

Enterprise for Progress in the Community: Head Start Program Impact  
Comparison in Kindergarten, First Grade, and Second Grade of the  
Yakima School District

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FACULTY APPROVAL

Enterprise for Progress in the Community: Head Start Program Impact  
Comparison in Kindergarten, First Grade, and Second Grade of the  
Yakima School District

Approved for the Faculty

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## ABSTRACT

The study's was to determine the extent to which the EPIC Head Start Preschool Program improved students' education. The advantages that resulted from the program were identified through early reading fluency scores, using the Dynamic Indicators of Basic Early Literacy Skills. Permission was given between the administration of the Yakima School District and the Head Start grantee Enterprise for Progress in the Community. The study participants were three graduated Head Start students in grades 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> grade and the control group was their peers. The results were inconclusive there was not relationship between DIBELS scores and prior Head Start schooling. More reflective indicators were necessary to measure the dynamic nature of the impact of Head Start.

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## TABLE OF CONTENTS

	Page
FACULTY APPROVAL.....	ii
ABSTRACT.....	iii
PERMISSION TO STORE.....	iv
TABLE OF CONTENTS.....	v
CHAPTER 1.....	1
Introduction.....	1
Background for the Project.....	1
Statement of the Problem.....	2
Purpose of the Project.....	3
Delimitations.....	3
Assumptions.....	5
Hypothesis.....	7
Null Hypothesis.....	7
Significance of the Project.....	7
Procedure.....	8
Definition of Terms.....	10
Acronyms.....	11

	Page
CHAPTER 2.....	12
Review of Selected Literature.....	12
Introduction.....	12
Early Education and Understanding Learning.....	13
Early Childhood Education Measurement.....	18
Brain Development.....	22
Figure 1, Human Brain Activity.....	24
Figure 2, Human Brain Development.....	25
Socio-Emotional Development.....	26
Early Literacy.....	28
Attendance and School Readiness.....	31
Summary.....	33
CHAPTER 3.....	35
Methodology and Treatment of Data.....	35
Introduction.....	35
Methodology.....	35
Participants.....	36
Instruments.....	37
Design.....	39
Procedure.....	40

	Page
Treatment of the Data.....	40
Summary.....	42
CHAPTER 4.....	43
Analysis of the Data.....	43
Introduction.....	43
Description of the Environment.....	43
Hypothesis/Research Question.....	44
Null Hypothesis.....	45
Results of the Study.....	45
Table 1, Proportion at Risk.....	46
Table 2, ANOVA.....	47
Table 3, Mean and Standard Error.....	48
Table 4, Fishers Exact Test.....	48
Findings.....	49
Discussion.....	49
Summary.....	50
CHAPTER 5.....	51
Summary, Conclusions and Recommendations.....	51
Introduction.....	51
Summary.....	51

	Page
Conclusions.....	55
Recommendations.....	56
REFERENCES.....	57
SUPPLEMENTAL REFERENCES.....	62



## CHAPTER 1

### Introduction

#### Background for the Project

Early childhood education was at the forefront of many politicians and educators as an answer to discouraging statistics on the American Education System. United States (U.S.) Representative, Jim McDermott, has “sharply criticized President Bush for claiming to be the “education president” while offering no meaningful proposals to improve early childhood education,” (Brown, 1989 p. 1). McDermott stated, “an estimated 64 percent of U.S. mothers are in the work force, with one-quarter of those mothers raising their children alone. One in four children live in poverty, and one of these children dies from malnutrition and neglect every hour of every day” (Brown, 1989 p.1).

Washington State began to take a strong stance on supporting early childhood education in 2006. “Governor Gregoire has maintained that early child education is an essential ingredient in preparing students for an increasingly competitive global marketplace,” (McGann, p. 20) She’s made it clear that she intended to invest part of the current 1.9 billion surplus in education outside the traditional kindergarten-through-high school system” (McGann, 2006 p. 2). Gregorie established the Thrive by Five program and the Department of Early Learning (McGann, 2006 p. 2). Gregorie bolstered her support by citing studies that claimed an “eight dollar return for every dollar invested in early childhood

education. The pay off comes in the form of everything from increased high school graduation rates to reduced teenage pregnancy and crime”

(McGann, 2006 p. 2).

Early child education made sound financial sense. The Nobel Prize-winning economist at the University of Chicago, James Heckman, “argues that spending on preschool ultimately pays for itself. Early child education makes workers more productive and reduces crime. No other form of education spending brings nearly the same bang for the buck” (Leonhardt, 2007 p. 2). Heckman “has estimated that the return on investment in early childhood education is as high as fifteen to seventeen percent” (Pritzker, 2006 p. 1).

### Statement of the Problem

Early childhood education has been proclaimed as a means to address many of the issues associated with education: school readiness, drop out rates, attendance rates, academic performance, parent involvement, as well as social issues such as a prepared workforce, crime, and poverty. The Head Start program was established over the last forty years in the Yakima Valley through Enterprise for Progress in the Community (EPIC). There were no noted studies of the EPIC Head Start program and its school related impact; however the need to know was apparent. The Yakima School District had completed an internal study of the 2003-2004 Early Childhood Education Assistance Program (ECEAP) in the winter of 2006, but there were no conclusive results. The early childhood

education environment changed with the establishment of the Department of Early Learning and with the award of a 90 million dollar early childhood education grant from the Bill and Melinda Gates Foundation to the Educational Service District 105 (ESD) in 2007. The need to know the impact of existing early childhood programs has forged a path towards understanding the beneficial impact of the existing programs. The impact EPIC Early Childhood Programs had on first graders, second graders, and third graders in the areas of literacy skills, socio-emotional development, and attendance demonstrated the value of the Head Start program to the issues the education system faced.

#### Purpose of the Project

The study determined the extent to which the EPIC Head Start Preschool Program improved students' education. This helped the community and educators focus their effort. Students at benchmark in first grade were more likely to remain on benchmark throughout school. The advantages that resulted from the program were identified through early reading fluency scores, using the Dynamic Indicators of Basic Early Literacy Skills.

#### Delimitations

The participants were EPIC Head Start and ECEAP graduates from the Jefferson and Fairview sites that attended first grade, second grade, and third grade in the Yakima School District (YSD) in the 2007-2008 school year. The control groups were first graders, second graders, and third graders.

The proposed design of the study drew equal amounts of like test and control group members and reduced many of the variables. However, the district was unable to isolate individual student data and provide access to the researcher. The school district was unable to furnish specific demographic and class specific data due to confidentiality and privacy laws. This data would have included children that qualified for free or reduced lunches that had not attended EPIC and that were in the same classes as the Head Start and ECEAP graduates in first grade, second grade, and third grade. This would have been done to ensure the control group had a similar background and a similar environment for a minimum of one year in the public schools. The Dual Language and Bilingual Programs offered at these grade levels were not a significant variable because the same percentage of test and control members came from the same classrooms. Enterprise for Progress in the Community Jefferson and Fairview sites contained federally funded Region X and state funded ECEAP graduates.

The special needs Head Start and ECEAP students at EPIC were approximately ten percent. Due to attrition of subjects this percentage was six percent for the test group and one percent for the control group.

Ideally the control group students would have been screened to determine that they had no prior intervention. Specifically, the Yakima Schools maintained developmental preschool for children with special needs; these students were

identified to ensure they were not part of the control group due to the intervention which had the potential to skew the results of the study.

English and non-English speaking households variable was unable to be isolated due to the limited access the author had to the primary language variable. Test and control group members would have been divided according to the respective language of the test groups for each grade. Equal amounts of the control groups for each grade would have been included, thus eliminating the language variable in the comparison, but the researcher was unable to access this information. The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) in Spanish was not normalized; the test group and control group would have allowed for a comparison because the test group and control group members would have been paired by similar characteristics including the same literacy test in Spanish.

Due to the previous study in the winter of 2004 by the Yakima School District, which focused on oral reading fluency, the researcher intended to include the two additional independent variables of attendance rates and the children's socio-emotional scores to triangulate data. The triangulation of data would have allowed the author to decipher additional patterns relative to the impact of the intervention, and thus furthered the quality of the study and its value.

### Assumptions

Children from families of poverty in Yakima were assumed to display similar traits. Variables which were assumed to have been similar in the test group

and control group were not isolated in the study due to the similarity of socio-economics and demographics, but variables were not limited to: marital status of household, parent education level, parenting skills, frequency of abuse, neglect, domestic violence, substance abuse, nutrition level, incidences of mental health disorders because these were assumed to be variables which were similar for the population.

Interventions done during the test group's time at EPIC were not a significant variable. Such services beyond Head Start and ECEAP were not isolated because the influence of additional services, for example, parenting classes, Sunday school programs, and state sponsored programs such as Temporary Assistance for Needy Families (TANF) and Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), were assumed to be similar in both test group and control group. However, the lack of information available to the researcher did not permit socio-economic variables to be isolated. The assumption was that the percentage of services accessed by similar socio-economic and demographics was similar except in those cases in which EPIC referral services increased the percentage of additional services accessed by the subject families. The variable was inclusive of the EPIC services and thus part of the overall influence of EPIC.

### Hypothesis

Early Childhood Education had shown to have a positive impact on the future of students' education. Higher oral reading fluency scores resulted in the 2007-2008 winter DIBELS scores in first graders, second graders, and third graders who were EPIC Head Start and ECEAP graduates rather than their peers who did not attend EPIC.

### Null Hypothesis

Early Childhood Education has shown to have no positive impact on the future of students. There was no significant difference in oral reading fluency scores using winter DIBELS between EPIC preschool graduates in the 2007-2008 first grade, second grade, and third grade from the YSD, and their cohorts in those classes that did not attend EPIC, significance at  $p \geq 0.05$ .

### Significance of the Project

The study originally proposed would have provided information pertinent to many of the issues faced by the YSD, such as school readiness, student achievement, and a means to influence student success and No Child Left Behind (NCLB). Socio-emotional levels, attendance rates, literacy skills, and the resolution rate of special needs were factors that had a direct impact on critical issues the YSD confronted. Early childhood momentum has accelerated; however, EPIC had no significant studies tied with the school district to validate the worth of the early childhood programs to the public schools.

## Procedures

The researcher requested the approval from the Executive Director of EPIC to pursue the described research project in partnership with the Yakima School District. The researcher requested permission from the Assistant Superintendent of the Yakima School District to study the impact of Head Start and ECEAP early childhood programs on YSD students first grade through third grade. The author asked for lists of EPIC Head Start and ECEAP graduates from the EPIC Jefferson Early Childhood Centers from 2001 to 2006; however the only available list of graduates were from 2003 to 2006 from the Fairview and Jefferson sites. The researcher discussed the study with the YSD Assistant Superintendent and determined the kind of data available for the study, including attendance rates, socio-emotional scores, DIBELS – oral reading fluency scores, primary language spoken in the home, and language tested for literacy for the three respective grade levels. It was later determined that only oral reading fluency scores were the only data available, which reduced the scope and depth of the study. The researcher requested support from the Executive Director of EPIC and the Superintendent of Yakima to permit EPIC and the YSD to work collaboratively and share information relevant to the research. The author asked for information from EPIC which identified the students with special needs while the children were with EPIC for the three relevant years between 2004 and 2006



at Jefferson and Fairview site. The process to obtain the permission and the data took much longer than expected and was obtained by March 2008.

## Definition of Terms

bilingual program. Involved teaching all subjects through two different languages. (Wikipedia)

convergent. Grew together, an entity with a limit. (Wikipedia)

divergent. Grew further apart, not converged. (Wikipedia)

dual language. A form of education in which student were taught literacy and content in two languages. (Wikipedia)

early childhood education. A pedagogical approach that covered the education of children from the period from birth to six years of age. (Wikipedia)

oral reading fluency. Was a standardized, individually administered test of accuracy and fluency with connected text. Passages calibrated for goal level reading for each grade level. Student performance was measured by having students read a passage aloud for one minute. Words omitted, substituted, and hesitations of more than three seconds were scored as errors. Words self-corrected within the three seconds were scored as accurate. The number of correct words per minute from the passage was the oral reading fluency rate.

(<http://dibels.uoregon.edu/measures/orf.php>, 4/13/08)

school readiness. The condition of children when they entered school in the areas of health and physical development, social and emotional development, approaches toward learning, language development and communication, cognitive and general knowledge. (Ready for School Goal Team)

## Acronyms

ANOVA. Analysis of Variance

DIBELS. Dynamic Indicators of Basic Early Literacy Skills

ECE. Early Childhood Education

ECEAP. Early Childhood Education Assistance Program

EPIC. Enterprise for Progress in the Community

ESD 105. Educational Service District 105

IEP. Individualized Education Plan

NCLB. No Child Left Behind

NHSA. National Head Start Association

NIEER. National Institute for Early Education Research

REL. Regional Educational Laboratory

SD. Standard Deviation

TANF. Temporary Assistance for Needy Families

YSD. Yakima School District

U.S. United States

WIC. Special Supplemental Nutrition Program for Women, Infants, and  
Children

## CHAPTER 2

### Review of Selected Literature

#### Introduction

The noted benefits of Early Childhood Education were numerous; studies of brain development demonstrated that synapse connections developed to the highest concentration by three years of age. The growth of the brain mass was accelerated during the year's prior to kindergarten compared to any other time during a person's life. In a study of 600 Head Start Graduates in San Bernardino County, California, the Nation Head Start Association (NHSA) explained that for every dollar invested in children the benefits to society were nearly nine dollars. Such benefits included increased earnings, employment, and family stability, and decreased welfare dependency, crime costs, grade repetition, and special education (NHSA, 2007). The research revealed, "Head Start children are significantly less likely to have been charged with a crime than their siblings who did not participate in Head Start" (NHSA, 2007). Experts from the state expressed, "Preschool benefits can also go beyond school success to healthy life choices and attitudes about school achievement, smoking or using drugs, and participation in the community" (Clotheir, S. & Poppe, J., 2007). The evidence from research was that Early Childhood Education was able to improve skills. The question: was Early Childhood Education effective in the Yakima Schools; through a look at the cited importance of socio-emotional development, early

literacy, and attendance? It was determined that these indicators were significant. Furthermore the researcher explored and reviewed the discipline of Early Childhood Education, concept of learning, the impact and assessment of Early Childhood Education, and the relevance of early brain development.

### Early Childhood Education and Understanding Learning

Head Start is a preschool program designed for disadvantaged children, with the goal of closing the gap between them and their more advantaged peers. Additionally, Head Start not only provides a learning environment, but it also offers healthcare, nutrition, special needs services, mental health support, and services for parents and the community.

Head Start plays a role in the cognitive development of students who are disadvantaged. Cognitive development is the gradual orderly changes by which mental processes become complex and sophisticated, and it refers to changes in thinking. (Soriano, D. 2006 p. 5)

Early Childhood Education by definition has the potential to begin at birth. The child's development centered around the child's genes and environment – nature versus nurture. Yet it was environment that teachers and parents have influence over.

Heredity may determine the basic number of neurons children are born with, and their initial arrangement, but this is just a framework. A child's

environment has enormous impact on how these cells get connected or wired to each other. (University of Maine Cooperative Extension, 2008)

The science demonstrated the Early Childhood Development was key for language; and that the traditional memorization and drill exercise have little positive influence with long-term memory and brain development:

Scientists believe that language is acquired most easily during the first ten years of life. During these years, the circuits in children's brains become wired for how their own language sounds. Research does not suggest drilling children in alphabet songs from different languages or using flash cards to promote rote memorization of letters and numbers. Children learn any language best in the context of meaningful, day-to-day interactions with adults or other children who speak the language. (University of Maine Cooperative Extension, 2008)

The educational systems and basic early education approaches need to be re-evaluated, particularly to impact attitudinal and motivational elements of education which were key for successful education.

Efforts to improve the education system must focus squarely on optimizing student learning, motivating students to achieve, and furthering teacher professional development. As clear and compelling as such goals may be, the route to attaining them is obscured by a dense fog of widely held misconceptions, conflicting expert opinion, and political agendas.

What is disregarded in the frantic quest to attain high test scores is the emphasis on motivation, interest, and metacognition – the ability to analyze one’s own learning needs and processes – make a collective and profound contribution to academic achievement. (Jalongo, M. 2007)

Education needs to be adjusted to ensure lasting learning occurs rather than success on standardized tests:

Children’s learning is supported by task-related incentives, both intrinsic extrinsic, that is responsive to the individual child, the domain of study, and the socio-cultural context. Effective teaching transcends merely imparting knowledge and relies, to a considerable extent, on educators’ ability to motivate students to learn. Any characterization of learning that disregards the role of motivation and interest is shortsighted at best and destructive at worst. (Jalongo, M. 2007 p. 395)

The researcher adopted the conceptualized understanding of learning from Jalongo:

Learning consists of four interrelated types: knowledge-acquiring information, skill-the ability to demonstrate a particular behavioral repertoire, feelings-the emotions connected with the learning, and dispositions-habits of the mind that become internalized, such as curiosity or persistence. (Jalongo, M. 2007 p. 396)

The learning environment had an essential role of forming the child's environment around learning which the core belief for that child becomes until another experience changes those feelings about learning and education. However, those feelings become difficult to change because they become the base for perceived reality of the child of what learning was.

Learners amass both positive and negative feelings about learning experiences and, with time and experience, decide what generally works for them. Far from being in the background, emotions often lead the way. Feelings may assume even greater importance for young learners who, based on their limited experience, can become discouraged easily, decide that they simply are not good at something or over generalize to conclude that they are not very smart. Emotions influence motivation, interest, and ultimately, academic achievement just as surely and powerfully as cognitive ability. Positive support is embodied in the positive relationships that learners form with trustworthy and admirable teachers. (Jalongo, M. 2007 p. 397)

Schools and the education systems have the potential to positively influence and heal children yet they have the same potential to negatively influence children and be a destructive force in the child's life.

Perhaps most important of all, attention to affective aspects of learning in schools helps to build resiliency in students when their families are too



troubled, destitute, and chaotic to focus on educational goals. If the child regards school as a safe haven, rather than an institution that judges his or her family, home, and community harshly, this positive affect can build and sustain a commitment to academic pursuits, despite limited family support. (Jalongo, M. 2007 p. 397)

Learning was a complex dynamic balance between relationships, systems of understanding, and the experienced reality of the child.

Learning then is an ongoing process involving the reciprocal interplay among the learner, other individuals, social systems, and culture.

Individual learning is shaped by others, including peers, who function as mentors giving structure, order, and accessibility to knowledge. (Jalongo, M. 2007 p. 397)

Culture played an essential role because culture was the construct for understanding the dynamic and meaning of the relationship which was the context for learning. “Children acquire human knowledge from interacting with their elders and peers by participating in their culture.” (Jalongo, M. 2007 p. 398)

There were three types of interests determined in learning which were part of the success to understand interest. “Research on interest can be divided into three broad topics: 1. situational interest, 2. individual interest, and 3. instructional facilitation of interest.” (Jalongo, M. 2007 p. 400) The interest in turn was tied to motivation: “Learners are motivated to learn when they can reconcile the

perceived value (i.e., reasons of doing/learning something” with the cost (i.e., expenditure of effort and emotional investment required to accomplish the learning.” (Jalongo, M. 2007 p. 397)

An educator’s principal role was to maintain motivation:

Teachers can stave off motivation decline by consistently providing stimulating tasks that are connected to academically significant goals, for this increases the learners’ situational interest. When the learners are interested, they are better able to focus attention, have more positive feelings about the learning experience, and are more likely to store the learning in long-term memory. (Jalongo, M. 2007 p. 401)

The balance to maintain motivation was specific to level of challenge:“The key is to set the level of difficulty at the point where the learner needs to stretch a bit and can accomplish the task with moderate support.” (Jalongo, M. 2007 p. 401)

### Early Childhood Education Measurement

The complexity and dynamics associated with early childhood education require the significant improvements in measuring outcomes occurred. A noted study from the Regional Educational Laboratory through the U.S. Department of Education expressed:

Ensuring that instruments used to evaluate school readiness programs are valid and reliable for specific children being assessed is particularly important because of the high degree of variability in the learning and

development of children at this age and the limited number of appropriately normed and validated instruments for very young children. (Department of Education, 2007 p. 21)

In general, many of the well known instruments demonstrate adequate psychometric properties such as reliability and validity, which ensure that the instruments consistently measure what they were intended to measure, but a number of issues, such as the appropriateness of the measure to the study's purpose and sample, appear to present substantial challenges in evaluations of state and locally funded school readiness programs. (DOE, 2007 p. 1)

A second opportunity for improvement was the findings that highlighted: "the challenge that evaluators face in ensuring that data are collected in a manner that yields credible, trustworthy, and meaningful information about child outcomes." (DOE, 2007 p. 1)

The Washington State program reviewed regarding ECE measurement by the U.S. Department Education of was the Early Childhood Education Assistance Program (ECEAP). (DOE, 2007 p. 8). This was an include sample of the EPIC study. The results of the Department of Education were demonstrated in the researcher's through the lack of available data the researcher experienced.

The intention of this research was to also include social emotional outcomes. The researcher found that the Department of Education study did not

use nor include DIBELS as an instrument to measure ECE outcomes. (DOE, 2007, p. 12) An additional finding of the Department of Education was the lack of culturally and linguistically appropriate instruments. The researcher found this to be true in the Yakima School District literacy assessment tool and other means to collect data on children's progress. There was no Spanish DIBELS test, and what was used in Spanish was not an equivalent of the DIBELS.

The number of culturally and linguistically appropriate instruments that can be used with non-English-speaking children to provide data that is comparable to instruments administered in English is limited. Even when Spanish versions of an instrument are available, it may not be equivalent to the English instrument. The norms of these instruments would not be appropriate for Spanish-speaking children growing up in the United States. Furthermore, even if a Spanish-speaking assessment was normed with Spanish-speaking children in the United States, evaluators must understand the particular population that was used for the norming group and the extent to which the group is representative of the children they will be assessing. (DOE, 7 p. 21)

An unknown factor to the researcher was the administration of the instrument, and this had the potential to influence the results of the study.

Assessments that are valid, reliable, and culturally and linguistically appropriate can still produce invalid results if they are administered

incorrectly. It is therefore important to pay attention to who is administering the assessment and how well prepared that person is to administer the assessment. (DOE007 p. 22)

In Soriano's 2006 study both short and long-term outcomes were identified:

The short-term effects of Head Start include increased cognitive outcomes, while the long-term effects include lower crime rates and increased earnings for Head Start participants. The short-term effects help to prepare students to be successful in school, a goal of NCLB. Rigorous research on Head Start should be conducted, particularly in the areas of cognitive gains and parental involvement, in order to provide additional information on program outcomes." (Soriano, D. 2006 p. 2)

Further long-term noted effects of preschool were:

Additional sited long-term effects of preschool were that they have been found to be associated with higher IQ scores, better school achievement, lower rates of grade retention and special education placement, and lower rates of delinquency. The effects of preschools will be more likely to persist if learning gains are reinforced and supported by family and school experiences after the end of the program. (Soriano, D. 2006 p. 7)

Early Reading First was an example of a program developed to address the language and literacy deficit identified in kindergarten students.

A number of children in the U.S. start kindergarten without the required basics that allow them to take full advantage of formal instruction; Early Reading First was created as an attempt to tackle this problem. Some of the skills that are taught in this program are oral language, such as vocabulary, expressive language, and listening comprehension. Also phonological awareness, which includes rhyming, blending, and segmenting, is taught along with print awareness and alphabetic knowledge. Since Head Start also works on developing vocabulary and beginning reading skills, integrating practices from Early Reading First may enhance Head Start students' development. (Soriano, D. 2006 p. 10)

### Brain Development

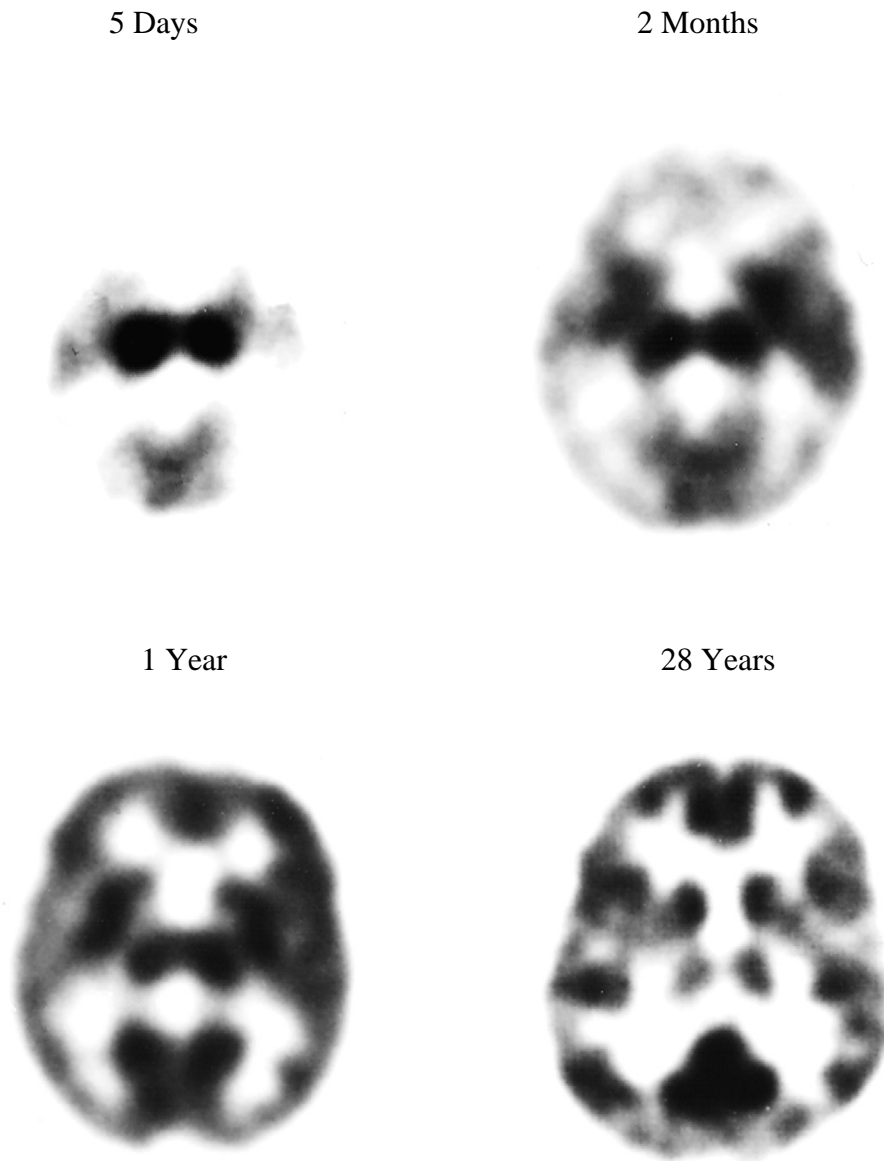
Understanding human brain development was essential to understanding the importance of Early Childhood Education:

The brain begins working long before it is finished. And the same processes that wire the brain before birth also drive the very rapid growth of learning that occurs immediately after birth. At birth, a baby's brain contains one hundred billion neurons, roughly as many nerve cells as there are stars in the Milky Way. Before birth, the brain produces trillions more neurons and synapses than needed. During the first years of life, the brain undergoes a series of extraordinary changes. Then through a process that resembles Darwinian competition, the brain eliminates connections that

are seldom or never used. (University of Maine Cooperative Extension, 2008)

The research on early brain development reveals astounding facts:

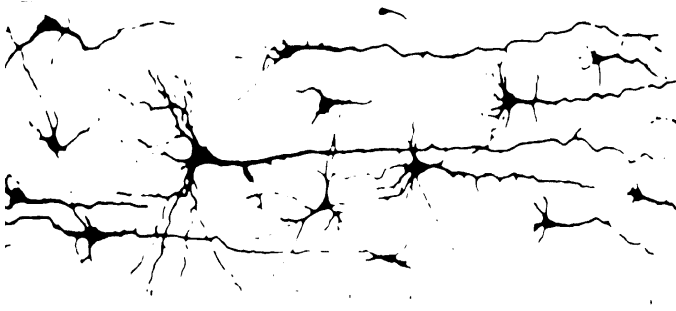
During the first ten years of life the brain is twice as active as that of an adult's, and 60% of nutrition is used by the brain during the first year of life. This decreases to 30% by age three. By age three, 80% of synaptic connections are already made. By the second decade of life growth levels off and pruning begins. (Agarwal, I., 2008)



*Figure 1.* Human Brain Activity (Agarwal, I., 2008) Early Brain and Child Development. North Dakota American Association of Pediatrics Chapter, slide on human brain activity at different ages of development.



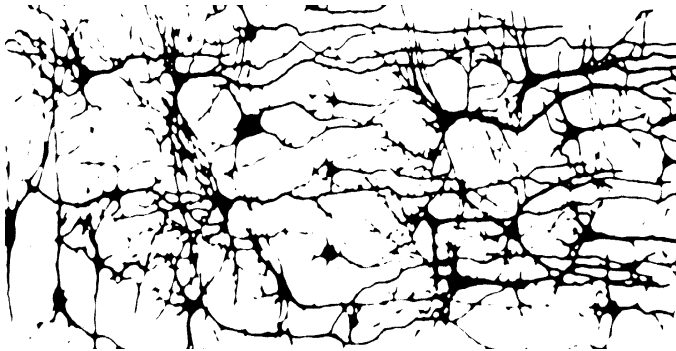
Human Brain at Birth



Six Years Old



Fourteen Years Old



*Figure 2. Human Brain Development (Agarwal, I., 2008) Early Brain and Child Development. North Dakota American Association of Pediatrics Chapter, slide on human neuron cell density at different ages of human development.*

## Socio-Emotional Development

The key to a child's success was demonstrated through characteristics of socio-emotional skills.

Kindergarten teachers report that many of their students are not socially or emotionally prepared for the challenges of the new environment.

Kindergarten teachers rate about 20 percent of all entering kindergarteners and 30 percent of very low-income entering kindergartener as having poor social development. They enter kindergarten unable to learn because they cannot pay attention, remember information, or function socially in a school environment. These children cannot get along with each other, follow directions, or delay gratification. These missing social and emotional skills mean the teachers spend too much of their time trying to rein in unmanageable children and too little time teaching (Boyd, J. W., Barnett, S. Bodrova, E., Leong, B. J. & Gomby, D., 2006 p. 2).

The National Institute for Early Education Research (NIEER) identified a set of skills specific to the social and emotional development of a child. They included the following skills:

1. identify and understand one's own feelings
2. accurately read and comprehend emotional states in others
3. manage strong emotions and their expression in a constructive manner

4. regulate one's own behavior
5. develop empathy for others
6. establish and sustain relationship (Boyd, J. W., Barnett, S. Bodrova, E., Leong, B. J. & Gomby, D., 2006 p.3)

The researcher observed students in an alternative high school on a regular basis who struggled to cope with aggression and self-regulate their behavior. In turn, they became failures in the traditional educational system. The students were helpless, controlled by whims and impulses, and often displayed aggressive behavior. Their lack of socio-emotional skills and the inability to cope with elements of their environment hampered any success with their academics. The beginnings of aggression:

Children who exhibit high levels of physical aggression in elementary school are at the highest risk of engaging in violent behavior as adolescents. Researchers believe that children with difficult, disruptive behavior (poor social and emotional skills) are at risk for these later problems for at least three reasons:

1. teachers find it harder to teach them, seeing them as less socially and academically competent, and therefore provide them with less positive feedback;
2. peers reject them, which cuts off an important avenue for learning and emotional support;

3. children faced with this rejection from peers and teachers tend to dislike school and learning, which leads to lower school attendance and poorer outcomes. (Boyd, J. W., Barnett, S. Bodrova, E., Leong, B. J. & Gomby, D., 2006 p.3)

Social-emotional development was a key outcome in the Regional Educational Laboratory study:

This includes such behaviors as children's social competence and pro-social behavior, as well as children's negative or problem behaviors. Pro-social behavior refers to behaviors that facilitate interaction, such as sharing, turn-taking, and cooperating with others. Problem behaviors are those that interfere with good social relationships, such as fighting and arguing. (REL, 2007 p.10)

In a study of 1,500 low-income youth, "preschool intervention was associated with reductions in the incidence, frequency, and severity of juvenile delinquency by age 18" (Mann, E. A. & Reynolds, A. J., 2006 p. 1). The crucial skills that facilitate communication, cooperation, adapting, and successful interaction with others were essential both inside and outside of the school setting.

#### Early Literacy

The quality of the preschool program has demonstrated substantial relevance in the overall impact on early literacy. Research was clear that early literacy outcomes were directly linked to success in school. Thus the value of

early literacy scores as an indicator to determine the impact of EPIC Early Childhood Program was substantiated.

“The Head Start Impact Study reveals small to moderate statistically significant positive impacts for three and four year old children enrolled in Head Start on pre-reading, pre-writing, vocabulary, and parent reports of children’s literacy skills” (NHSA, 2007). Children in poverty and of color have demonstrated a significant difference in the reading achievement gap. In a study 2,296 students in 184 schools:

child-level background differences controlled, significant first grade reading differentials were found in African American children (-0.51 Standard Deviation (SD) units below Whites), boys (-0.31 SD units below girls), and children from high-poverty households (-0.61 to -1.0 SD units below well-to-do children) (Chatterji, M. 2006).

The validity and significance of the DIBELS testing tool was researched and found to have importance in measuring the effects of Early Childhood Education. The validated areas were: Initial Sound Fluency, Letter Naming Fluency, Phoneme Segmentation Fluency, Nonsense Word Fluency, and Oral Reading Fluency. As noted by Rouse, H. and Fantuzzo, J:

Convergent and divergent validity analyses also confirmed the hypothesized relationships between literacy constructs and other cognitive competencies. Children’s early mathematics ability was significantly

related to Letter Naming, Nonsense Words, and Phoneme Segmentation Fluency (National Research Council, 1998). Relationships were also found between early literacy and social-behavioral constructs, through which they demonstrated less convergence than when compared to mathematics. The hypothesized positive relations between early literacy and children's peer play competence, task persistence, competence motivation, and task flexibility were supported by the study findings. Significant associations were also found between early literacy and behavioral approaches to learning. These convergent and divergent validity findings underscore the important developmental overlap among cognitive and behavioral competencies for young children. Early childhood research has documented the integrated nature of early skill development, particularly with respect to the multitude of skills necessary to develop competent reading abilities (Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998).

Early literacy and socio-emotional development was influenced beyond the realm of literacy or social interactions. These indicators related to overall success in numerous factors pertinent to the school environment in addition to many environments in the home, public and work place well beyond the child's adolescent years. The Early Childhood Development concept appeared as a

complete picture of human development; it interlaced one element with another.

Each had an impact on the other, no one factor isolated in its influence.

### Attendance and School Readiness

Few studies have been done comparing preschool's effect on attendance rates in the public schools. However, "preschool attendance had a significant positive effect on children's reading and math achievement in kindergarten" (Nelson, R. F. 2005). Early Childhood Education has been proposed as an answer to the learning gap:

The Early Childhood Longitudinal Study of 22,000 children found that children who start school behind, stay behind. Brain researchers and child development experts know that cognitive skills and behaviors are developed very early in life. And they are finding that the achievement gap that's there at the start of kindergarten doesn't go away.

(Clotheir, S. & Poppe, J., 2007)

School readiness was linked to self-regulation, spoke of as part of social and emotional development, "from preschool and kindergarten to middle and high school – has now been documented in a number of studies. Levels of self-regulation actually predict school success in first grade over and above children's cognitive skills and family background" (Boyd, J. W., Barnett, S. Bodrova, E., Leong, B. J. & Gomby, D., 2006 p.3). In a study of four state preschool programs, gains of 31 percent in vocabulary were cited (Manning, M. & Patterson, J. 2006).

NCLB made school readiness and closing the achievement gap a high priority for states and schools, the trend has looked toward Early Childhood Education as the means that addressed these issues linked with skills and cognitive abilities, but also attitudinal affects which influenced choices throughout the life of the child.

### Special Needs

Children with special needs have presented school districts with another significant challenge when attempted solutions were established to address the achievement gap. Studies have shown that the earlier the intervention the more quickly gains could occur in areas of delay. This, in turn, increased the chances that the achievement gap and child's ability to function normally would increase:

A considerable body of literature has documented the positive outcomes of inclusive education for young children with disabilities, including gains in cognitive, language, motor, and social development (Rafferty et al., 2003; see also Siegel, 1996 for a review). Fundamental to the attainment of these outcomes are the abilities to communicate with others and to participate in social interactions (Hanson et al., 1997) because early intervention settings typically encourage child-initiated learning and active physical and social engagement among children and with the immediate environment, children with significant disabilities are at risk of social isolation and non-engagement. In fact, young children with moderate-to-



severe disabilities have been consistently found to spend significantly less time in interaction with their typically developing peers.

(Odom et al., 1996, for a review) (Hunt, P., Soto, G., Maier, J., Liboiron, N. & Bae, S., 2004).

EPIC Early Childhood Programs served a minimum of 10 percent of children with disabilities; this was mandated by the state and federal government. This provided EPIC the opportunity to have increased the number of children identified with disabilities to develop in the delayed areas, due to the early intervention, and in turn helped reduce the achievement gap for the identified special needs students that have participated in the EPIC Programs.

### Summary

Early Childhood Education has surfaced as a fundamental piece to address many of the critical issues associated with expectations placed on the struggling public school system. However, any form of Early Childhood Education must be evaluated to determine its effectiveness. In a sense of priorities and efficiency the logical step was to determine if existing local Early Childhood Programs were effective. Previous studies by the Yakima School District of the school based ECEAP program were not conclusive. Therefore, a wider range of indicators; early literacy, socio-emotional scores and attendance rates, gave a more complete picture of the influences of the EPIC Early Childhood Programs, tied with a comparison of the cohorts with similar demographics, yet without the preschool

experience from EPIC. However, the available data allowed the researcher to only analyze the oral reading fluency by grade level without any socio-economic information.

## CHAPTER 3

### Methodology and Treatment of Data

#### Introduction

The methodology was designed to draw data and illustrate patterns to easily measure indicators through existing data which was influenced by Early Childhood Education: higher attendance rates, higher socio-emotional scores, and higher oral reading fluency scores. The longitudinal study was done utilizing 2007-2008 first graders, second graders, and third graders from the Yakima School District who were EPIC Head Start and ECEAP graduates comparing them to their peers from 2004 to 2006. Oral reading fluency was the only available data to carry-out the study. This was determined seven months into the study. The other recommended data was unavailable due to confidentiality laws, and restrictive district policy.

The methodology was quantitative experimental static-group design. The instrument was from University of Oregon and implemented by the Yakima School District and thus YSD provided existing data. Test subjects were to be randomly selected with matched control subjects. Statistical analysis was used to treat the data.

#### Methodology

Quantitative experimental methodology was chosen using three different test groups graduated in 2004, 2005, and 2006 from Head Start and ECEAP. The

study utilized the test groups from the Yakima School District in 2007-2008 school year of first graders, second graders, and third graders. The test group was selected randomly from the existing graduate population after attrition was considered due to children who had moved. The control group was identical to the test group minus the independent variable. Measures were to be done after the dosage through identical systems: attendance, report cards, and DIBELS testing. The research design was changed to a Static-Group Comparison. However, the final comparison was limited to oral reading fluency with the DIBELS testing.

#### Participants

The test group was limited to children in the Yakima Schools in the 2007-2008 first grade, second grade, and third grade that had completed EPIC Head Start and ECEAP at the Jefferson and Fairview sites. These were children who were 100% below the Federal Poverty Guidelines in the case of the Head Start and who were 110% below the Federal Poverty Guideline in the case of ECEAP. To reduce variable children with special needs were measured at 6% of the test group and 1% in the control group. The control groups were students from the same grades. The researcher determined the need to have the control groups from same classrooms and same gender when possible that qualified for free and reduced lunch that had not received any Head Start nor ECEAP services prior to their first year in kindergarten. However, the researcher was unable to attain

information confirming that the test and control groups were in the same classroom and had the same income level, thus this variable was not isolated.

The pool of initial Head Start and ECEAP graduates from the Fairview and Jefferson site was a total of 216 for each respective grade level: first grade, second grade, and third grade. The attrition reduced the pool of potential test subjects. In addition those identified with special needs varied by 5% between the test group and control group. Of the remaining test subjects in the three grade levels, sixty two test subjects were randomly selected from each grade level. Therefore the total for the three grade levels was 186 test subjects. The study was originally designed with the selection of control subjects that matched the individual test subjects. This would have reduced the impact and quantity of variables. Control subjects were selected with the same characteristics and demographics: race, gender, age, language ability, single or multi-parent family, and classroom as well as the general qualifiers of poverty and grade level. The only notable variable would have been the lack of a preschool program prior to kindergarten. Thus the control group would have been equal in proportional characteristics, sixty two control subjects in each grade level for a total of 186 control subjects.

### Instruments

The three data types considered were attendance, socio-emotional scores, and oral reading fluency DIBELS scores. Attendance data was to be categorized

into three main sets: unexcused, excused, and attended. Socio-emotional indicators considered were slightly different depending on the grade level of the report card. Five main categories were to be measured: follows rules and expectations, cooperative and uses acceptable language, respects adult authority and direction, respects learning and property of others (practices self-control), shows personal responsibility and problem solves in a positive way. Dynamic Indicators of Basic Early Literacy Skills data included oral reading fluency, because this category of testing covered first through third grade. The only available instrument was the standardized oral reading fluency test.

The reliability of attendance and socio-emotional scores from report cards would have been relative to each classroom as well the influence of subjective approaches in teacher completion of report cards, however to minimize the variable the researcher would have taken care in selecting control subjects that matched each test subject in each classroom by gender, race, age, and language ability. The reliability of the DIBELS testing instrument was significant due to the standardization of the instrument by the University of Oregon's Education Department. The validity of DIBELS Oral Reading Fluency test to measure the impact of Head Start programs was yet to be determined. The research done in this project was done with the assumption that the Oral Reading Fluency test was a valid measure for the impact of Head Start programs. Questions have been raised to this point resulting from this study.

## Design

The data gathered was quantitative and collected in a standardized format. Attendance and socio-emotional data from report cards would have been determined and collected by teachers. Including equal and same gender control participants from the same classroom would have reduced the impact of different teacher-student dynamics, grading, and testing, to reduce these variables in impacting the data comparison. DIBELS testing was standardized instrument that has proven reliability which also reduced the impact of data collection variables.

The static-group comparison design utilized three series of groups from 2004, 2005, and 2006, and compared them with their cohorts in the same classes, which served as the control groups. The design was illustrated as follows: X1s were the test groups .1, .2, and .3 representing first grade, second grade, and third grade respectively. X2s were the control group and .1, .2, and .3 representing first grade, second grade, and third grade respectively, and O represented the DIBELS measures. The design was:

X1.1 O

X1.2 O

X1.3 O

X2.1 O

X2.2 O

X2.3 O

## Procedure

The first step of the study was to identify the potential test subject pool. Due to attrition the largest group had 62, and thus all other groups the researcher kept to a size of 62 for each test in each grade level, and 62 in each control group of each grade level. The randomized groups were selected using Excel's random function. Originally it was proposed that test and control would be matched using like demographic information. This was not possible due to a lack of demographic information on the test and control groups. Data were entered into the Excel matrix that included score values, values 1 or 2 distinguishing if they had received the treatment or not, and a value for their gender. They were grouped by grade level and test or control in the matrix. The test score were transformed using  $\log(n+1)$  before the analysis; because the scores were expected vary according to grade level. All the data were pre-existing data. Functions from Excel and SPSS 12.0.1, 2003 for Windows were used to complete the statistical analysis and to create the tables. (Microsoft, 2003. Microsoft Office Excel for Windows, Bellevue, WA.) (SPSS, 2003. SPSS 12.0.1 for Windows, Chicago, IL.)

## Treatment of the Data

The data treatment was done through analysis of the mean and standard error, an analysis of significance with analysis of variance (ANOVA) with grade level, gender, and treatment, and combination of these data sets. Tukey's was used for further analysis of the test scores by grade level. Benchmark for children



at risk were unique to grade level. Third grade benchmark was a score of 92 or higher, second grade was a score of 68 or higher, and first grade was a score of 20 or higher.

An initial analysis of the mean and standard error determined if there were any difference in the proportion at risk with the mean, and the number of each gender with and without treatment. Data calculations were to be triangulated with the other two data sources: attendance and socio-emotional scores. Excel and SPSS were the principal tools utilized to support in the mechanics of the analysis. (Microsoft, 2003. Microsoft Office Excel for Windows, Bellevue, WA.) (SPSS, 2003. SPSS 12.0.1 for Windows, Chicago, IL.)

The child training program was evaluated using univariate analysis of variance (ANOVA). Independent factors included in the model were training, grade (spanning 3 years) and gender. Each child test score in a standardized testing procedure were analyzed as the dependent variable. Significant treatments effects (F-ratio means) in ANOVA were further analyzed using Tukey's honestly significant different tests.

To ensure data followed a normal distribution (an assumption of ANOVA) student test score were transformed using  $\log(n+1)$ , prior to analysis. Because test scores were expected to vary according to the child's grade, the proportion of children considered 'at risk' (based on failure to achieve a minimum benchmark score specified for that grade) was compared among the same independent factors

using a non parametric Fishers exact test. Analysis was performed in SPSS 12.0.1 for Windows. (Microsoft, 2002. Microsoft Windows XP Professional, Bellevue, WA.) (SPSS, 2003. SPSS 12.0.1 for Windows, Chicago, IL.)

### Summary

The originally designed methodology was more complex and brought more varied indicators to determine the effectiveness of the Head Start and ECEAP program impact on the students. Yet due to the limitation placed on the researcher much of the information for many the variables and the data for the indicators were unavailable. The substantial reduction in information to the researcher reduced the effective quality of the methodology; bring a similar outcome in the study to one done earlier in 2004 by the YSD on ECEAP graduates.

The researcher argued to effectively measure a highly complex program with multiple dimension of influence the indicators must be multi-dimensional, such as socio-emotional and attendance rates, in additional to oral reading fluency. The impact of the natural environment prior was a key element in shaping the child and therefore as many variables as possible that influenced the child directly and indirectly must be isolated, such as race, primary language, poverty level, family structure, and classroom teacher.

(SPSS, 2003. SPSS 12.0.1 for Windows, Chicago, IL.)

## CHAPTER 4

### Analysis of the Data

#### Introduction

The analyzed data resulted from one instrument: the DIBELS Oral Reading Fluency test. The isolated variables included gender and grade levels. The treatment variable was the Head Start and ECEAP preschool program, those students who had attended EPIC Head Start and ECEAP programs and those who did not. SSPS 12.0.1, 2003 was utilized to complete the analysis.

#### Description of the Environment

The project was changed after the initial proposal was completed, imposing additional limitation to the original proposal and a loss of detail. This was detrimental to the study because it reduced the effectiveness of data, and the ability to isolate variables. Variables that were unable to be isolated were: primary English and Non-English speakers, income level, race, family structure, and classroom teacher. Furthermore the proposed data for analysis was reduced due to restriction placed on the researcher. The proposed data that was unavailable in the final study included: citizenship scores (socio-emotional scores), and attendance for students was not provided.

The test subjects were EPIC Head Start and ECEAP graduates from the Jefferson and Fairview sites that attended first grade, second grade, and third grade in the Yakima School District (YSD) in the 2007-2008 school year. The

control groups were first graders, second graders, and third graders that had not attended EPIC Head Start and ECEAP programs. A variable unable to be isolated were students that attended EPIC's Castlevale and Children's Village site that may have been also included in the pool of the control group, because the individual data was unavailable.

The original proposed design of the study drew equal amounts of like test and control group members and reduced many of the variables.

The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) in Spanish was not normalized, the test group and control group would have allowed for a comparison, because the test group and control group members would have been paired with similar characteristics including the same literacy test in Spanish.

Due to the previous study in the winter of 2004 by the Yakima School District, which focused on oral reading fluency, the researcher intended to include the two additional independent variables of attendance rates and the children's socio-emotional scores to triangulate data. The triangulation of data would have allowed the author to decipher additional patterns relative to the impact of the intervention, and thus furthered the quality of the study and its value.

#### Hypothesis/Research Question

Early Childhood Education had shown to have a positive impact on the future of students' education. Higher oral reading fluency scores resulted in the

2007-2008 winter DIBELS scores in first graders, second graders, and third graders who were EPIC Head Start and ECEAP graduates rather than their peers who did not attend EPIC.

The data did not support the hypothesis with existing data. The data was inconclusive due to the additional variables and lack of supporting data from the original proposed study.

### Null Hypothesis

Early Childhood Education has shown to have no positive impact on the future of students. There was no significant difference in oral reading fluency scores using winter DIBELS between EPIC preschool graduates in the 2007-2008 first grade, second grade, and third grade from the YSD, and their cohorts in those classes that did not attend EPIC.

The null hypothesis was accepted. There was no significant difference in the DIBELS Oral Reading Fluency scores of the treated and untreated students of the study.

### Results of the Study

A summary of child test scores according to the different variables was shown in Table 1. To interpret this information, results of a 3-way ANOVA (Table 2) showed that only grade was a significant main factor for child test score ( $P < 0.001$ ). The absence of any other significant main effects or interactions between main effects in the ANOVA model showed that the gender of child and

participation in the preschool program did not significantly affect the test scores achieved by the child (Table 2). When only the effect of grade was considered separately, higher grade level children achieved higher test scores, although further analysis (mean separations) showed that the difference in test scores was only significantly different between the 2005-2006 and the other grades, i.e. there was no difference between the 2003-2004 and 2004-2005 grades (Table 3). Despite the increased test score achieved by the 2005-2006 grade, analysis revealed no significant differences in the proportion of students considered ‘at risk’ according to grade tested or gender (Table 4). The increased benchmark score associated with the higher grade level explained the apparent difference in results between the test score achieved, which was increased and the proportion of children considered at risk, which was not decreased.

Table 1. Child test scores (mean  $\pm$  standard error) and proportion of students considered ‘at risk’, according to grade, gender and participation in the Head Start and ECEAP preschool programs.

Grade	SEX	Treatment	Number	Test score	Proportion at risk
2005-2006	Male	Trained	30	33.4 $\pm$ 5.8	0.50
		Not trained	35	28.8 $\pm$ 4.2	0.60
	Female	Trained	32	37.3 $\pm$ 4.9	0.75
		Not trained	27	33.7 $\pm$ 3.9	0.74

2004-2005	Male	Trained	33	83.7 ± 6.2	0.67
		Not trained	25	90.0 ± 7.5	0.68
	Female	Trained	29	82.4 ± 5.1	0.76
		Not trained	37	81.7 ± 4.8	0.73
2003-2004	Male	Trained	29	101.6 ± 5.9	0.62
		Not trained	33	84.0 ± 5.2	0.39
	Female	Trained	33	85.2 ± 4.9	0.52
		Not trained	29	95.6 ± 5.3	0.52

Table 2. ANOVA table describing student test scores as affected by grade (3 years), gender and participation in the Head Start and ECEAP preschool programs.

Source	Type III Sum of Squares	df	F	Sig.
grade	108.49	2	120.63	0.00
treatment	0.22	1	0.48	0.49
SEX * grade	1.82	2	2.03	0.13
SEX * treatment	0.59	1	1.31	0.25
grade * treatment	0.11	2	0.12	0.89
SEX * grade * treatment	1.52	2	1.69	0.19
Error	161.88	360		
Total	6241.81	372		

Table 3. Child test scores (mean  $\pm$  standard error) according to grade tested.

Grade	Number	Test score
2005-2006	124	33.2 $\pm$ 2.4 b
2004-2005	124	84.1 $\pm$ 2.9 a
2003-2004	124	91.1 $\pm$ 2.7 a

Different letters after test score showed significant differences between grades according to a Tukey's honestly significant different test at  $p \leq 0.05$

Table 4. Effects of a training program on the proportion of 'at risk' students according to grade and gender (Fishers exact test based on 2 x 2 contingency tables of data)

Grade	SEX	Pearson Chi-Square	df	Sig. (1-sided)
2005-2006	Male	0.65	1	0.29
	Female	0.01	1	0.58
2004-2005	Male	0.01	1	0.57
	Female	0.07	1	0.51
2003-2004	Male	3.17	1	0.06
	Female	0.00	1	0.59

SPSS, 2003. SPSS 12.0.1 for Windows, Chicago, IL.



## Findings

The data showed that there was no significance between Head Start and ECEAP graduates and those children who did not attend Head Start and ECEAP in DIBELS Oral Reading Fluency scores, and thus there was no measured impact with this measure. In the initial analysis, there was no significance between student with treatment and those without the treatment. Nor was there a difference by gender between treated and untreated. The second analysis explored by grade level, gender, and treatment; combinations of these variables. This analysis determined significance by grade level which was expected due to difference of grade level expectations for Oral Reading Fluency in the standardized measure, noted by the different benchmark for each grade level third grade 92 or higher, second grade 68 or higher, and first grade 20 or higher. The last analysis used, the Fishers exact test found treated third grader males approached significance with 0.06, but were not significant. There was no other significance found. The hypothesis was not supported and the null hypothesis was accepted.

## Discussion

The data were inconclusive. From the analysis the data revealed that there was no significant impact from the preschool program. The data did not define any significant differences between the control group and the test group. The lack of richness in data reduced the amount of conclusions that were drawn. The DIBELS Oral Reading Fluency tool was not an accurate measure of the Head

Start and ECEAP programs, because it did not correspond to the direct goals of the programs. The EPIC Head Start and ECEAP program were holistic treatments/programs affecting multiple developmental areas of young children. Isolating a component of performance was not a true measure of development. Holistically these programs focused on socio-emotional development, gross motor skills, fine motor skills, health, nutrition, mental health, family support, special needs, and overall early childhood development. To focus the impact measure on an isolated measure of an indirect focus such as Oral Reading Fluency, was not a just measure of the true impact of a multi-faceted, multi-disciplinary approach to early childhood education.

### Summary

The overall data were changed from the original proposal to one type of data. The DIBELS Oral Reading Fluency standardized test was used to gather the data in the winter of 2007/2008. The analysis was done using SPSS software. There was no significant difference in the mean of neither the test score nor the portion at risk when analyzed by gender, grade, and treatment versus non-treatment. Grade was the significant variable when analyzed by ANOVA, yet this was expected. The proportion at risk of those treated and not treated according to grade and gender was not significant. The hypothesis was not supported and the null hypothesis was accepted. The outcome data was not significant. There was no relationship between Head Start and ECEAP preschool.

## CHAPTER 5

### Summary, Conclusions and Recommendations

#### Introduction

The data were inconclusive. From the analysis the data revealed that there was no significant impact from the preschool program. The researcher returned to the primary design as a more telling study which would have collected additional data, and would have allowed more variables to be considered in the analysis of the data.

#### Summary

Early Childhood Education has been proclaimed as a means to address many of the issues associated with education: school readiness, dropout rates, attendance rates, academic performance, parent involvement, as well as social issues such as a prepared work force, racial issues, crime, and poverty. The program studied has forty years of experience providing early childhood services. The purpose of the project was to determine the extent to which EPIC's program improved students' education, and the need to know if the existing Yakima Valley childhood program had a beneficial impact. The impact was measured using the oral reading fluency scores from the DIBELS.

The principal delimitation resulted from the limited access to information which was available to the researcher. The limitation did not permit the researcher to explore the influence on socio-emotional differences, and attendance rates. Nor

did it permit the isolation of important variables which influenced the results of the data. Examples of these variables included family income levels, race, primary language, and additional services received in primary school.

Similar traits between the control and test population were assumed to be similar because the two groups were originally selected with similarities in socio-economics and demographics. However, the poverty variable which would have facilitated similarities socio-economics and demographics were both unavailable to the researcher.

The hypothesis, Early Childhood Education had shown to have a positive impact on the future of students' education, was not supported; the null hypothesis was accepted. The study's significance would have provided information to both EPIC and the Yakima School District to better understand the impact of Early Childhood Education on students' education, however the result was inconclusive.

The brunt of the study took on three phases: a. the initial research, literature review, and formation of the proposal, b. the political work and waiting to attain access to and gather the data and c. the final results, analysis, outcomes, and recommendations.

Within the literature review the numerous noted benefits of Early Childhood Education included but were not limited to increased social development, ability for delayed gratification, increased earnings, healthy life

choices and attitudes about school achievement, participation in the community, the ability to identify and understand one's own feelings, the ability to manage strong emotions, the ability to accurately read and comprehend emotional states in others, and the ability to develop empathy for others. Those students that were socio-emotionally underdeveloped were provided less positive feedback, peers rejected them, thus attitudes from their teachers and peers resulted in the students' dislike of school and learning which lead to lower school attendance and poorer outcomes.

Small to moderate statistically significant positive impacts resulted for three and four year old children enrolled in Head Start on pre-reading, pre-writing, vocabulary, and parent reports of children's literacy and socio-emotional development. These indicators related to the overall success impacting factors pertinent to the school environment in addition to many environments in the home, public, and work place beyond the child's adolescent years.

Some early literacy concepts were related to important indicators such as early mathematics ability, social-behavioral constructs, peer play competence, task persistence, competence motivation, and task flexibility.

Studies showed that the earlier the interventions, the more quickly gains occurred in areas of delay of children with special needs. The need to measure impact using multiple indicators was determined from the outcome of an earlier study by the YSD using the DIBELS data that was inconclusive in 2005.

The study design was modified in the late stages of the process when acquiring the raw data. The triangulation of data was not possible and variables were unable to be isolated due to the limited data available regarding the test and control groups and restriction regarding access to citizenship and attendance records.

Both test and control subjects were YSD students with equal amounts of each grade level first through third. Existing data from the DIBELS Oral Reading Fluency test was compared. Treatment of data was done with the ANOVA, Tukey's honestly significant different test, and Fishers exact test. There were no significant findings. There were no relationships identified between those that received the treatment and those that did not receive the treatment. The data was not conclusive due to the limited data and ability to effectively isolate key variables.

Early Childhood Education was a key political and social issue due to its potential to address the failing school systems and to enhance a child's learning beyond what was currently possible. The return investment in early childhood education was as much as one to nine returned for every dollar spent on early childhood education.

## Conclusions

The results did not support the hypothesis. No patterns were identified and the data resulted in no significant findings. No relevant conclusions were drawn from the data except that the data did not demonstrate any significant impact from the measure using the identified indicator. The research returned to the premise that there was an impact from the preschool program, yet the Oral Reading Fluency measure was not an affective measure of the impact. The focus of the Head Start and ECEAP programs were on the development of the whole child, including the socio-emotional, gross and fine motor, health and nutrition, early math, early science, early literacy, family support and overall child development. The chosen measure used in this study was ineffective. The indicators for measuring the impact of the program should have been reflective of the multiple disciplinary effort of the program focusing on the whole child rather than a single isolated element of a single discipline.

Research on Head Start and ECEAP programs needed to isolate multiple variables specific to the target population, including but not limited to income, family make-up, race, primary language, years in the program, gender special needs, parent education level, and previous services and intervention. None of these variables were isolated due to the limited access of information provided to the researcher.

## Recommendations

For future studies the researcher must have complete and total access to the necessary data. The researcher recommends that access to data be established prior to creating the proposal. To enhance the study, the researcher recommends taking a large longitudinal group of EPIC Head Start and ECEAP graduates from kindergarten to fifth grade. The researcher recommends that there is a complementing cooperative approach to the research because of the two organizations involved; creating more ownership of the research, i.e. school district and Head Start organization.

Recommendations for study include more rigor and directly corresponding measures. The researcher recommends using a standardized measure that is not impacted by the child/family primary language, not cultural bias, and is a true measure of relevant aspects directly influenced by Head Start and ECEAP, such as socio-emotional development and attitudinal changes. Poverty levels should be equal for both the control and test groups and equal amounts of each gender should be used. The socio-emotional should be measured using both observable measures and attitude survey for each child. Grades should be utilized to increase the relevance of the data, as well as attendance rates.



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