

Preschool as Preparation for Kindergarten

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A Special Project

Presented to

Dr. Kenneth Zontek

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FACULTY APPROVAL

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## ABSTRACT

This study looked at students entering kindergarten and asked the question of: do students entering with the experience of a prekindergarten program show more achievement in early literacy skills in kindergarten than students who haven't experience a prekindergarten program. Students were given the same pre and post tests of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Letter Naming Fluency (LNF) assessment in the September of 2009 and in May of 2010. The data showed a slight difference, but no significance in results, therefore the data was inconclusive on the advantages of prekindergarten programs related to early literacy achievement in kindergarten.

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## CHAPTER 1

### Introduction

#### Background for the Project

Across the nation, Kindergarteners were coming to school lacking the appropriate skills needed to meet the high grade level expectations (GLE) set in place for full-day kindergarten. As required by No Child Left Behind (NCLB), students were mandated to meet Washington State Standards, and if this did not happen, more students were either retained or moved on to first grade without achieving mastery of the necessary skills to succeed in their school careers.

Studies have shown that an early introduction to the learning process through preschool programs have significantly decreased the instances of difficulty with early literacy skills and retention.

Having taught kindergarten for the last five plus years, the author noticed a disparity between the readiness of students that entered kindergarten in the fall with the experience of a completed year of preschool and the readiness of students who had no experience with preschool before entering kindergarten. This prompted the consideration that there may have been truth to the writer's informal observations of a readiness gap between students who attended preschool and students who did not.

## Statement of the Problem

The study sought to determine whether or not being enrolled in a preschool program before entering kindergarten made a difference in the students' early literacy skills. The number of students who have entered kindergarten ill-equipped to handle the expectations Washington State set forth has increased. Specifically, at McClure Elementary School (MES) in the Yakima School District (YSD), in 2004-2005, the kindergarten classes were split into a Dual Language (DL) strand and a Content English as a Second Language (ESL) strand. From that point on, a pattern emerged of the DL classes filling more rapidly and the Content ESL classrooms often not filling until several days into the school year. Typically, a correlation between parents that registered their children in a timely fashion and students' receiving experiences in early learning programs was observed. Kindergarten teachers at MES were noticing further academic discrepancies and gaps in school readiness between the students whose parents registered them for school earlier and the parents who waited until just prior to the school year's beginning or even after the first day of school to register their students. With regular frequency year after year, a larger number of the Content ESL parents have registered their students late or even after the school year had begun and were, in general, less likely to have enrolled their child in a prekindergarten program.

Phrased as a question, the problem that represented the focus of the present study was as follows: Did attending a preschool program prior to entering kindergarten make a difference in students' performances as measured by the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Letter Naming Fluency (LNF) test?

### Purpose of the Project

The purpose of the experimental research study was to determine if students who were enrolled in preschool prior to entering kindergarten were better able to meet the standards for mastery of early literacy skills than students who were not enrolled in preschool prior to entering kindergarten. The mastery of skills was measured at the kindergarten level by the Letter Naming Fluency (LNF) subtest, a part of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) test. A review of selected literature was conducted to accomplish this purpose. Additionally, baseline data was obtained by conducting a *t*-test analysis for independent samples. Based on the DIBELS testing, and the baseline data, related conclusions or recommendations were formulated.

### Delimitations

The study included data from the 2009-2010 school year. The students involved in the study were both female and male, all five to seven years old and enrolled in the Content ESL kindergarten classes at MES in

the Yakima School District in Washington State. This population included two classrooms of students, belonging to the researcher, Mrs. Sara J. Sullivan, and Mrs. Cheyenne Ammerman. The writer specifically utilized data collected from the 2009-2010 fall and spring DIBELS assessments. An informal survey created by the researcher was also utilized to ascertain which students had been enrolled in a preschool program and which students had not been enrolled in any kind of preschool program.

### Assumptions

The following assumptions were believed to be true for the purposes of the study:

1. Students whose parents registered them early or before the beginning month of school were assumed to typically be more aware of their students' needs and more involved with their students' education processes, such as the need for preschool to prepare the student and the importance of completing and returning homework regularly.

2. Students whose parents waited until just before classes began or after the first day of school to register their children were typically less involved in and less aware of their students' educational needs, such as need for preschool to prepare the student and the importance of completing and returning homework regularly.

3. Students at MES attempted to be successful on all DIBELS assessments.
4. The DIBELS assessment accurately assessed students' early literacy skills.
5. Early literacy skills were believed to be one of the crucial elements of school readiness.
6. Unfamiliarity with the tests and testing process may have skewed the fall and/or spring DIBELS scores for participating kindergarten students.
7. Test Anxiety may have skewed the fall and/or spring DIBELS scores for participating kindergarten students.

#### Hypothesis or Research Question

Participating students who attended a prekindergarten program prior to entering kindergarten showed more mastery of early literacy skills at the beginning of the school year and maintained more mastery of early literacy skills as measured by the DIBELS assessment than students who did not attend a prekindergarten program.

#### Null Hypothesis

No significant difference will be found between participating students that have or have not attended a preschool program.

Significance was determined for  $p \geq$  at 0.05, 0.01, and 0.001.

### Significance of the Project

The study was designed to examine the extent to which preschool assists children in school readiness, or the preparation for the academic rigor and meeting the grade level requirements of kindergarten. This information proved valuable to the teachers at MES as well as teachers in other elementary schools in the YSD seeking evidence of value of prekindergarten programs and how these programs readied students for kindergarten. At the time, the MES kindergarten teachers, including the researcher, were facilitating classes offered by the YSD Early Learning Department. These classes were offered to childcare providers in the city of Yakima. This was an effort to build connection between schools and community and to expose more prekindergarten students (ages birth to five) to early literacy skills activities that developed their school readiness.

If the results concluded a positive significant difference between students who attended preschool and students who did not, it would have helped the kindergarten teachers know how to better direct and encourage their incoming students in the fall. It would also have helped the kindergarten teachers better prepare to facilitate the childcare provider classes along with how to advise parents of incoming kindergarten students, particularly those students who were very young and had not yet experienced preschool. Positive significance would also have been of

importance to the district in the matters of gathering more data to support the role of prekindergarten education programs.

Negative significance or no significant difference between students who attended preschool and those who did not would also have been valuable information to teachers and YSD personnel. Little significance would have influenced teaching professionals to first take a look at the assessment measures that were used (DIBELS) and reevaluate whether or not they were an accurate tool for assessing school readiness.

#### Procedure

In the fall of 2009, within the first two weeks of school, the DIBELS assessment was administered to all kindergarten students by YSD appointed and trained DIBELS testers. When given the results, the kindergarten Content ESL teachers set up and implemented interventions according to protocols previously established with DIBELS progress monitoring. During the week of fall conferences, both content ESL teachers asked parents the questions on the informal survey regarding what type of schooling, if any, their child had prior to entering kindergarten. In January 2010, due to budget constraints, the DIBELS assessments were not administered by the same team of trained testers sent from the district to all of the YSD elementary schools. Instead, MES paraprofessionals, along with MES reading teachers, received the same

training the YSD testers had received. MES paraprofessionals then administered the winter and spring DIBELS tests in the same fashion as had been used in the fall 2009 DIBELS testing. Through analyzing and comparing the data from both fall and spring, the author discovered the information explained forthwith.

### Definition of Terms

Significant terms used in the context of the study have been defined as follows:

content ESL classroom. A classroom taught in English but uses ESL strategies during instruction to support other language learning.

Head Start. According to the United States Department of Health and Human Services, Head Start is a national program that promotes school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social and other services to enrolled children and families.

preschool program. Education offered for children between the ages of three and five before entering the mandated public education system.

progress monitoring. Progress monitoring was an established protocol for deliberate practice of specific skills assessed by the DIBELS test.

Reach Out and Read. Reach Out and Read (ROR) is an evidence-based nonprofit organization that promotes early literacy and school readiness in pediatric exam rooms nationwide by giving new books to children and advice to parents about the importance of reading aloud.

school readiness. A principle with which to organize and decipher outcomes of statewide early childhood initiatives; a child's ability to learn, grow and achieve (Zuckerman, Halfon, 2003, 1433-6).

t- test for independent samples. A parametric test of significance used to determine whether there is a significant difference between the means of two independent samples at a selected probability level.

### Acronyms

DIBELS. Dynamic Indicators of Basic Early Literacy Skills.

DL. Dual Language.

ECEAP. Washington Early Childhood Education and Assistance Program.

ERIC. Educational Research Information Center.

ESL. English as a Second Language.

FPL. Federal Poverty Level.

GLE. Grade Level Expectations.

IEP. Individual Education Plan.

MES. McClure Elementary School.

NCLB. No Child Left Behind.

NEGP. National Education Goals Panel.

NIEER. National Institute for Early Education Research.

OSPI. Office of Superintendent of Public Instruction.

TEE. The Trust for Early Education.

UofO. University of Oregon.

YSD. Yakima School District.

## CHAPTER 2

### Review of Selected Literature

#### Introduction

Literature on school readiness has shown it to be a complex idea that has still not fully been defined. More and more students in recent years have entered school ill-prepared to meet the expectations set forth by benchmarks of states across the country. Although that has been apparent to primary education teachers nationwide, educators needed to identify the multitude of elements that have come together to make up the concept of school readiness.

Once all aspects of readiness had been identified, explained and accounted for, the avenues for delivering young children to mastery of school readiness skills was studied. Preschools, whether public state or federally funded, or private, religiously affiliated or otherwise, have been the nation's answer to the dilemma of how to prepare young students for the rigors of education.

With the concept of school readiness defined and prekindergarten programs set up to assist in how students achieved school readiness, the question remained: How then, was student readiness to be assessed? Though many measurements exist for the many facets as subsections of school readiness, a deeper look was taken into the research-based and

widely used early literacy skills tests called the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). The literature reviewed and the research summarized in Chapter two covered the following topics:

1. What is School Readiness?
2. Preschool as Preparation for Kindergarten.
3. DIBELS as a Measurement of Early Literacy Skills.
4. Summary.

### What is School Readiness?

According to the Office of the Superintendent of Public Instruction (OSPI) (2008), the following five important realities have been identified:

a) a readiness or preparation gap has existed before students have entered kindergarten. b) The gap was discerned in children from all financial backgrounds in urban districts, not just low-income families. c) Historically, children who began school behind stayed behind. d) Early learning programs of high caliber have proven effective in lessening the readiness gap. e) Evidence has shown students, teachers and schools that have met new standards have closed the readiness gap.

In light of this information, the researcher asked the question: What was included in the definition of child readiness? In their research, Zuckerman and Halfon (2003) shared that the National Education Goals Panel (NEGP) looked at a child's school readiness as "encompassing

physical and motor development, cognitive development and approaches to learning, language development, and social emotional development.”

Zuckerman and Halfon (2003) also shared that school readiness, as explained by the NEGP was “consisting of three attributes: schools that were ready for children, children that were ready for schools, and parents and communities that could support the child’s developmental process.” The same authors (2003) further delved into the concept of school readiness as “referring both to a child’s capacity to learn, grow, and achieve and also creating an organizing principle and outcome for major statewide early childhood initiatives throughout the United States.”

According to the Washington State Early Learning and Development Benchmarks (2005) were created as a research-based organization of children’s’ overall development to encompass five domains: 1) physical, well-being, health and motor development, 2) social and emotional development, 3) approaches to learning, 4) cognition and general knowledge, and 5) language, literacy and communication. As stated by OSPI (2005),

Specifically, the benchmarks provide a set of early learning standards that spell out what young children should know and be able to do by the time they reach the end of each of four critical stages of development: 18 months, 36 months, 60 months, and

entry to kindergarten. Though presented separately, the five domains of children's development are, in fact, inextricably interrelated. Children develop holistically; growth and development in one area often influences and/or depends upon development in other areas. It is, therefore, imperative to recognize the interconnectedness of children's early development and learning. For that reason, no one single domain is more important than another.

#### Preschool as Preparation for Kindergarten

Most states have set up some sort of state run preschool program to improve school readiness. The United States Department of Health and Human Services established the Office of Head Start to enhance the number of socioeconomically disadvantaged children receiving preschool. Both Head Start and other state run programs have primarily targeted families at or below the federal poverty level. In Washington, one such program was established in 1985 called the Washington Early Childhood Education and Assistance Program (ECEAP). The purpose of this program was to come alongside low-income families and provide preschool education as well as health coordination, nutrition, and family support, as explained by the National Institute for Early Education Research (NIEER) in the State Preschool Yearbook, (2008).

Pavelchek's findings (as cited by OSPI, 2009) revealed that nationally, teachers have reported close to half of their students (40%) were not prepared for school. Pavelchek went on to specify that in Washington State, 66% of children have not entered school prepared for kindergarten (OSPI, 2009). According to the State Preschool Yearbook (NIEER, 2008), only 19 percent of four year olds in the state of Washington (roughly 8200 children) were enrolled in state-funded preschool or federally-funded Head Start in 2008. Only children from families at or below 110 percent of the federal poverty level (FPL) qualified for the preceding programs. This meant that the remaining 81 percent of four year olds in Washington State were either enrolled in a private preschool or early learning program, or were not in any kind of program at all.

Across multiple states similar results were reported, pointing out how high quality pre-kindergarten programs had positive impacts on children's cognitive and language development (OSPI, 2009). Barnett, Lamy, and Jung (2005) studied the effectiveness of preschool programs in five different states and reported the great variance that existed in standards and quality of state prekindergarten programs. That withstanding, Barnett, Lamy and Jung (2005) found results that showed ". . . significant and meaningful effects on children's language, literacy, and

math skills. This study provides strong evidence that quality preschool programs produce broad gains in children’s learning and development at kindergarten entry.”

With the direct connection between children attending high quality preschool programs and the narrowing of the readiness gap well documented, other domino issues closely tied to school readiness or the lack thereof were briefly considered. Specifically, the issue of cost related to students’ lack of preparedness was researched.

Historically, the cost of retention has been an issue of significance for school districts across the state of Washington, even across the United States. The relative cost of a student retained in kindergarten in Yakima School District was roughly \$4000 (D. Carmichael, Principal, McClure Elementary School, Yakima School District, personal communication, February 23, 2010). This was due to the fact that, over eight years ago, YSD implemented district-wide full-day kindergartens which were not fully funded by the state. A case study conducted by OSPI (2009) in Bremerton School District showed significant savings on the cost of remedial resource room services as well as savings due to fewer students needing to attend an extended school day. The study’s (OSPI, 2009) conclusions indicated that savings were in direct relation with the effectiveness of the prekindergarten program implemented in the Bremerton School District. In

addition, The Trust for Early Education (TEE) reported on financial requirements in the state of North Carolina for the 2001-2002 school year to meet the educational costs of retentions from Kindergarten through third grade (2004). The Trust for Early Education (2004), reported that when learning difficulties were identified earlier on in prekindergarten programs, solutions for meeting students' academic needs were timelier and less costly. When students entering kindergarten were prepared for school, they cost less to educate and they were more likely to meet required state standards at grade level.

#### The DIBELS as a Measure of Early Literacy Skills

The field of early childhood education has been greatly impacted and influenced by research on early literacy skills (such as phonemic awareness and letter identification) as strong predictors of later achievement in schooling. Two great impacts of the research on early literacy skills as a predictor of future achievement were the use of direct instruction in preschool settings to foster school readiness and the use of direct assessment as a measurement of academic knowledge/school readiness.

According to the National Reading Panel (1999), the most effective research-based methods of teaching reading focused on the "Five Big Ideas in Beginning Reading": phonemic awareness, alphabetic principle,

fluency, vocabulary, and comprehension. Within the five components of beginning literacy, each part was shown to be connected to the other, having begun with phonemic awareness, alphabetic understanding and phonological decoding as parts of the alphabetic principle, and building on to that with fluency growing from decoding abilities, and then finally tying to vocabulary and comprehension of what was read. Phonemic awareness has been the basic beginning principle in the steps to teaching and encouraging growth in any and all young children's journey towards literacy.

Another study by Lonigan, et. al. (2009) focused on phonological processing abilities being tied closely to vocabulary, general cognitive abilities, and print knowledge, all skills that fall within the five domains of Washington state early learning benchmarks. Without the foundation of understanding of letters and the sounds associated with them, young students would never have been able to continue building their literacy skills of accuracy, fluency and comprehension, with the end result in reading and writing mastery.

With early literacy skills being one of the core components of school readiness, basic sense pointed toward literacy assessments being one of the logical methods used to measure at least one aspect of student readiness: early literacy skills. The Dynamic Indicators of Basic Early

Literacy Skills (DIBELS) tests were designed as “. . . a set of procedures and measures for assessing the acquisition of early literacy skills from kindergarten through sixth grade. They are designed to be short (one minute) fluency measures used to regularly monitor the development of early literacy and early reading skills” (U. of O., 2009). DIBELS testing was created at the University of Oregon’s Center on Teaching and Learning (U. of O., 2009). DIBELS testing at the kindergarten level consists of four different assessments given with varied frequencies throughout the school year to track student progress on the five skills focused on as the foundation of early literacy. The four areas of early literacy skills assessed by the DIBELS were Initial sound Fluency (ISF), Letter Naming Fluency (LNF), Phoneme Segmentation Fluency (PSF), and Nonsense Word Fluency (NWF). All of the fluency tests were designed to measure success in the areas of early literacy except Letter Naming Fluency. According to the U. of O., Letter Naming Fluency test did not measure a specific early literacy skills, “. . . the measure is highly predictive of later reading success, it is included as an indicator for students who may require additional instructional support on the Basic Early Literacy Skills” (2009).

Several things have assisted educators in delivering quality instruction and, in turn, helped to create successful, literate students. Some important pieces of the puzzle included a high quality curriculum

that focused on the five big ideas in early literacy, and a systematic, research-based system from which to deliver practice and measure students' growth in early literacy skills. DIBELS assessments were chosen, among a limited number of other assessment materials and curriculums, by the Reading First Grant. The Reading First Grant was a federal grant created by the United States Department of Education in 2002 to put methods of early reading instruction that have been proven effective through research into classrooms. "Through Reading First, states and districts receive support to apply scientifically based reading research—and the proven instructional and assessment tools consistent with this research—to ensure that all children learn to read well by the end of third grade." (U.S. Dept. of Ed., 2002). Along with periodic testing at least three times during the school year, DIBELS utilized a Progress Monitoring system that allowed students regular opportunities to measure students' level of mastery of given early literacy skills. Additional instructional support directly related to the four DIBELS tests was given with greater or lesser frequency, depending on students' scores (U. of O., 2009).

Assuring a solid base in all areas of early literacy was very important to ensure students' progress later in their schooling, according to the RMC Research Corporation (2010). "If students are fluent readers

by the end of first grade, research validates that they will have the necessary prerequisite skills to focus on reading to learn in subsequent grade levels and throughout life” (RMC Research Corporation, 2010). This concept of learning to read in the primary years of schooling in order to read to learn for the remainder of a child’s learning was the crux of the research behind DIBELS assessments and using their information to guide instruction in early literacy.

### Summary

The review of selected literature and related investigation reported in Chapter 2 supported the following research topics:

1. School Readiness encompassed multiple aspects of a child’s development, including physical and motor development, social and emotional development, approaches to learning, cognitive development, and language, literacy and communication.
2. Quality prekindergarten programs were found to have had a positive and profound influence on children’s learning and developmental readiness upon entering kindergarten.
3. DIBELS as a Measurement of Early Literacy Skills.

Students needed to be better prepared for school upon entering kindergarten. Prekindergarten programs of all types have been working to

close the readiness gap that has existed for so many students when beginning their schooling careers.

## CHAPTER 3

### Methodology and Treatment of Data

#### Introduction

The purpose of this experimental research study was to compare whether or not students who attended some kind of prekindergarten program would score higher on DIBELS testing than students who did not receive any kind of prekindergarten services before entering kindergarten. To accomplish this purpose, a thorough review of selected literature related to the subject was conducted. Next, the timeline and assessment tool was determined. Additionally, a *t*-test for independent samples was undertaken to obtain baseline data. Related conclusions or recommendations were then formulated from the analysis of the data obtained.

Chapter three describes the methodology used in the experimental study. It also contains information regarding the participants, instruments used, design of the study, as well as the procedure, treatment of the data, and lastly, a summary.

#### Methodology

This was an experimental study comparing school readiness in kindergarten students from McClure Elementary School in the Yakima School District in Yakima, Washington. Specifically, all students attending

the two Content English as a Second Language (ESL) kindergarten classes took part. The classes were studied to discover whether or not the students who attended any kind of preschool prior to entering kindergarten exhibited school readiness more than the students who did not attend any kind of preschool before entering kindergarten. School readiness was measured by scores on the DIBELS testing, specifically one subtest, the Letter Naming Fluency test (LNF). A  $t$ -test for independent samples was utilized for data analysis to determine significance between the control and experimental groups. Both groups were administered the same test and each group received a different treatment.

### Participants

The participants of the study were a convenient sample consisting of the kindergarten students attending both the author's Content ESL class and Mrs. Cheyenne Ammerman's Content ESL class. Originally, the classes began the year with 25 and 26 students, 51 students total. However, due to the mortality of the study, 44 students, 18 boys and 26 girls, were used as participants in the study. High mobility of students at McClure accounted for some of the students being discounted as participants. Additionally, some students were not tested in both the fall and the spring due to attendance issues or other unknown factors. The participants ranged in age from five to seven years. Of the participants,

42 students were native English speakers and two students were native Spanish speakers. There were 26 female participants and there 18 male participants.

Participants were separated into a control group and an experimental group. The control group consisted of the participants who had not received any kind of prekindergarten program upon entering kindergarten for the 2009-2010 school year. The experimental group consisted of the participants whose parents had reported on an informal survey that they had received some kind of prekindergarten program that focused on school readiness skills before entering kindergarten for the 2009-2010 school year.

### Instruments

The Dynamic Indicators of Early Basic Literacy Skills (DIBELS) was used to measure the achievement of the participants. The DIBELS tests focused on the five big ideas of early literacy as identified by the National Reading Panel: phonemic awareness, alphabetic principle, accuracy and fluency, vocabulary, and comprehension. This series of one minute tests was given to the participants in early fall 2009, winter 2010, and spring 2010. The fall and spring scores were used to measure achievement of both the control and experimental groups. Specifically, the Letter Naming Fluency (LNF) DIBELS subtest scores were focused upon for the study.

The DIBELS had been an established assessment tool used in the classrooms of the control and treatment groups for the last six years. This was an influential factor when the researcher was considering instruments for the experimental study.

An informal survey was also conducted by the classroom teachers in the fall of 2009, either in person, over the phone, or on paper. This survey asked the parent(s)/guardian(s) of the participants whether or not the student attended any kind of prekindergarten program prior to the 2009-2010 school year.

### Design

This study had a non-equivalent design. The researcher did not specify or recruit specific students to participate. On the contrary, the students who were enrolled at McClure Elementary and were assigned to the Content ESL classrooms, whether they requested a given teacher or not, were the students that were used. This meant that there may have been more students in the group that had already attended preschool and less students that did not, or vice versa. The control and experimental groups were both pre and post tested. A *t*-test for independent samples was used to find significance.

## Procedure

In fall 2009, permission for the study was requested and granted by Del Carmichael, MES principal. Also in the fall of 2009, within the first two weeks of school, the DIBELS LNF assessment was administered to all kindergarten students by YSD appointed and trained DIBELS testers. When given the results, the kindergarten Content ESL teachers set up and implemented interventions according to protocols previously established. Routine progress monitoring also took place throughout the 2009-2010 school year. During the week of fall 2009 conferences, both Content ESL teachers asked parents the questions on the informal survey regarding what type of schooling, if any, their child had prior to entering kindergarten. In the spring, specifically in May 2010, the DIBELS LNF assessment was again administered to participants. From January through April 2010, the researcher conducted a review of literature through the Heritage University Library and the Internet. In spring 2010, the participants were separated into control and experimental groups based on the informal surveys from fall 2009. The data from fall 2009 and spring 2010 DIBELS LNF assessment was collected from the MES Instructional Facilitator (IF), Jacqueline Mayes. Finally, in spring 2010, data analysis was completed and study outcomes were determined for significance.

### Treatment of the Data

The Windows STATPAK statistical software program that accompanied *Educational Research: Competencies for Analysis and Applications Test* (Gay, Mills, & Airasian, 2006), was utilized along with a *t*-test for independent samples. This allowed the researcher to analyze the results of the control and experimental groups on the DIBELS LNF assessment. The following formula was used to test for significance:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

### Summary

Chapter three was designed to review the methodology and treatment of the data related to the problem to compare academic performance of students who had and did not have exposure to some kind of prekindergarten before entering kindergarten. The experimental study was conducted using an already established group of students found in the two Content ESL classrooms at MES in the Yakima School District. Mobility of students along with other unforeseen issues caused the control and treatment groups to be slightly smaller than originally planned. The easy availability along with the close connection of early literacy skills being an intricate part of school readiness led the researcher to use the

DIBELS LNF assessment. A thorough analysis of data and findings of the study were reported in Chapter four.

## CHAPTER 4

### Analysis of the Data

#### Introduction

The study sought to determine to what extent, if any, the experience of prekindergarten programs improved students' early literacy skills as measured by the DIBELS LNF assessment scores. Chapter four was organized to include a description of the environment, hypothesis, null hypothesis, results of the study, findings, and a summary.

#### Description of the Environment

The study included data from the 2009-2010 school year. The students involved in the study were a convenient sample of all students eligible for the study from the Content ESL kindergarten classes at MES in the Yakima School District in Washington State. This population included two classrooms of students, belonging to the researcher, Mrs. Sara J. Sullivan, and Mrs. Cheyenne Ammerman. The writer specifically utilized data collected from the 2009-2010 fall and spring DIBELS LNF assessment. An informal survey created by the researcher was also utilized to ascertain which students had been enrolled in a preschool program and which students had not been enrolled in any kind of preschool program.

### Hypothesis/Research Question

Participating students who attended a prekindergarten program prior to entering kindergarten showed more mastery of early literacy skills at the beginning of the school year than students who did not attend a prekindergarten program. The researcher sought to determine if students who attended a prekindergarten program scored higher on the DIBELS LNF assessment than student who did not receive any kind of prekindergarten program.

### Null Hypothesis

No significant difference was found between participating students that have or have not attended a preschool program. Significance was determined for  $p \geq$  at 0.05, 0.01, and 0.001.

### Results of the Study

Table 1 showed the raw scores from the fall 2009 DIBELS LNF (the pre-test) and spring 2010 DIBELS LNF assessments (the post test). Scores were listed for both Group X, the experimental group who experienced some kind of prekindergarten, and for Group Y, the control group who did not experience any kind of prekindergarten program.

Table 1  
Letter Naming Fluency (LNF) Scores for Groups X and Y

	Experimental Group X		Control Group Y		
	Fall 2009	Spring 2010	Fall 2009	Spring 2010	
S1	21	81	T1	3	68
S2	16	38	T2	6	42
S3	18	70	T3	6	29
S4	9	52	T4	0	26
S5	4	58	T5	5	63
S6	22	53	T6	4	56
S7	12	68	T7	16	67
S8	7	45	T8	25	44
S9	3	58	T9	5	35
S10	0	7	T10	0	0
S11	17	84	T11	0	9
S12	7	23	T12	13	27
S13	46	76	T13	0	67
S14	11	50	T14	2	66
S15	18	72	T15	19	30
S16	17	49	T16	0	32
S17	20	54	T17	22	48
S18	20	41	T18	5	44
S19	4	70	T19	0	59
S20	0	72			
S21	8	38			
S22	0	34			
S23	37	64			
S24	37	66			
S25	5	66			

*Note.* Raw DIBELS LNF scores for experimental (X) group and control (Y) group from fall 2009 and spring 2010.

The scores in Table 1 were then entered into the Windows STATPAK statistical software program (Gay, Mills & Airasian, 2006) in a

*t*-test for independent samples to calculate the differences between fall 2009 DIBELS LNF scores for Group X and Group Y. In Table 2, a *t*-value of 2.33 shows that in the fall, upon entering school, there was already significant difference between the preparedness of Group X compared to Group Y. The mean for Group X scores was significantly higher, 14.36, than the mean for Group Y scores, 6.89. This indicated that the impact of school readiness in the participants who attended some kind of prekindergarten program was evident from the beginning of the kindergarten school year.

Table 2  
*t*-test for Independent Samples for Fall 2009

Statistic	Value
Number of Scores in Group X	25
Sum of Scores in Group X	359.0000
Mean of Group X	14.36
Sum of Squared Scores in Group X	8635.00
SS of Group X	3479.76
Number of Scores in Group Y	19
Sum of Scores in Group Y	131.0000
Mean of Group Y	6.89
Sum of Squared Scores in Group Y	2071.00
SS of Group Y	1167.79
<i>t</i> -Value	2.33
Degrees of Freedom	42

*Note.* Table 2 was calculated using the raw scores from the fall 2009 DIBELS LNF assessment for the students in experimental group X and group Y.

The author then created Table 3 to determine the difference, if any, in the spring 2010 scores for Group X and Group Y. Table 3 used the  $t$ -test for independent samples.

Table 3  
 $t$ -test for Independent Samples for Spring 2010

Statistic	Value
Number of Scores in Group X	25
Sum of Scores in Group X	1389.0000
Mean of Group X	55.56
Sum of Squared Scores in Group X	85379.00
SS of Group X	8206.16
Number of Scores in Group Y	19
Sum of Scores in Group Y	812.0000
Mean of Group Y	42.74
Sum of Squared Scores in Group Y	41960.00
SS of Group Y	7257.68
$t$ -Value	2.20
Degrees of Freedom	42

*Note.* Table 3 was calculated using the raw scores from the spring 2010 DIBELS LNF assessment for the students in experimental group X and group Y.

The degrees of freedom of 42 and the *t*-value of 2.20 were used by the researcher to determine the significance regarding the spring 2010 DIBELS LNF scores for Group X and Group Y. Significance was determined for  $p >$  at 0.05, 0.01 and 0.001.

Table 4

Distribution of *t* with 42 Degrees of Freedom

df	P		
	0.05	0.01	0.001
42	2.021	2.704	3.551

*Note.* To determine significance.

## Findings

Data obtained was used to compare the growth from Group X and Group Y to identify to what extent, if any, prekindergarten programs had on students school readiness, as measured by the DIBELS LNF assessment. Using statistical analysis, the researcher found a significant difference between treatment and control groups at the levels of  $p \geq 0.05$  (2.021), but found no significant differences between treatment and control groups at the levels of  $p \geq 0.01$  (2.704), and 0.001 (3.551). Consequently, the hypothesis was not supported and the null hypothesis was accepted.

Table 5  
Level of Acceptance/Support for the Null Hypothesis/Hypothesis

	0.05	0.01	0.001
Null Hypothesis	Rejected	Accepted	Accepted
Hypothesis	Supported	Not Supported	Not Supported

## Discussion

As the detailed analysis above indicated, the hypothesis was not supported, i.e., students who experienced prekindergarten programs showed significant growth above their peers who did not attend any kind of prekindergarten program.). The basic research question was answered negatively.

## Summary

McClure Elementary School's incoming Content ESL students were assessed on their Letter Naming skills in the fall of 2009 upon entering kindergarten and again in the spring of 2010. Students in that set who had and had not experienced a prekindergarten program were compared for significant difference in overall skill. The researcher's hypothesis was not supported due to the lack of significant growth shown throughout the course of the study. The data showing the academic advantages of students attending prekindergarten programs was inconclusive compared to students who did not attend any kind of prekindergarten program before entering kindergarten. The *t*-score for showing growth between the two groups showed significance at the 0.05 level but was not significant at the 0.01 and 0.001 levels and therefore did not support the hypothesis.

## CHAPTER 5

### Summary, Conclusions and Recommendations

#### Introduction

The purpose of the study was to discover whether or not the experience of a prekindergarten program would have a positive affect on kindergarteners' academic achievement, specifically letter naming ability as a subset of early literacy skills. The experimental design was used to discover whether or not significance was found between scores from students who attended a prekindergarten program and students who did not.

#### Summary

The researcher chose two Content ESL classrooms on which to focus and sought to determine whether or not having attended a prekindergarten program had a positive affect on students' early literacy skill of letter naming. A convenient sample was used to conduct the experimental study. The students were tested using the A *t*-test for independent samples was conducted, along with finding the degrees of freedom and the distribution of *t*. After gathering data from DIBELS LNF testing in both the fall 2009 and spring 2010, there was some growth evidenced in the findings, but not enough so to substantiate significant growth.

## Conclusions

School readiness was identified as a key factor of student achievement in kindergarten. In turn, achievement or lack thereof in the area of early literacy within the first two years of schooling was found to be an indicator of future achievement or struggles for students throughout the remainder of their schooling careers. The researcher found significant growth from fall to spring in letter naming scores for several students, but it was not enough overall to show significant growth for the purpose of the study. Many factors beyond the author's control were influential to the study. Such factors included, but were not limited to the following: four students who had prescription glasses meant to be worn daily while reading but were regularly broken or not worn, nine students who were receiving speech services for speech issues that may or may not have had an influence on their scores, and four students who had individual education plans (IEPs) that required daily time spent in the resource room working on literacy skills practice. Beyond that, there were up to eight more students that were identified during the time of the study as students who may need special education services and were in the process of being referred.

Despite the unforeseen factors that may or may not have influenced the study's outcomes, 20 of the 25 students who began

kindergarten having experienced a prekindergarten program had scores that met or exceeded the desired benchmark for the posttest in the spring. This is in contrast to only 11 of the 19 students who did not experience a prekindergarten program before entering kindergarten reaching or surpassing the benchmark for the spring posttest. Ultimately, the mean of the treatment group was over seven points higher than that of the control group in the fall and over 12 points higher in the spring. Though this was not a significant difference, the data gave the researcher more information with which to work off of in future dealings with the subject of school readiness and preschool's role in preparing students to achieve in kindergarten.

### Recommendations

Due to the broad spectrum of the concept of school readiness and the fact that it is not only academic readiness, but cognitive and social-emotional readiness as well, the researcher may have chosen other method(s) to go along with or replace the DIBELS LNF assessment as the measurement for the study. It was used partially because of easy availability and partially because the Yakima School District, along with a great many other school districts, recognizes it to be an important indicator of not only students' early literacy skills in kindergarten, but as a vital indicator as to how students will perform later in the schooling. However,

this has in recent years been scrutinized and experts have begun to question the level to which DIBELS testing was found to be a reliable indicator of students' future performances.

The sample size of students used in the study was a convenient sample, however, the researcher believes that if a larger sample size was used, specifically using both the dual language kindergarten classes as well as the Content ESL kindergarten classes, the results would have been a more valid sampling and would have shown the significant growth that the researcher was looking for to support the hypothesis.

Although this study focused specifically on the academic knowledge that may be improved by students receiving a prekindergarten program before entering kindergarten, the researcher believes that all aspects of school readiness are further encouraged and developed by students experiencing a preschool or other prekindergarten program. However, for the purpose of this study, the researcher believes that enlarging the study sample to include both the dual language and Content ESL kindergarten classes at McClure Elementary School would give a large enough sample to lend more validity to the study and as a result show more of the significant growth questioned in the hypothesis of this study.

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