluency: This assessment measures the ability to verbally say all the sounds in a given word in a set amount of time.

AIMSweb® Reading Curriculum Based Measurement: This assessment measures the ability to read correct words in a grade level passage for a set amount of

time.

AIMSweb® Rate of Improvement (ROI): A number that indicates a student's growth on a particular AIMSweb® assessment over a given amount of time.

Assumptions

This study has several strengths. All teachers in the district study have a minimum of a four year bachelor's degree. Each teacher engages in the same district training on the Jump Start program, which includes a full investigation into the curriculum. The curriculum for the Jump Start program is designed by the district's highly qualified Literacy Facilitators. Each building's Jump Start program is allocated the same per pupil budget, and Jump Start enrollment is proportional to the building's percentage of students that qualify for free or reduced lunch pricing. All Jump Start building programs are allocated a 10:1 ratio of para professionals to students and a 7:1 ratio of students to teachers. The research district is committed to this particular early intervention program and following participants through 3rd grade to study longitudinal effects. Finally, all material that is used during Summer School is aligned with the study district's regular school year Literacy curriculum including effective researched based reading interventions.

Limitations/Delimitations of the Study

This study has some limitations and delimitations. One limitation of this study is that the researcher is the administrator of the program. Another limitation is that the Jump Start program is funded by an outside source, and the funds are limited to a set budget. The size of the population is limited in some of the subsets of students, so generalization to other populations is limited. An additional limitation comes from the

difficulty in assessing reading skills at such an early age. This is because children are still developing reading skills and have not yet learned to read. This is compounded by the limitations brought about by poverty and other risk factors. One final limitation is that the study is restricted to only three of the Title I buildings in the study district, therefore limiting the number of students and teachers who can participate. The delimitations of this study are that this study only takes place in one suburban school district. The study monitored student progress over two years, so it limited the ability to generalize into subsequent elementary years.

Significance

Contribution to Research. A review of professional literature suggests that more research is needed in the area of pre-Kindergarten intervention, especially for students who are at risk for academic struggles. Furthermore, the results of this study will be shared with the district's Superintendent's cabinet on the impact of the Jump Start program on students at risk.

Contribution to Practice. Based on the outcomes of this research study, the district may decide to revise its current offering of the Jump Start program into additional elementary schools, change the criteria for students to access pre-Kindergarten interventions, or alter the summer intervention offerings for students.

Contribution to Policy. Based on the outcomes of this research, the district may decide to revise the current School Board of Education policy on summer intervention or pre-Kindergarten intervention as well as the number of elementary schools that may take advantage of the Jump Start offering.

CHAPTER TWO

Review of Literature

This chapter provides information on the need for early intervention, the types of students that early intervention is most effective for, and the need for at-risk students to receive continuous year long instruction.

Kindergarten Readiness

Intervening in a struggling student's school career early is certainly helpful to those students, but would it be more helpful, would it make a bigger difference in a child's overall school career, to intervene earlier? When a child enters Kindergarten, multiple assessments begin to identify where that student is in their own learning. It may take a full semester to discover that a student, while initially identified as being behind on Kindergarten assessments and at-risk due to poverty or other at risk factors, does not have a foundational knowledge base comparable to his same aged peers and thus is struggling to keep up. According to Harold Hodgkinson (2003), "waiting until Kindergarten...is simply too late". Schools need to intervene earlier with students who are at risk for academic failure; before their Kindergarten year.

Early Intervention

In order to reach target benchmarks at a task, a child must progress at a rate that is acceptable and not fall behind. If this child is a poor reader in 4th grade, it did not just happen at that grade. More than likely, this child was not reaching benchmarks in Kindergarten and 1st grade in phonological skills. Eventually, without the foundation set in phonological skills, the child was not able to identify unknown words in reading material and the motivation to read slowly began to decline. The child did not reach

benchmarks in 1st, 2nd, and 3rd grade either. By the time 4th grade approached, the child found himself at the bottom of a downward spiral with little to no chance to reach benchmarks later in school (Torgesen, Fall 2004).

According to the reauthorization of the Elementary and Secondary Education Act, known as the No Child Left Behind (NCLB) Act of 2001, all students need to be 100% proficient in reading and math, as evidenced by state mandated tests, by the school year 2013-2014 (No Child Left Behind Act, 2001). *All students*, no exceptions. The flaw is that the law is assuming that all students begin at the same starting point, all have an equal race to run, and all are equally capable of successfully clearing the hurdle given enough practice. The reality is much different than the assumed.

The ability to read fluently and with full comprehension is a skill which most of the general population take for granted as it was not a struggle to obtain, but for some subgroups the skill was much more difficult and at times was not obtainable. Most of the children that enter Kindergarten that are identified as being at-risk for reading failure are from two groups (Torgesen, 2004). The first group has adequate oral language ability, but lack skills in the phonological domain. This is a weakness that can be remedied with early intervention and discrete practice in phonological skills; extra practice and attention in Kindergarten. The second more concerning group are a group of children that come from poverty. In addition to the weaknesses displayed by the aforementioned group, these students display weaknesses in a much broader range of reading including weaker vocabularies and a small background knowledge base.

Economic Group Differences

Researchers may be able to explain the reason children from lives of poverty are at-risk in learning to read by examining the utterances heard as a small child in their home and the resources available to them. Betty Hart and Todd Risley (2003) observed 42 families for an hour each month in their natural environment over the course of 2½ years. Their goal was to observe small children in their language development years and record the language they were exposed to. They divided the family group into subgroups based on their socio-economic status resulting in three groups: professional, working-class and welfare. Their results indicated that children from professional families had more average utterances per hour (310), had a larger vocabulary size (1116), and averaged more different words per hour (382) than their peers in working-class families (223, 749, 216) and welfare families (168, 525, 149), with children in welfare families having the least. Hart and Risley also examined the types of utterances heard in all three homes. They recorded 6 encouragements to 1 discouragement per hour in the professional family, 2 encouragements to 1 discouragement per hour in the working-class family, and 1 encouragement to 2 discouragements per hour in the welfare family. Using this data and applying it to the first four years of life, it is possible that by the time the child in a welfare home reaches the age of four the child would hear 144,000 fewer encouragements and 84,000 more discouragements than the working-class family. This data is particularly concerning given Fan and Chen's research (1999) that studied the effects of parent involvement on academic achievement. They found the strongest factor in a student's home was the level at which parents communicated high expectations for their children.

When studying the resources available to children in their home from birth to five years of age, Valerie Lee and David Burkam (2002) found a difference in beginning Kindergartener's school readiness skills when comparing children from different socioeconomic homes. They found a large difference in the children's ability to recognize letters of the alphabet (39% Low SES, 85% High SES), identify beginning sounds of words (10% Low SES, 51% High SES), identify primary colors (69% Low SES, 90% High SES), count to 20 (48% Low SES, 68% High SES), and write own name (54% Low SES, 76% High SES). They also studied the amount of time these children were read to prior to entering Kindergarten, and found that children in low SES homes were read to much less often; 63% versus 93% were read to three or more times per week. They also found that children in low SES homes owned just 38 books compared to 108 books found in the high SES homes.

Hodgkinson (2003) identified risk factors for low student achievement in young children. The risk factors include poverty, low birth weight, living with a single parent, living with a teen mothers, transience, low wage jobs, unemployment, lack of access to health care, poor nutrition, low parent education levels, and lack of contact with English as the primary language spoken in the home. Exposure to multiple risk factors has a strong negative link to students entering school without the foundation for success. Hodgkinson (2003) states that while it is "important to recognize that while poverty is only one of the risks that many children are exposed to, it magnifies all other risk factors" (p. 6).

Duncan and Magnuson (2005) back up Hodgkinson's findings with similar research. They examined the nation's most comprehensive assessment of school

readiness among Kindergarteners: The Early Childhood Longitudinal Study of 1988 (ECLS-K). While they found significant gaps among racial groups, an interesting factor emerged: the racial gaps and socio-economic status closely aligned with gaps in test scores, meaning that the gaps may be more indicative of economic status rather than race. Duncan and Magnuson also examined hardships in their study, some of which are poverty, maternal high school dropout, single parent status, no job, low-quality neighborhood, three or more siblings, residential instability, spanking, few children's books in the home, low birth weight, teen mother and maternal depression. They found nationwide, more than 50% of children are exposed to at least one hardship or risk factor, while 18% of Hispanic and 29% of black children are exposed to four or more hardships. Duncan and Magnuson believe, from their examination of the research, that this accounts for nearly half of the documented achievement gap between minority and nonminority students.

Impact of Early Intervention

One of the most well-known long term studies of preschool intervention is the *Perry Preschool Project*. This study began in 1962 with a group of 3 and 4-year olds, and continued each year with adding more children until five groups of children were involved in the study. The children were selected as participants based on their family socioeconomic status, resulting in 123 black children from low SES homes who were at-risk for school failure. The children were divided into an experimental group and a control group and tracked through their childhood and adolescent years until a final analysis was completed for each group at age 19. The children in the experimental group, who received early intervention in the form of a preschool program, fared well at

age 19. Of the 123 children tracked over the course of their childhood and adolescence, the researchers were able to obtain outcomes from approximately 121 of them. They found that children that were given the preschool opportunity had higher rates of graduation and college training, had fewer accounts of ever being arrested, had fewer teen pregnancies, more had jobs at age 19 and less were dependent on welfare (Schweinhart, Berrueta-Clement, Barnett, Epstein, & Weikart, 1985)

On a larger scale, a meta-analysis of research was conducted by Kevin Gorey and colleagues (2001) at the University of Windsor on the long-term effects of preschool intervention. The studies were selected based on those interventions that exclusively studied children who were deemed at-risk for school failure by risk factors similar to those described by Duncan and Magnuson as well as Hodgkinson. The meta-analysis included 18,000 students at more than 200 preschool sites. The preschool programs differed in intensity, duration, age of participants and type. Long-term follow-up of these students showed that participating in an early preschool program of some sort, decreased the chances that a student would be retained a grade, would drop out of high school, would be on welfare as an adult and had been charged with criminal behavior or have lead a criminal lifestyle as an adult. The study also suggests that as the intervention increased in intensity, so did the positive effects. Through these findings, there is strong support to suggest that early intervention, before Kindergarten, and continued intervention in their early schooling years can have a positive effect on a person's life long-term.

The United States Census paints a picture of what Hodgkinson calls the "Children's Class of 2000". He believes that the most important criterion of all is

poverty, and it affects nearly one-third of the overall class. The child who is being raised by a single mother is two to three times more likely to be raised in poverty as a child being raised by two parents. About 7% of babies in the class are the victims of low birth weight, but if you only examine babies born to black mothers this rate increases to 13%. About 12% of the class is born to teenage mothers. Teenage mothers are almost certain to be in a home of poverty. Teenage mothers may not have finished high school, and it is likely that she will not read to her child. Half a million of this class are being raised in families that speak no English, and 43 million of the students in this class move more often than their peers of wealthier homes.

The notion of waiting *five years* for an at-risk child to come to the public school system seems absurd. Identifying the pre-Kindergarten students at-risk for reading failure, and intervening the summer before their entrance into school could be advantageous for their school success. As suggested by Goodwin (2010):

If we could provide disadvantaged children with learning experiences similar to what more advantaged children typically receive during the summer – when they enroll in camps, take trips to libraries and museums, and develop their talents in music, art, and sports - we could likely boost the summer learning rates of less-advantaged students to be more on par with that of their more advantaged peers. In doing so, we could reduce their summer learning gaps” (p. 95-6).

Continuous Instruction

Another factor to consider for students at-risk of reading failure is continuous instruction. Students who are identified as at risk for academic failure need to be instructed continuously over the course of the school year in order to continue to maintain

skills necessary for success. Many researchers have studied the *Summer Slide*, a term used to describe regression during the summer months, and many have discovered there is a difference between how much regression occurs between different types of students.

Karl Alexander, Doris Entwisle and Linda Olson (2007) conducted a longitudinal study consisting of students from 1st grade through age 22. Their research indicated that during the school year there was no difference in the progress students made, but during the summer months students from low-income homes regressed more. As they tracked students, they also found that the same class of low-income students had gotten far behind their middle-class peers by 9th grade, and they concluded that two-thirds of the reading achievement gap between low-income students and middle-income students could be attributed to lesser summer opportunity for those in the low-income class. Other studies have had similar findings. McCombs and colleagues (2011) and Cooper and his colleagues (1996) found that typical regression during the summer months equates to about a month of learning, but students from low-income families suffer far worse and regress much more. They also found that regression over the summer months builds up over time, which increases the achievement gap between low-income students and middle-income students. Another research study was able to further define just how much regression may occur and how long we've known this issue exists. Donald Hayes and Judith Grether conducted research in 1969 that concluded the difference between students of different socio-economic classes. They did a detailed analysis of 600,000 2nd through 6th graders in New York City schools. Their analysis found that between low and middle class students, there was a seven month difference in reading achievement at the beginning of 2nd grade and that gap widened to a difference of two years and seven

months by the end of 6th grade. Just as Alexander and his colleagues noted, Hayes and Grether also found that students' learning during the school year showed similar gains. Therefore, they concluded that "the differential progress made during the four summers between 2nd and 6th grade accounts for upwards of 80% of the achievement difference between the economically advantaged...and the...ghetto schools" (p. 7).

Based on this review of literature, there is a need for additional research involving at-risk students in early intervention programs such as the research district's Jump Start program and continued summer intervention.

CHAPTER THREE

Methodology

This chapter describes the purpose of the study, participants, procedures, independent variables, dependent measures, research questions and data analysis, data collection procedures and performance site.

Purpose of the Study

The purpose of this quantitative study was to explore the effects of an early childhood intervention program on student cohort achievement scores from Summer 2011 to Spring 2013.

Participants

Groups of Participants. Group 1 was comprised of research district students who participated in the 3 week pre-Kindergarten Jump Start program, attended Kindergarten during the 2011-2012 school year, attended 1st grade during the 2012-2013 school year and also participated in the summer school intervention. Group 2 was comprised of research district students who participated in the 3 week pre-Kindergarten Jump Start program, attended Kindergarten during the 2011-2012 school year, attended 1st grade during the 2012-2013 school year, but did not participate in the summer school intervention. Group 3 was comprised of research district students who did not participate in the 3 week pre-Kindergarten Jump Start program, attended Kindergarten during the 2011-2012 school year, attended 1st grade during the 2012-2013 school year, and participated in the summer school intervention. Group 4 was comprised of research district students who did not participate in the 3 week pre-Kindergarten Jump Start program, attended Kindergarten during the 2011-2012 school year, attended 1st grade

during the 2012-2013 school year, and did not participate in the summer school intervention. Students enrolled in the research district in all groups were determined through a match of student identification numbers from the research district-secure Nebraska Staff and Student Records System (NSSRS).

Number of participants. Of the naturally-formed Group 1, $n = 32$; for Group 2, $n = 12$; Group 3, $n = 14$; Group 4, $n = 55$.

Gender of participants. Of the naturally-formed Group 1: 14 were female and 18 were male; Group 2: 9 were female and 3 were male; Group 3: 5 were female and 9 were male; Group 4: 23 were female and 32 were male.

Age range of participants. All students met the enrollment requirement, 5 years old by October 15th, to enter Kindergarten during the 2011-2012 school year.

Racial and ethnic origin of participants. Of the naturally-formed Group 1: 21 participants were Caucasian; 6 participants were Black/African American; 3 participants were Asian; and 2 participants were Hispanic. Of the naturally-formed Group 2: 9 participants were Caucasian; 2 participants were Black/African American; and 1 participant was two or more races. Of the naturally-formed Group 3: 1 participant was Asian; 12 participants were Caucasian; and 1 participant was Black/African American. Of the naturally-formed Group 4: 1 participant was Asian; 44 participants were Caucasian; 2 participants were Hispanic; 4 participants were Black/African American; and 2 participants were two or more races.

Inclusion criteria of participants. All students in the 2011-2012 Jump Start program in the research district were included in this study. All students that were Kindergarten in the 2011-2012 school year in the three identified Jump Start schools

that did not participate in the Jump Start program were included in this study. It was a requirement that every student studied was enrolled in the research district during the full study period of 2011-2013 and took all required AIMSweb® assessments.

Method of participant identification. The district's Student Information Management System (SIMS) was used to obtain student scores from AIMSweb® in each area.

Research Design

The pretest-posttest three-group comparative efficacy study design is displayed in the following notation.

Group 1	X ₁	Y ₁	O ₁	O ₂	O ₃	Y ₃	O ₄	O ₅	O ₆
Group 2	X ₁	Y ₁	O ₁	O ₂	O ₃	Y ₄	O ₄	O ₅	O ₆
Group 3	X ₁	Y ₂	O ₁	O ₂	O ₃	Y ₃	O ₄	O ₅	O ₆
Group 4	X ₁	Y ₂	O ₁	O ₂	O ₃	Y ₄	O ₄	O ₅	O ₆

Group 1: Jump Start Program students who participated in the summer school intervention

Group 2: Jump Start Program students who did not participate in the summer school intervention

Group 3: Non-Jump Start Program students who participated in the summer school intervention

Group 4: Non-Jump Start Program students who did not participate in the summer school intervention

X₁: Study Constant. All students completed Kindergarten and 1st grade in the study district

Independent Variables

The independent variables for this study were the four student groups.

Y₁: Students who participated in the Jump Start Program

Y₂: Students who did not participate in the Jump Start Program

Y₃: Students who participated in the summer school intervention

Y₄: Students who did not participate in the summer school intervention

Dependent Measures

The study's dependent variables were the scores of students in each of the four cohorts on the AIMSweb® in 2011 and 2012.

O₁: AIMSWEB® Assessment, fall of the Kindergarten year (pretest)

O₂: Rate of Improvement from fall to spring AIMSWEB® Assessment, during the Kindergarten year (posttest1)

O₃: AIMSWEB® Assessment, spring of the Kindergarten year (posttest2)

O₄: AIMSWEB® Assessment, fall of the first grade year (post-posttest)

O₅: Rate of Improvement from fall to spring AIMSWEB® Assessment, during the first grade year (post-post-posttest)

O₆: Reading Curriculum Based Measurement

Research Questions and Data Analysis

The following research questions were used to analyze achievement levels for students when entering and completing both Kindergarten and 1st grade. Comparisons between students who participated in the Jump Start Program and students who did not participate in the Jump Start Program were analyzed. Additional comparisons were made

for those two groups based on whether they participated in additional summer school programs.

Overarching Research Question #1: Did students entering Kindergarten who participated in the Jump Start Program have congruent or different letter sound fluency and letter naming fluency as students who did not participate in the Jump Start Program?

Sub-Question #1a: Did students entering Kindergarten who participated in the Jump Start Program have congruent or different letter sound fluency as students who did not participate in the Jump Start Program?

Sub-Question #1b: Did students entering Kindergarten who participated in the Jump Start Program have congruent or different letter naming fluency as students who did not participate in the Jump Start Program?

Analysis. Research Questions #1a and #1b were analyzed using independent sample two-tailed *t*-tests to examine the significance of the difference between students' scores on AIMSWEB® Assessment, spring of the Kindergarten year (posttest1) who participated in the Jump Start Program compared to students' scores on the AIMSWEB® Assessment, spring of the Kindergarten year (posttest1) who did not participate in the Jump Start Program. Because multiple statistical tests were conducted, a two-tailed .05 alpha level was employed to help control for Type I errors. Means and standard deviations are displayed in tables.

Overarching Research Question #2: Was the Rate of Improvement (ROI) in letter sound fluency and letter naming fluency during their Kindergarten year for students who participated in the Jump Start Program congruent or different from students who did not participate in the Jump Start Program?

Sub-Question #2a: Did students entering Kindergarten who participated in the Jump Start Program have congruent or different Rate of Improvement (ROI) in letter sound fluency as students who did not participate in the Jump Start Program?

Sub-Question #2b: Did students entering Kindergarten who participated in the Jump Start Program have congruent or different Rate of Improvement (ROI) in letter naming fluency as students who did not participate in the Jump Start Program?

Analysis. Research Questions #2a and #2b were analyzed using independent sample two-tailed *t*-tests to examine the significance of the difference between students' Rate of Improvement (ROI) from fall to spring AIMSWEB® Assessment, during the Kindergarten year (posttest2) who participated in the Jump Start Program compared to students' scores on the Rate of Improvement (ROI) from fall to spring AIMSWEB® Assessment, during the Kindergarten year (posttest2) who did not participate in the Jump Start Program. Because multiple statistical tests were conducted, a two-tailed .05 alpha level was employed to help control for Type I errors. Means and standard deviations are displayed in tables.

Overarching Research Question #3: Did students entering first grade who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start program without summer intervention have congruent or different letter sound fluency, nonsense word fluency, phoneme segmentation fluency, and letter naming fluency scores?

Sub Question #3a: Did students entering first grade who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start program without summer intervention have congruent or different letter sound fluency scores?

Sub Question #3b: Did students entering first grade who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start program without summer intervention have congruent or different nonsense word fluency scores?

Sub Question #3c: Did students entering first grade who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start program without summer intervention have congruent or different phoneme segmentation fluency score?

Sub Question #3d: Do students entering first grade who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the Jump Start

program without summer intervention have congruent or different letter naming fluency scores?

Analysis. Research Questions #3a, #3b, #3c, and #3d were analyzed using single classification analysis of variance (ANOVA) to examine the significance of the difference between students' AIMSWEB® Assessment, fall of the first grade year (post-posttest) who participated in the Jump Start Program with summer intervention, students who participated in the Jump Start Program without summer intervention, students who did not participate in the Jump Start Program without summer intervention, and students who did not participate in the Jump Start Program with summer intervention. An *F* ratio was calculated with an alpha level of .05. Post hoc analyses were conducted due to significant main effect being found.

Overarching Research Question #4: Was the Rate of Improvement (ROI) in nonsense word fluency during their first grade year for students who participated in the Jump Start Program congruent or different from the ROI in nonsense word fluency of students who did not participate in the Jump Start Program?

Analysis. Research Questions #4 was analyzed using independent sample two-tailed *t*-tests to examine the significance of the difference between students' Rate of Improvement (ROI) from fall to spring AIMSWEB® Assessment, during the students' first grade year (post-post-posttest) who participated in the Jump Start Program compared to students' scores on the spring AIMSWEB® Assessment, during their first grade year (post-post-posttest) who did not participate in the Jump Start Program. Because multiple statistical tests were conducted, a two-tailed .05 alpha level was employed to help control for Type I errors. Means and standard deviations are displayed in tables.

Overarching Research Question #5: At the end of 1st grade, were the raw scores on the Reading Curriculum Based Measurement congruent or different for students who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start Program with summer intervention, students who did not participate in the Jump Start Program without summer intervention, and students who did not participate in the Jump Start Program with summer intervention?

Analysis. Research Questions #5 was analyzed using single classification analysis of variance (ANOVA) to determine the main effect between students' scores on the Curriculum Based Measurement for students who participated in the Jump Start Program with summer intervention, students who participated in the Jump Start Program without summer intervention, students who did not participate in the Jump Start Program without summer intervention, and students who did not participate in the Jump Start Program with summer intervention. An *F* ratio was calculated with an alpha level of .05. Post hoc analyses were conducted due to significant main effect being found.

Overarching Research Question #6: At the end of 1st grade, was the frequency of students who score in the above average, average, and below average range on the Reading Curriculum Based Measurement congruent or different for students who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start Program with summer intervention, students who did not participate in the Jump Start Program with summer intervention, and students who did not participate in the Jump Start Program without summer intervention?

Analysis. Research Question #6 was analyzed using a chi-square test for independence to examine the significance of the difference between frequencies of the

number of students who scored in the above average, average, and below average range on the Reading Curriculum Based Measurement and who participated in the Jump Start Program without summer intervention, who participated in the Jump Start Program with summer intervention, who did not participate in the Jump Start Program with summer intervention, and who did not participate in the Jump Start Program without summer intervention.

Data Collection Procedures

All study achievement data were retrospective, archival, and routinely collected school information. Permission from the appropriate school research personnel was obtained. Naturally formed groups of 32 students in one arm, 12 students in a second arm, 14 students in the third arm and 55 in the fourth arm were obtained to include achievement data. Non-coded numbers were used to display individual de-identified achievement data. Aggregated group data, descriptive statistics, and parametric statistical analysis was utilized and reported with means and standard deviations on tables.

Performance site. The research was conducted in the public school setting through normal educational practices. The study procedures did not interfere with the normal educational practices of the public school and did not involve coercion or discomfort of any kind. Data was stored on spreadsheets and computer flash drives for statistical analysis in the office of the primary researcher and the dissertation chair. Data and computer files were kept in locked file cabinets. No individual identifiers were attached to the data.

Institutional Review Board (IRB) for the Protection of Human Subjects

Approval Category. Exemption for this study was provided under 45 CFR 46:101b,

category 4. This research was conducted in established accepted educational settings and involving normal educational practices. A letter of support from the research district was provided for the University of Nebraska Medical Center/University of Nebraska at Omaha Joint Institutional Review Board review.

CHAPTER FOUR

Results

Purpose of the Study

The purpose of this quantitative study was to explore the effects of a Kindergarten intervention program on student cohort reading achievement scores for primary grades from Summer 2011 to Spring 2013.

This study analyzed the scores of four groups of students from three research district's elementary schools. All four groups of students were comprised of research district students who entered Kindergarten during the 2011-2012 school year and were still enrolled in the research district in the spring of grade 1 during the 2012-2013 school year. Students enrolled in the research district in both grade levels were determined through a match of student identification numbers from the research district-secure Nebraska Staff and Student Records System (NSSRS). Group 1 was comprised of research district students who participated in the Jump Start program during the summer of 2011, and who participated in a summer school intervention during the summer of 2012. Group 2 was comprised of research district students who participated in the Jump Start program during the summer of 2011, and who did not participate in a summer school intervention during the summer of 2012. Group 3 was comprised of research district students who did not participate in the Jump Start program during the summer of 2011, and who participated in a summer school intervention during the summer of 2012. Group 4 was comprised of research district students who did not participate in the Jump Start program during the summer of 2011, and did not participate in a summer school intervention during the summer of 2012. Data from the norm-referenced, standardized

AIMSweb® assessment system from years 2011 and 2012 was used. Students who took the AIMSweb® assessments in 2011 and 2012 received the same general curriculum. All cohort students completed Kindergarten and 1st grade in the study district.

Research Question #1

Did the two student groups analyzed in this study, those that received the Jump Start intervention and those that did not, perform at congruent levels on the AIMSweb® letter sound fluency and letter naming fluency assessment at the beginning of their Kindergarten year?

The first hypothesis was tested using an independent sample two-tailed *t*-test. There was not a statistically significant difference in letter sound fluency scores between the students that received the Jump Start intervention ($M = 8.66$, $SD = 9.32$) and the students that did not receive the Jump Start intervention ($M = 9.55$, $SD = 8.83$), $t(111) = .51$, $p = .61$. There was also not a statistically significant difference in letter naming fluency scores between the students that received the Jump Start intervention ($M = 23.66$, $SD = 14.86$) and the students that did not receive the Jump Start intervention ($M = 22.46$, $SD = 14.59$), $t(111) = .42$, $p = .67$. Demographic statistics for groups are displayed in Table 1. Descriptive statistics for both assessments are displayed in Table 2 and data from the *t* test are displayed in Table 3.

Research Question #2

Did the two student groups analyzed in this study, those that received the Jump Start intervention and those that did not, have congruent rates of improvement on the AIMSweb® letter sound fluency and letter naming fluency assessments by the end of their Kindergarten year?

The second hypothesis was tested using an independent sample two-tailed t -test. There was not a statistically significant difference in letter sound fluency rates of improvement between the students that received the Jump Start intervention ($M = 0.88$, $SD = 0.33$) and the students that did not receive the Jump Start intervention ($M = 2.02$, $SD = 6.70$), $t(111) = 1.12$, $p = 0.26$. There was also not a statistically significant difference in letter naming fluency rates of improvement between the students that received the Jump Start intervention ($M = 0.84$, $SD = 0.33$) and the students that did not receive the Jump Start intervention ($M = 2.19$, $SD = 7.65$), $t(111) = 1.17$, $p = 0.25$. Demographic statistics for groups are displayed in Table 1. Descriptive statistics for both assessments are displayed in Table 4 and data from the t test are displayed in Table 5.

Research Question #3

Did the four student groups analyzed in this study, those that received the Jump Start program with summer intervention, those that received the Jump Start program without summer intervention, those that did not receive the Jump Start program with summer intervention and those that did not receive the Jump Start program without summer intervention, have congruent scores on the AIMSweb® letter sound fluency, letter naming fluency, phoneme segmentation fluency and nonsense word fluency assessments at the beginning of their first grade year?

The third hypothesis was tested using a one-way analysis of variance (ANOVA) test. There was not a statistically significant difference in the letter sound fluency assessment $F(3, 112) = 2.60$, $p = 0.06$ and the phoneme segmentation fluency assessment $F(3, 112) = 2.12$, $p = 0.10$. There was a statistically significant difference in the letter naming fluency assessment $F(3, 112) = 5.20$, $p < 0.05$ and the nonsense word fluency

assessment $F(3, 112) = 5.12, p < 0.05$. Post hoc comparison using the Tukey indicated that in letter naming fluency the only significant difference was between Group 3 ($M = 35.71, SD = 10.81$) and Group 4 ($M = 51.22, SD = 14.13$) and in nonsense word fluency the only significant difference was again between Group 3 ($M = 24.50, SD = 12.26$) and Group 4 ($M = 47.72, SD = 19.41$). Demographic statistics for groups are displayed in Table 1. Data from the *ANOVA* test are displayed in Table 6.

Research Question #4

Did the two student groups analyzed in this study, those that received the Jump Start intervention and those that did not, have congruent rates of improvement on the AIMSweb® nonsense word fluency assessment by the end of their first grade year?

The fourth hypothesis was tested using an independent sample two-tailed *t*-test. There was not a statistically significant difference in nonsense word fluency rates of improvement between the students that received the Jump Start intervention ($M = 0.61, SD = 0.50$) and the students that did not receive the Jump Start intervention ($M = 2.08, SD = 7.89$), $t(111) = 1.23, p = 0.22$. Demographic statistics for groups are displayed in Table 1. Descriptive statistics for the assessment is displayed in Table 7 and data from the *t* test are displayed in Table 8.

Research Question #5

Did the four student groups analyzed in this study, those that received the Jump Start program with summer intervention, those that received the Jump Start program without summer intervention, those that did not receive the Jump Start program with summer intervention and those that did not receive the Jump Start program without

summer intervention, have congruent scores on the AIMSweb® reading curriculum based measurement assessment at the end of their first grade year?

The fifth hypothesis was tested using a one-way analysis of variance (ANOVA) test. There was a statistically significant difference in the results of this assessment $F(3, 112) = 6.16, p < 0.05$. Post hoc comparison using the Tukey indicated the only significant difference was between Group 3 ($M = 39.79, SD = 18.95$) and Group 4 ($M = 79.35, SD = 33.53$). Demographic statistics for groups are displayed in Table 1. Data from the ANOVA test are displayed in Table 9.

Research Question #6

Did the four student groups analyzed in this study, those that received the Jump Start program with summer intervention, those that received the Jump Start program without summer intervention, those that did not receive the Jump Start program with summer intervention and those that did not receive the Jump Start program without summer intervention, have congruent achievement level ranges on the AIMSweb® reading curriculum based measurement assessment at the end of their first grade year?

The sixth hypothesis was tested using a chi-square test for independence. There was a statistically significant difference in the results of this assessment $\chi^2(6, 113) = 18.34, p < 0.05$. Table 10 displays the frequency and percent of students at the end of first grade who were in each of the four research groups and who scored below average, average, and above average ranges on the AIMSweb® reading curriculum based measurement assessment.

Table 1

Demographic Information of Four Groups of Students

	Group 1	Group 2	Group 3	Group4
Male (%)	56	25	64	58
Female(%)	44	75	36	42
Caucasian (%)	66	75	86	80
African American (%)	19	17	7	2
Asian (%)	9	0	7	2
Hispanic (%)	6	0	0	7
Two ro More Races (%)	0	8	0	4
Total	32	12	14	55

Table 2

Descriptive Statistics for Student Group – Pre Test Scores on Letter Sound Fluency

	<i>N</i>	<i>M</i>	<i>SD</i>
Jump Start (Group 1 & 2)	44	8.66	9.92
Non Jump Start (Group 3 & 4)	69	9.60	8.33

Descriptive Statistics for Student Group – Pre Test Scores on Letter Naming Fluency

	<i>N</i>	<i>M</i>	<i>SD</i>
Jump Start (Group 1 & 2)	44	23.66	14.86
Non Jump Start (Group 3 & 4)	69	22.64	14.59

Table 3

Independent t-test for AIMSweb® Pre Test Scores

	Jump Start		Non Jump Start		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Letter Sound Fluency	8.66	9.32	9.55	8.83	0.51	.61	0.10
Letter Naming Fluency	23.66	14.86	22.46	14.59	0.42	.67	0.08

Table 4

Descriptive Statistics for Student Group – Rate of Improvement on Letter Sound Fluency

	<i>N</i>	<i>M</i>	<i>SD</i>
Jump Start (Group 1 & 2)	44	0.88	0.33
Non Jump Start (Group 3 & 4)	69	2.02	8.33

Descriptive Statistics for Student Group – Rate of Improvement on Letter Naming Fluency

	<i>N</i>	<i>M</i>	<i>SD</i>
Jump Start (Group 1 & 2)	44	0.84	0.33
Non Jump Start (Group 3 & 4)	69	2.19	7.65

Table 5

Independent t-test for AIMSweb® Rate of Improvement

	Jump Start		Non Jump Start		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Letter Sound	0.88	0.30	2.02	6.70	1.12	.26	0.33
Fluency							
Letter Naming	0.84	0.33	2.19	7.65	1.17	.25	0.34
Fluency							

Table 6

Four Group Comparing Letter Naming Fluency Scores

	Sum of Squares	df	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Between Groups	2958.72	3	966.24	5.20	<.01	0.13
Within Groups	20675	109	189.68			
Total	23633.93	112				

Four Group Comparing Letter Sound Fluency Scores

	Sum of Squares	df	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Between Groups	955.04	3	318.35	2.60	.06	0.07
Within Groups	13332.98	109	122.32			
Total	14288.02	112				

Table 6 (cont.)

Four Group Comparing Effect of Phoneme Segmentation Fluency Scores

	Sum of Squares	df	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Between Groups	670.78	3	223.59	2.12	.10	0.06
Within Groups	11520.67	109	105.69			
Total	12191.45	112				

Four Group Comparing Effect of Effect of Nonsense Word Fluency Scores

	Sum of Squares	df	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Between Groups	6987.85	3	2329.28	5.12	<.01	0.12
Within Groups	49550.01	109	454.59			
Total	56537.88	112				

Table 7

Descriptive Statistics for Student Group – Nonsense Word Fluency

	<i>N</i>	<i>M</i>	<i>SD</i>
Jump Start (Group 1 & 2)	44	0.61	0.50
Non Jump Start (Group 3 & 4)	69	2.08	7.89

Table 8

Independent t-test for AIMSweb® Rate of Improvement at the End of Grade One

	Jump Start		Non Jump Start		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Letter Sound	0.61	0.50	2.08	7.89	1.23	.22	.35
Fluency							

Table 9

Four Group Comparing Rate of Improvement in AIMSweb® Curriculum Based Measure

	Sum of Squares	df	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Between Groups	19417.73	3	6472.58	6.16	<.01	0.14
Within Groups	114582.59	109	1051.22			
Total	134000.32	112				

Table 10

Four Group Achievement Frequencies on the AIMSweb® Reading Curriculum

Based Measurement Assessment at the End of Grade One

	Below Average	Average	Above Average	
Groups	<i>N</i> (%)	<i>N</i> (%)	<i>N</i> (%)	χ^2
Jump Start No Summer School	11 (42%)	13(4%)	8 (32%)	18.40
Jump Start With Summer School	2 (8%)	5 (8%)	5 (20%)	
Non Jump Start With Summer School	7 (27%)	7 (11%)	0 (0%)	
Non Jump Start No Summer School	6 (23%)	37 (60%)	12 (48%)	
Total	26 (100%)	62 (100%)	25 (100%)	

CHAPTER FIVE

Conclusions and Discussion

Purpose of the Study

The purpose of this quantitative study was to explore the effects of a Kindergarten intervention program on student cohort reading achievement scores for primary grades from Summer 2011 to Spring 2013.

This study analyzed the scores of four groups of students from three research district's elementary schools. All four groups of students were comprised of research district students who entered Kindergarten during the 2011-2012 school year and were still enrolled in the research district in the spring of grade 1 during the 2012-2013 school year. Students enrolled in the research district in both grade levels were determined through a match of student identification numbers from the research district-secure Nebraska Staff and Student Records System (NSSRS). Group 1 was comprised of research district students who participated in the Jump Start program during the summer of 2011, and who participated in a summer school intervention during the summer of 2012. Group 2 was comprised of research district students who participated in the Jump Start program during the summer of 2011, and who did not participate in a summer school intervention during the summer of 2012. Group 3 was comprised of research district students who did not participate in the Jump Start program during the summer of 2011, and who participated in a summer school intervention during the summer of 2012. Group 4 was comprised of research district students who did not participate in the Jump Start program during the summer of 2011, and did not participate in a summer school

intervention during the summer of 2012. Data from the norm-referenced standardized AIMSweb® assessment system from years 2011 and 2012 was used. Students who took the AIMSweb® assessments in 2011 and 2012 received the same general curriculum. All cohort students completed Kindergarten and 1st grade in the study district.

Conclusions

The following conclusions were drawn from the study for each of the six research questions.

Research Question #1

Research question #1 was used to analyze whether the students who participated in the Jump Start Program had congruent or different letter sound fluency and letter naming fluency as students who did not participate in the Jump Start Program. There was no statistical significance between the scores on either test.

Research Question #2

Research questions #2 was used to analyze whether the students who participated in the Jump Start Program had congruent or different Rates of Improvement (ROI) in letter sound fluency and letter naming fluency as students who did not participate in the Jump Start Program. There was no statistical significance between the rate of improvement scores on either test.

Research Question #3

Research question #3 was used to analyze whether students who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start program with summer intervention, students who did not participate in the Jump Start program with summer intervention and students who did not participate in the

Jump Start program without summer intervention have congruent or different letter sound fluency, nonsense word fluency, phoneme segmentation fluency, and letter naming fluency scores. There was not a statistically significant difference in the letter sound fluency assessment and the phoneme segmentation fluency assessment. There was a statistically significant difference in the letter naming fluency assessment and the nonsense word fluency assessment. Further tests run indicated that in letter naming fluency and nonsense word fluency the only significant difference was between Group 3, students that did not participate in the Jump Start program and attended summer school, and Group 4, students that did not participate in the Jump Start program and did not attend summer school.

Research Question #4

Research questions #4 was used to analyze whether the students who participated in the Jump Start Program had congruent or different Rates of Improvement (ROI) in nonsense word fluency as students who did not participate in the Jump Start Program. There was no statistical significance between the rate of improvement scores on the test.

Research Question #5

Research question #5 was used to analyze whether students, at the end of 1st grade, who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start Program with summer intervention, students who did not participate in the Jump Start Program without summer intervention, and students who did not participate in the Jump Start Program with summer intervention had congruent scores on the AIMSweb® reading curriculum based measurement assessment. There was a statistically significant difference in the results of this assessment. Further tests

indicated that the only significant difference was between Group 3, students that did not participate in the Jump Start program and attended summer school, and Group 4, students that did not participate in the Jump Start program and did not attend summer school.

Research Question #6

Research question #6 was used to analyze whether students, at the end of 1st grade, who participated in the Jump Start Program without summer intervention, students who participated in the Jump Start Program with summer intervention, students who did not participate in the Jump Start Program with summer intervention, and students who did not participate in the Jump Start Program without summer intervention had congruent or different frequency scores in the above average, average, and below average range on the Reading Curriculum Based Measurement. There was a statistically significant difference in the results of this assessment. The chi square test for independence indicated that Jump Start students with summer school intervention had more students scoring below average than expected and fewer students scoring at the average level than expected. Non Jump Start students with no summer school intervention had fewer students scoring below average than expected and more students scoring average than expected. Non Jump Start students with summer school intervention also had more students scoring below average than expected and fewer students scoring above average than expected.

Discussion

The purpose of this study was to explore the effects of a Kindergarten intervention program on student cohort reading achievement scores for primary grades from Summer 2011 to Spring 2013. The fact that this study did not indicate statistically significant effects upon student performance on the AIMSweb® assessments within the

student groups that attended the Jump Start program is not at all a negative outcome. What the results of this study indicate is that the students that received the Jump Start program intervention are performing at a similar level as the students that did not receive the Jump Start program intervention; meaning students that are at-risk for not reaching their full academic potential are performing at similar rates as students who are not at-risk after participating in the Jump Start program. Furthermore, the students that participated in the Jump Start program are moving through the primary grades and are demonstrating similar academic scores on AIMSWEB® assessments as their peers that did not participate in the Jump Start program. The study results further indicate that the particular students selected for the Jump Start program are, in fact, the students that were in need of intervention, as their mean scores as a group are consistently below the mean scores of the non-Jump Start groups. This finding supports the research by Harold Hodgkinson on the specific factors that impact students and label them as “at-risk” (Hodgkinson, 2003). This was of significant importance to the research district in knowing the correct students are being targeted for early intervention.

The study also examined if attending a summer intervention between the Kindergarten and 1st grade years for these students had any impact on literacy achievement when students began their 1st grade year. In order to attend the research district’s summer school intervention during the summer following Kindergarten, a student would have to fail to meet certain benchmarks during the school year in literacy or be identified as a Jump Start program participant. Although there were no significant differences between Jump Start and non-Jump Start groups, the data indicates that students that were in the Jump Start program that attended summer school had higher

mean scores on all four literacy indicator assessments than students that were non-Jump Start participants and did attend summer school. The difference between these two groups is that one group received the Jump Start intervention, and the other group did not. Given this additional intervention may have helped the Jump Start students retain more literacy skills over the summer months.

Based on data collected at the district level and this study, the next planned stage is to expand the Jump Start program into two additional elementary Title I buildings during the Summer of 2014. This will allow an additional 50-60 students and their families to take advantage of this opportunity as well as engage two additional school buildings in the Jump Start program. With this addition of 50-60 students, the Jump Start program will have approximately 300 students engaged in Jump Start activities during the 2014-2015 school year from Pre-Kindergarten through 3rd grade. Studying the effects of the Jump Start program upon all 300 students' achievement in literacy assessments from Kindergarten through 3rd grade would certainly be worthy of the research district's time.

Implications for Research

Further research needs to be completed on a larger scale in the research district in order to determine if these results can be both duplicated and sustained as the students advance into intermediate elementary grades. The research district's Jump Start program is in its infancy stage as far as having data to determine program effectiveness. As time goes on, more students will be involved in the program and data can be tracked long-term as students are followed longitudinally. Research will continue to determine if there are lasting effects of this program on students through their elementary years, into middle school and following them into their high school years. Furthermore, the research needs

to expand to include multiple measures of success including the research district's curriculum based measurements.

Implications for Practice and Policy

An adults' quality of life and the contributions they make to their community and environment has at many times been linked back to their early years. According to a RAND research brief on children at risk, 1/5 of children under the age of 6 live in poverty and nearly half of our nation's children face one or more school readiness risk factors (RAND, 2005). The consequences for school readiness short-falls extends well beyond the primary years. On national assessments completed at the 8th and 12th grade level, 50% of students from at-risk backgrounds scored in the "basic" level of reading and math. This means that this group of students doesn't have even the foundational skills in reading and math. The RAND research group also indicates that of this population at the 8th and 12th grade level, there are increasingly higher rates of special education placements, grade repetition and drop outs. The trend continues for this at-risk group of students into their adult life. Limited skills and low attainment lead to some of the factors that identified students for the Jump Start program itself; parents that earn low wages, parents that are not able to attain a high school diploma, parents that have babies in their teen years. Also higher for this group of individuals, is crime and incarceration rates (RAND, 2005). Therefore, the cycle continues. This at-risk group of individuals who are now adults will be sending a new at-risk group of children into public schools around the nation.

However, this study shows promise for students that are identified as at-risk for school failure. In order to further examine the benefits, this study needs to be expanded

to include the growing group of Jump Start participants and completed on a much larger scale. Also, multiple measures need to be included in determining academic success and achievement that include the research district's curriculum based assessments. If trends continue as evidenced by this study, the research district will consider further expanding the program beyond just the Title I schools in the recent expansion to include all elementary buildings.

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