

Increasing the Rate of Success in Segmenting and  
Blending for English Language Learners in Kindergarten

---

A Special Project

Presented to

Dr. Gordon Martinen

Heritage University

---

In Partial Fulfillment  
of the Requirement for the Degree of  
Masters in English As A Second Language

---

Gilma Okbinoglu

Summer 2007

FACULTY APPROVAL

Increasing the Rate of Success in Segmenting and  
Blending for English Language Learners in Kindergarten

Approved for the Faculty

Adriana Heredia for Dr. Martinez, Faculty Advisor

## ABSTRACT

The author was interested in finding the rate of success that explicit and intentional interventions had on students that were indentified at risk of reading failure. The researcher conducted a literature review which strongly supported the implementation of explicit and intentionally designed interventions for students struggling with phoneme segmentation.

The study included 48 kindergarten students. Twenty four were chosen for treatment group and the other twenty four constituted the control group. Students were tested in phoneme segmentation fluency during Winter and Spring 2007, using the Dynamic Indicator of Basic Early Literacy Skills. The data supported the hypothesis which stated that there was significant difference between the two groups at the  $p \geq .05$  levels but not at .01 and .001 levels.

PERMISSION TO STORE

I, Gilma E. Okbinoglu, do hereby irrevocably consent and authorize Heritage University Library to file the attached Special Project entitled, Increasing the Rate of Success in Segmenting and Blending for English Language Learners in Kindergarten, and make such paper available for the use, circulation and/or reproduction by the Library. The paper may be used at Heritage University Library and all site locations.

I state at this time the contents of this paper are my work and completely original unless properly attributed and/or used with permission.

I understand that after three years the paper will be retired from the Heritage University Library. If I choose, it is my responsibility to retrieve the paper at that time. If the paper is not retrieved, Heritage University may dispose of it.

\_\_\_\_\_, Author  
\_\_\_\_\_, Date

## TABLE OF CONTENTS

	Page
FACULTY APPROVAL. . . . .	ii
ABSTRACT . . . . .	iii
PERMISSION TO STORE . . . . .	iv
TABLE OF CONTENTS. . . . .	v
LIST OF TABLES. . . . .	viii
CHAPTER 1. . . . .	1
Introduction. . . . .	1
Background for the Project . . . . .	1
Statement of the Problem . . . . .	2
Purpose of the Project . . . . .	3
Delimitations. . . . .	4
Assumptions. . . . .	5
Hypothesis . . . . .	5
Null Hypothesis . . . . .	6
Significance of the Project. . . . .	6
Procedure . . . . .	7
Definition of Terms . . . . .	8
Acronyms . . . . .	8

CHAPTER 2 . . . . .	9
Review of Selected Literature . . . . .	9
Introduction . . . . .	9
Phonemic Awareness. . . . .	9
Phonemic segmentation. . . . .	12
English Language Learner and Migrant students . . . . .	14
English Language Learners at Risk . . . . .	15
Effectiveness of Preventive/Remedial Interventions . . . . .	17
Summary . . . . .	22
CHAPTER 3 . . . . .	24
Methodology and Treatment of Data. . . . .	24
Introduction. . . . .	24
Methodology . . . . .	24
Participants. . . . .	25
Instruments . . . . .	26
Design. . . . .	27
Procedure . . . . .	28
Treatment of the Data . . . . .	29
Summary . . . . .	30

CHAPTER 4 . . . . .	31
Analysis of the Data . . . . .	31
Introduction. . . . .	31
Description of the Environment. . . . .	31
Hypothesis/Research Question . . . . .	33
Null Hypothesis . . . . .	33
Results of the Study. . . . .	33
Findings . . . . .	39
Discussion. . . . .	39
Summary . . . . .	40
CHAPTER 5 . . . . .	42
Summary, Conclusions and Recommendations . . . . .	42
Summary . . . . .	42
Conclusions . . . . .	42
Recommendations . . . . .	43
REFERENCES . . . . .	45
SUPPLEMENTAL REFERENCES . . . . .	52

LIST OF TABLES

	PAGE
Table 1. Students' phonemic segmentation scores. . .	35
Table 2. t-Test for Independent Samples . . . . .	37
Table 3. Values of the t-test for Different Levels of Significance . . . . .	38



## CHAPTER 1

### Introduction

#### Background for the Project

The No Child Left Behind (NCLB) Act of 2002 created a national educational reform that placed high priority in reading. The NCLB provided funding for states that met Adequate Yearly Progress (AYP) and held accountable those that did not. In Washington State funding came to qualifying schools as the Reading First Grant (RFG) which focused on early identification/intervention in literacy and reading skills for grades K-3. Schools awarded the grant had to choose and implement research-based curriculum of instruction proven to promote student achievement and standardized assessment instruments that measured student progress.

Consequently, Phonemic Awareness (PA) became a measurable area for early identification in reading deficiency. Research conducted by Moats (2004) indicated the need to promote phonological awareness skills in kindergarten students as preventive tool for

reading deficiency. The recent increase of English Language Learners (ELL) in the schools, amplified the need to adopt curriculum that promoted PA development and helped to remediate difficulties with phoneme segmentation and blending. Lack of PA development in English Language Learners students proved in many cases reading deficiency in upper grades.

Thus, importance was placed in finding effective reading interventions that provided remedial skills to struggling students while it accelerated learning as it began to close the achievement gap between the control group and the treatment group (Vaugh, Cirino, Linan-Thompson, Mathes, et al, 2006).

#### Statement of the Problem

In the summer of 2006 Robertson Elementary school was granted the Reading First Grant to help increase the achievement rate in its student population. The school adopted the new improved Houghton Mifflin reading curriculum and continued to use Dynamic Indicator of Basic Early Literacy Skills (DIBELS) as the measuring instrument. During the fall of 2006,

DIBELS test was administered to all kindergarten students at the school and the researcher noticed that the results placed a high rate of English Language Learners students at risk in phonological awareness. These students did not meet the reading benchmark requirement compared to their monolingual English speaking peers. Even after Houghton Mifflin the reading curriculum was implemented as prescribed by the district, some students continued to show difficulties in the areas of phonemic segmentation and blending.

There was concrete evidence of these difficulties after the DIBELS test results in January. Twenty four students scored below the benchmark requirement of eighteen phonemes per minute in the area of phonemic segmentation a fluency subtest of DIBELS assessment.

#### Purpose of the Project

The purpose of this study was to measure the rate of effectiveness that explicit interventions provided to kindergarten English Language Learners students

experiencing difficulties in phonemic segmentation and blending.

#### Delimitations

The study selected for this analysis was conducted in three kindergarten classrooms at Robertson Elementary School in Yakima during the 2006-2007 school year. The participants were English Language Learners from Mexican ethnicity and from low socio-economic status. The researcher used the Dynamic Indicator of Basic Early Literacy Skills (DIBELS) scores that measured progress in Phoneme Segmentation Fluency given to all kindergarten students in the fall and winter of the 2006-2007 school year. The researcher used the scores derived from twenty four kindergarten English Language learners that scored under the benchmark requirement of eighteen phonemes in phonemic fluency assessment. These students were considered at risk when falling below the benchmark requirement mandated by the Washington State's Grade Level Expectations (GLE's).

### Assumptions

The researcher assumed that Yakima's School District, adopted reading curriculum, Houghton Mifflin (HM) and the DIBELS progress monitoring materials, were appropriate for all the kindergarten students in the school. The interventions were explicit, and intentionally designed to remediate specific areas of concern for all the kindergarten students targeted in this study. All the teachers at Robertson school were considered highly-qualified in reading subject matter.

### Hypothesis or Research Question

Robertson at risk Kinder English Language learners met benchmark on the DIBELS phonemic awareness and nonsense word fluency assessments in April 2007, after explicit and intentional interventions were implemented using Houghton Mifflin and DIBELS progress monitoring materials. The twenty minutes interventions were held twice a week and targeted the treatment group of thirty five students for a period of six weeks.

### Null Hypothesis

There was no significant difference found between the control group and the ELL treatment groups after weekly interventions were implemented using Houghton Mifflin and DIBELS progress monitoring materials. Significance was determined for  $p \geq .05, .01, .001$ .

### Significance of the Project

The project was significant to the researcher in order to measure the rate of effectiveness that weekly explicit and intentional interventions given to at risk ELL students. Recent research by Luisa Moats (2004) found strong correlation between phonics and spelling. ELL students that developed a strong phonemic awareness were able to decode sounds first and learned to blend those sounds into words. Once students were able to blend without struggle they began to increase their vocabulary and their critical thinking skills. Yakima kindergarten students were expected to read at grade level in order to succeed in first grade.

### Procedure

The researcher used the DIBELS progress monitoring materials along with mandated Houghton Mifflin curriculum to help increase the rate of success in phoneme segmentation and blending chosen ELL kindergartener students. The researcher obtained permission to conduct the study from the school principal and the kindergarten teachers.

The researcher found that explicit, intentional remedial interventions were developed to assist these students with low phonological awareness using mandated Houghton Mifflin curriculum to increase their PA knowledge. The twenty minutes interventions were held twice a week outside the mandated ninety minutes reading block. Students were instructed in a small group setting targeting the skill to be measured. The research scores were derived from assessments from Houghton Mifflin reading program and used DIBELS to measure progress in phoneme segmentation and non-sense word fluency.

The researcher used pre and post intervention DIBELS's scores that measured progress and/or achievement.

#### Definition of terms

At Risk. For the purpose of this study, students at risk of reading failure.

Phonemic Awareness. The ability to hear, identify, and manipulate individual sounds (phonemes) in spoken words.

Phoneme Segmentation. The ability to break a spoken word into its components sounds.

Phonics. The relationship between the letters (graphemes) of written language and the sounds of spoken language.

#### Acronyms

ELL. English Language Learners.

DIBELS. Dynamic Indicators of Basic Early Literacy Skills.

PA. Phonemic Awareness

GLE's. Grade Level Expectations



## CHAPTER 2

### Review of Selected Literature

#### Introduction

The researcher reviewed literature that supported the development of phonemic awareness in kindergarten students that were considered English language learners (ELL). The English Language Learners students included in this study demonstrated difficulties with phoneme segmentation and blending. These difficulties placed them at risk of reading failure, before intentional and explicit interventions were provided to remediate the problem.

#### Phonemic Awareness

The researcher found that in order to succeed in reading, students needed the acquisition of phonemic awareness (PA). The National Institute for Literacy (NILF) (Ambursck, B. 2000), defined PA "as the ability to hear, identify, and manipulate the individual sounds-phonemes-in spoken words". Phonemic awareness development in kindergarten was a critical skill to instruct because it underlined how symbols in printed

words map onto spoken words which led to "early stages of learning to spell," (Moats, L.; Tangel & Blackman, 1995; Uhry and Shepherd, 1993; Armbruster, B. 1983). The English Language Learners students included in this study demonstrated difficulties with phoneme segmentation and blending. These difficulties placed them at risk of reading failure

Recent studies discussed the phenomenon of daily speech which had become slurred together and that the sounds of words were sometimes confusing or difficult to comprehend for young children (Kropp, 2000, p.57). In addition, Kropp (2000) described phonemic awareness as:

A set of language and listening skills that develop a child's understanding of how the words are made up of distinct sound produced by particular letters. While the success of phonics in producing good readers is iffy, recent studies say that teaching sound and letter discrimination, as well as specific letter sounds, pay big dividends for kindergarten and

grade-one students, especially disadvantaged kids who might otherwise get left behind (p. 57).

Among these disadvantaged children, Migrant and ELL students were found in great quantities and O'Connor, Harty, & Fulmer, (2005) emphasized the need to teach phonemic awareness to the kindergarten children who did not acquire it naturally. Another study showed that articulation accuracy enhanced the phonemic awareness and word reading for ELL students (Roberts, 2005). This study held the theory that articulation indexed the nature and quality of phonological representations in kindergarten phonemic awareness and word reading in later grades (Roberts, 2005).

Difficulties in PA's acquisition were traced all the way to college students. Students of English as a second language (ESL) had greater difficulty sorting out unfamiliar words into pieces since the words did not make sense to them (Schwarz, 2007). In order to help these ESL college students with this difficulty, the sounds were explicitly taught in

sequence, isolation, and it allowed students many opportunities to practice the skill (Schwarz, 2007).

However, Manning and Szecsi (2006) argued that "not all children become phonemically aware at the same age or grade'. . . 'since they did not find children older than 8 who were not phonemically aware except for those with extreme written language delays," (p.242). This was based on a concern that PA was viewed as an instructed skill, instead of the natural development that occurred within maturity as the children were exposed to literacy within the daily instruction.

#### Phoneme Segmentation

Recent studies in phonological awareness (Branum-Martin, Mehta, Fletcher, Carlson, 2006), found that kindergarten ELL students tended to develop letter-sound association but had problems with segmentation and blending. This difficulty was associated to the different types of phoneme manipulation involved in segmenting and blending. In segmentation, students were instructed to separate each sound in a given

word, while in blending students were given individual sounds and were expected to combine these sounds to make a word. Further studies in phonological awareness development had shown that activities that included tasks of segmenting words were easier for young children; rather than those tasks of blending sound into words. This fact was found to be an indicator of a single underlying ability which was responsible for performing such tasks (Branum-Martin et al., 2006).

Louisa C. Moats explained in her article about sound/symbol correspondence that:

Children need to learn the predictable consonant and vowel correspondences that form the common syllable types in English. During beginning spelling instruction, phonemic awareness is enhanced when children segment words by sounds before spelling them (1997, p. 100).

All of these studies helped to support the notion that explicit and intentional strategies needed to be taught to students to overcome the difficulties in

this area. In another study conducted by Foorman and Moats (2004) confirmed the notion that PA instruction in conjunction with phonics instruction formed a sound foundation in the early stages of reading instruction.

#### English Language Learner and Migrant Students

The recent influx of students of Mexican ethnicity that were English Language Learners in the Yakima Valley raised the need to develop and adopt programs that were geared to meet their specific ethno-linguistic needs. English language learners and migrant students were among the most ethnically and linguistically diverse population entering United States' educational system. More than 90 percent of the nation's student population came from non-English-speaking countries. Public schools' enrollment of English Language Learners grew more than 70 percent in the last decade, and was projected to grow even more during this millennium (National Clearinghouse for Bilingual Education, 1999).

Furthermore, the article written by Klingner, Artiles, & Mendez (2006) mentioned that a great

percentage of ELL students attending public schools struggled to learn content matter or were underachieving. However, their struggle to learn was not identify as a limited language proficiency factor nor if it was a learning disability.

More research on the struggles of ELL and reading difficulties showed that many classroom teachers referred ELL to especial education programs because they were not able to determine whether the students had a learning disability or if the struggle was the result of the on-going process of language acquisition (Klinger, Artiles, & Barletta, 2006).

#### English Language Learners at Risk

The researcher found that the majority of ELL students that started kindergarten did not have prior exposure to formal education, which led to difficulties developing phonological awareness skills. The researcher reviewed data provided by kindergarten teachers who taught these skills within the context of the curriculum and classroom instruction, while monitoring student progress.

Instruction was delivered using Houghton Mifflin, the adopted reading curriculum for the school district, and diagnostic assessment used the DIBELS measuring instruments. Progress monitoring was implemented after the ninety-minute reading block to the identified students with low phonological awareness skills. However, even with on-going assessment, some of these students failed to increase their phonological awareness skills and continued to struggle with phoneme segmentation and blending.

Research conducted by Oudeans (2003) found that very few studies had evaluated the performance of kindergarten students with low phonological awareness skills on word reading task that "required integration of the phonological awareness skills of blending and segmenting and alphabetic skills, specifically, letter-sound correspondences" (pp.263-264).

This deficiency, according to Oudeans (2003), placed these students, "at risk of future reading disabilities" (p. 259). English Language Learners with low phonics skills struggled with reading and needed



extensive remedial interventions that targeted phoneme segmentation first and later blending sounds to make a word.

#### Effectiveness of Preventive/Remedial Interventions

A major component of the NICLB mandate of 2002 focused on early identification and prevention of reading difficulties in early grades. In a recent study, Foorman and Moats stressed that, "the most effective early intervention is prevention," (2004, pg. 54). However, in many instances, preventing reading difficulties at early grades was not a priority until the NCBL of 2002 became a mandate.

Consequently, kindergarten and first grade students became the perfect arena for prevention of reading difficulties. Vellutino, Scanlon, Small, & Fanuele (2006) established that children's early literacy experiences and instruction were significantly crucial determinants of reading achievement thus the importance of early identification in kindergarten to prevent long term reading difficulties.

Prevention was accomplished by developing systematic and explicit instruction in phonemic awareness, segmenting and blending, word identification skills that led to accurate, fluent reading, and comprehension, Bursuck, Munk, Nelson, & Curran (2002). Another research explained that struggling readers were not able to connect sounds to the letters in an accurate and timely manner and that they concentrated their efforts mainly in decoding print rather than comprehension or vocabulary building (Lyon, & Moats, 1997; Vellutino & Scanlon, 1991; Vellutino et al., 1996).

In order to prevent and remediate areas of concern, phonics instruction was found to be the critical element to develop in students at risk of reading difficulties (Bursuck, et al., 2002). With this idea in mind, remedial interventions had to be formatted specifically to develop the areas of difficulty for struggling students. The complexity of effective interventions consisted in the fact that students at risk were in their majority ELL. English

language learners wrestled between language acquisition and developing literacy skills (Klinger et al. 2006). Consequently, systematic interventions embedded with phonemic awareness, segmenting and blending, decoding, spelling, text processing skills and writing, indicated to be the most beneficial method of instruction for students at risk of reading failure (Lyon & Moats, 1997; Bursuck, Munk, Nelson, & Curran, 2002).

In another study, Foorman and Moats reviewed the essential elements for effective interventions and found that it pertained to, "intensity, duration, and supportiveness of instruction; the timing of the intervention; the student ratio; the knowledge base of the intervention teacher; and the content of the intervention," (2004, p. 53). In addition, the study continued to specify the necessity for teachers to implement continuous progress monitoring and to utilize the resulting data to differentiate classroom instruction (Foorman et al, 2004).

In addition, on-going progress monitoring was found to provide teachers with reliable data to help identify children's specific problem areas and/or to measure student's improvement. The results from students' assessment were instrumental to form ability grouping during the period of intervention. Ability grouping was examined in a longitudinal study conducted by McCoach, O'Connell, and Levitt where it established a correlation between students' reading achievement and "within-class ability grouping," (2006, p. 1). The study indicated that ability grouping was directly related to differentiated instruction; because it enabled teachers to adapt instruction to meet the specific needs of each ability group (McCoach et al., 2006).

Another study about the effectiveness of reading interventions discussed the term response to intervention (RTI). The RTI tried to explain the reasons why some ELL students respond to interventions and others do not. During this study some ELL students that were identified at risk for reading failure were

placed arbitrarily in reading intervention groups. Some of the students made sustainable gains in phonemic awareness, phonics, fluency, vocabulary and comprehension, in comparison to others students that were not placed on this type of reading interventions (Thompson, Vaughn, Prater, & Cirino, 2006). The daily interventions were provided on small group setting for a period of fifty minutes, during a period of six months. The students that did not benefit from these interventions were found to have a learning disorder and were recommended for special education services (Thompson et al., (2006).

Another study investigated the efficacy of the Reading Recovery (RR) approach to increase reading achievement on struggling students (Iversen, Tunmer, & Chapman, 2005). Although, RR was adopted by over than 10,000 schools nation-wide, the study disclaimed that the RR approach did not provide sufficient instruction in phonological awareness skills, essential in reading instruction (Iversen et al., 2005). Adopting one sole approach to reading interventions was found to be

detrimental to remediation and prevention of reading difficulties in young children especially those that were English language learners. As Jim Wright stated on his article that, "schools should carefully screen academic interventions and choose only those that are validated by sound empirical research," (2006, p. 36).

#### Summary

The researcher found that all the studies reviewed focused heavily on the elements of reading instruction National Reading Panel (2000). These elements consisted in the systematic development of phonemic awareness, phonics, fluency, vocabulary, and text comprehension. Learning to read was found to be a lengthy process, consequently, the development of phonological awareness constituted the objective in the war against reading failure. All the research conducted to this date pinpointed the importance of prevention of reading failure by early identification.

The researcher found that on-going progress monitoring provided accurate data of student's knowledge and helped identify specific areas of

difficulties. Schools needed to provide systematically and explicit remedial interventions that met the specific needs of their student population.

## CHAPTER 3

### Methodology and Treatment of Data

#### Introduction

The purpose of this study was to determine whether explicit and intentionally designed interventions significantly improved phonemic segmentation fluency for Kindergarten struggling students. This area of difficulty was identified after all Kindergarten students were given the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) subtest assessment in January and May 2007. To accomplish this, a review of selected literature was conducted, essential base line data was obtained, analyzed and related conclusions and recommendations were formulated at the end of this study.

#### Methodology

The research method used for this study was a quasi-experimental design and a t-test for independent samples was utilized to determine whether there was significant difference between the treatment and the control groups after explicit and intentional



interventions were provided to the treatment group of struggling kindergarten students. The statistical analysis used was the independent t-test.

### Participants

The study selected for this analysis was conducted during the 2006-2007 school year and included students from four Kindergarten classrooms at Robertson Elementary School, in Yakima, Washington. Participants of both experimental and control groups consisted in their majority ELL students from Mexican ethnicity and from low socio-economic status. Eighty four percent of the students received free and reduced lunch.

Twenty four students in each group were chosen based on the results from the DIBELS' subtest assessment given to all Kindergarten Students during Winter of 2007. Participants for the treatment group scored below the benchmark requirement of eighteen phonemes per minute in the area of phonemic segmentation fluency subtest. The control group consisted of twenty four students who met Winter 2007

DIBELS' benchmark and their scores ranged between eighteen to thirty five phonemes per minute in the phonemic segmentation area.

The researcher found that specific remedial interventions were developed to assist these students with low phonological awareness using mandated Houghton Mifflin curriculum along with DIBELS' progress monitoring materials. These interventions were held twice a week with a duration of one and half hour per session in an after school program for a period of six weeks.

Students were instructed in a small group setting targeting the skill to be measured. The research scores were derived from the DIBELS' Winter and Spring 2007 assessment tests that measured progress in phoneme segmentation fluency.

#### Instruments

The researcher utilized pre and post intervention scores derived from DIBELS subtests assessment data that measured achievement and/or progress in the areas

of phonemic awareness fluency given to all kindergarten students in the Winter and Spring 2007.

There was concrete evidence of these difficulties after the DIBELS test results in January. Twenty four students scored below the benchmark requirement of eighteen phonemes per minute in the area of phonemic segmentation a fluency subtest. Winter DIBELS' raw scores showed that twenty four students did not meet benchmark of subset in phoneme segmentation fluency. These students scored below the benchmark goal of 18 phonemes in the phonemic awareness fluency. Benchmark Spring DIBELS' scores required the area of phoneme segmentation to increase its fluency rate to 35 phonemes per minute.

### Design

During this study, the researcher was interested in the rate of success between the treatment and the control groups, after explicit targeted interventions were given to the treatment group. The researcher used a t-test for independent samples to measure for significant difference between the treatment and

control groups. The design utilized two independent groups:

Group X: represented raw scores for Winter 2007.

Group Y: represented raw scores for Spring 2007.

Delta  $\Delta$ : represented the scores of the subtraction between 2007 Winter and Spring raw scores.

#### Procedure

The researcher sought and obtained permission to conduct this study from the school principal and from the kindergarten teachers at Robertson Elementary School. The reading coach was also instrumental in providing additional DIBELS data to complete this study.

The researcher conducted a research of selected literature that focused on the effectiveness of explicit and targeted interventions aimed to help ELL struggling students in the areas of phonemic awareness. The selected literature was acquired through Pro-Quest, the Internet, and hand searched articles to support the study being conducted.

Then, the researcher analyzed the 2006-2007 DIBELS' assessment data of four kindergarten classes during the Summer of 2007 while the researcher completed studies for a M.Ed at Heritage University.

#### Treatment of the Data

The researcher used a t-test for independent samples jointly with the STATPAK statistical software that accompanied the text book *Educational Research Competency for Analysis and Applications* by Gay, Mills, & Airasian (2003) to compare for significant difference between the treatment and the control groups. Significant difference was determined for  $p \geq$  at .05, .01, and .001 levels.

The null hypothesis stated that there was no significant difference between students who participated in explicit and intentionally designed interventions twice a week and those students who did not participate. The author of this study collected the scores from the Phoneme segmentation fluency subtest of twenty four kindergarten students for the treatment group who scored below the benchmark in

DIBELS' January 2007 assessment. The control group was chosen from students that met benchmark on DIBELS' January 2007 assessment.

#### Summary

In Chapter 3, the researcher provided a description of the research method employed during the course of this study; its participants, instruments used, research design, and procedure utilized. The researcher also presented all the facts concerning treatment of the obtained and analyzed data while demonstrating significant difference for  $p \geq$  at the .05, .01, and .001 levels between the treatment and the control group.

## CHAPTER 4

### Analysis of the Data

#### Introduction

The purpose of this study was to measure the rate of success that explicit and intentionally interventions had on kindergarten students identified at risk of reading failure. The researcher was interested in finding whether the students that participated in the treatment group, increased the rate of achievement after the six week treatment.

The researcher noted that students in the treatment group increased their rate of fluency after explicit and intentionally interventions were conducted after a period of six weeks. The researcher found that significant difference was determined by utilizing a t-test of independent samples.

#### Description of the Environment

This study took place during the 2006-2007 school year. The research was conducted on four kindergarten classes at Robertson Elementary School in Yakima, Washington. Robertson Elementary School adopted the

2006 Houghton Mifflin reading curriculum which contained a significant phonics component for kindergarten students. Both groups of students were in their majority ELL and came from high poverty households. Eighty four percent of the students received free and reduced lunch.

The study selected for the treatment group twenty four students that did not meet benchmark in the area of phoneme segmentation fluency. All of the students in the treatment group scored below the benchmark requirement of eighteen phonemes per minute in the area of phonemic segmentation a fluency subtest of DIBELS assessment given in the Winter 2007.

The control group consisted of twenty four students who met Winter 2007 DIBELS' benchmark and their scores ranged between eighteen to thirty five phonemes per minute in the phonemic segmentation area. In total 48 students' raw scores from winter and spring 2007 were used to test for significance.



### Hypothesis

Robertson at risk Kinder English Language learners met benchmark on the DIBELS phonemic awareness and nonsense word fluency assessments in April 2007, after explicit and intentional interventions were implemented using Houghton Mifflin and DIBELS progress monitoring materials. The twenty minutes interventions were held twice a week and targeted the treatment group of twenty four students for a period of six weeks.

### Null Hypothesis

There was no significant difference found between the control group and the ELL treatment groups after weekly interventions were implemented using Houghton Mifflin and DIBELS progress monitoring materials. Significance was determined for  $p \geq .05, .01, .001$  levels.

### Results of the Study

The Delta raw scores entered on Table 1 were derived from the 2007 Spring minus Winter raw scores for both the treatment and control groups. Test X represented Delta's scores for the treatment group and

their sum had a mean of 32.96. The sum of Test Y (control group) had a mean of 24.83. Delta scores were entered into the t-test for independent samples using the STATPAK statistical software. The test had 46 degrees of freedom, however for the purpose of the experiment 40 degrees of freedom were utilized from the textbook *Educational Research Competency for Analysis and Applications* by Gay & Airasian (2003 p. 561), to test for significance at the probability levels of .05, .01, and .001.

Table 1  
Students' Phonemic Segmentation Scores for the  
Treatment and Control Groups.

Treatment Group				Control Group			
Students	W	S	$\Delta$ (X)	N	W	S	$\Delta$ (Y)
S1	9	40	31	T1	18	37	19
S2	13	44	31	T2	23	32	9
S3	17	43	26	T3	28	58	30
S4	0	27	27	T4	23	42	19
S5	3	23	20	T5	34	56	22
S6	6	45	39	T6	18	37	19
S7	0	36	36	T7	35	45	10
S8	0	44	44	T8	18	58	40
S9	0	4	4	T9	30	44	14
S10	3	40	37	T10	19	66	47
S11	8	32	24	T11	33	52	19
S12	12	50	38	T12	32	46	14
S13	14	52	38	T13	34	41	7
S14	7	63	56	T14	24	54	30
S15	0	37	37	T15	30	56	26
S16	0	1	1	T16	19	59	40
S17	7	37	30	T17	28	47	19
S18	3	46	43	T18	22	65	43
S19	12	44	32	T19	22	67	45
S20	12	46	34	T20	19	48	29
S21	3	41	38	T21	19	51	32
S22	12	50	38	T22	24	42	18
S23	7	31	24	T23	31	39	8
S24	10	64	54	T24	28	65	37

Note: Mean of scores for X=32.96. Mean of scores for  
Y=24.83.

A t-test was run using delta scores for X and Y into the STATPAK statistical software. The test on Table 2 had a t-test value of 2.34 and 46 degrees of freedom for the independent samples. However for the purpose of the experiment 40 degrees of freedom were utilized from the textbook *Educational Research Competency for Analysis and Applications* by Gay, & Airasian (2003 p. 561). The hypothesis and the null hypothesis were tested for significance for  $p \geq$  at .05, .01, and .001 levels.

Table 2  
t-Test for Independent Samples

Statistic	Values
No. of Scores in Group X	24
Sum of Scores in Group X	791.000
Mean of Group X	32.96
Sum of Squared Scores in Group X	29243.00
SS of Group X	3172.96
No. of Scores in Group Y	24
Sum of Scores in Group Y	596.0000
Mean of Group Y	24.83
Sum of Squared Scores in Group Y	18292.00
SS of Group Y	3491.33
t-Value	2.34
Degrees of freedom	46

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

$$t = \frac{32.96 - 24.83}{\sqrt{\left[\frac{29243.00 + 18292.00}{24+24 - 2}\right] \left[\frac{1}{24} + \frac{1}{24}\right]}}$$

$$t = 2.34$$

The null hypothesis in this study stated that there was no significant difference between the students who received explicit and intentionally designed interventions was rejected at the .05 level and accepted at the  $p \geq .01$ , and .001 levels. The hypothesis stated that students who received explicit and intentionally designed interventions was significantly supported for  $p \geq$  at .05 level, however, it did not support  $p$  at the .01 and .001 levels as stated on Table 3.

Table 3

Values of the t-test for Different Levels of Significance

Degrees of Freedom	P		
	.05	.01	.001
46	2.021	2.704	3.551
<u>Null Hypothesis</u>	Rejected	Accepted	Accepted
<u>Hypothesis</u>	Supported	Not Supported	Not Supported

Note: t-test value was 2.34.

### Findings

The results of this study determined significant difference for  $p$  at the .05 level, between the students in the treatment group that received explicit and intentionally designed interventions and the control group. There was no significant difference measured between the two groups for  $p \geq$  at the .01 and .001 levels, therefore the null hypothesis was accepted. The hypothesis was supported for  $p \geq$  at .05, but not at the .01 and .001 levels.

### Discussion

The results of this study ~~was~~<sup>were</sup> consistent with previous research discussed on Chapter 2, which established that systematic interventions embedded with phonemic awareness, segmenting and blending, decoding, spelling, text processing skills and writing, indicated to be the most beneficial method of instruction for students at risk of reading failure (Lyon & Moats, 1997; Bursuck, Munk, Nelson, & Curran, 2002). The researcher concluded that essential elements for effective interventions pertained to,

"intensity, duration, and supportiveness of instruction; the timing of the intervention; the student ratio; the knowledge base of the intervention teacher; and the content of the intervention," (2004, p. 53). In addition, the study continued to specify the necessity for teachers to implement continuous progress monitoring and to utilize assessment data to differentiate classroom instruction (Foorman et al, 2004). In this study the researcher intended to measure the rate of success that explicit and intentionally interventions had on the chosen twenty four ELL students. Increasing students' phoneme segmentation fluency helped to close the achievement gap while it developed second language acquisition.

#### Summary

The researcher was interested whether or not there was significant difference between the treatment and the control group in the rate of success in the area of phonemic segmentation. All of the participants of the treatment group had difficulties with phoneme segmentation fluency according to DIBELS assessment



results for January 2007, and benefited from the small group intervention.

The research occurred during the 2006-2007 school year. The study was conducted on four kindergarten classrooms at Robertson Elementary School. The participants were in their majority ELL students from high poverty households. The results of this study were consistent with published research discussed in Chapter 2. The null hypothesis was rejected for  $p \geq .05$  level, and accepted at the .01 and .001 levels. The hypothesis was supported for  $p \geq .5$  level, but not supported at the .01 and .001 levels.

## CHAPTER 5

### Summary, Conclusions and Recommendations

#### Summary

The purpose of this study was to determine whether explicit and intentionally designed interventions significantly improved phonemic segmentation fluency for the struggling twenty four ELL students as measured by DIBELS' subtest assessment.

The researcher utilized the 2006 Houghton Mifflin reading curriculum which contained a revised kindergarten phonics component along with DIBELS' progress monitoring material to increase phonemic segmentation fluency during the interventions. A literature review in Chapter 2 was conducted, essential baseline data was obtained and analyzed, and related conclusion and recommendation were formulated.

#### Conclusions

The findings of this study were consistent with the published research reviewed in chapter 2, which supported the implementation of targeted, explicit and

intentionally designed interventions. The English Language Learners students included in this study demonstrated difficulties with phoneme segmentation and blending. These difficulties placed them at risk of reading failure.

Schools realized that English language learners and migrant students were among the most ethnically and linguistically diverse population entering United States' educational system.

Data analysis supported the hypothesis that students who were provided with explicit and intentionally interventions improved significantly their fluency rate in the phoneme segmentation. The null hypothesis was rejected at the  $p \geq .05$  level and accepted at the .01 and .001 levels. The hypothesis was supported at the  $p \geq 0.5$  level, but was not supported at the .01 and .001 levels.

#### Recommendations

Based on the conclusions cited above, the following recommendations have been suggested:

1. To emphasize the need for early identification, early intervention of potential ELL students at risk of reading failure.
2. To implement effective English as a Second Language strategies known to increase student achievement rate.
3. To develop explicit, and intentionally interventions that target the skill to be measured. These interventions need to be implemented until the skill or concept has reached mastery without time constrains.
4. Interventions need to be provided by trained certified teachers that can monitor progress while modifying instruction to meet student's needs.
5. The researcher would be interested to find if significance would be found at all levels by increasing the length and the time allocated to the interventions.

## REFERENCES

- Armbruster, B.B., Lehr, F., Osborn, J. (2001). Put reading first: The research building blocks for teaching children to read kindergarten through grade 3. Center for the Improvement of Early Reading Achievement (CIERA). National Institute for Literacy (NIFL).
- Branum-Martin, Methhta, P., Fletcher, J., Carlson, C., Carlo, M., Ortiz, A., & Francis, D. (2006). Bilingual phonological awareness: Multilevel construct validation among Spanish-speaking kindergarteners in transitional bilingual education classrooms. *Journal of Educational Psychology*, Vol 98, No. 1. 170-181.
- Bursuck, W.E., Munk, D.D., Nelson, C., & Curran, M., (2002). Research on the prevention of reading problems: Are kindergarten and first grade teachers listening? *Preventing School Failure*, 47(1), 4-10. Retrieved from ProQuest Education Journals database.

Foorman, B.R., Moats, L. (2004). Conditions for sustaining research-based practices in early reading instruction. *Remedial and Special Education*, 25(1), 51-60. Retrieved from Education Module database.

Iversen, S., Tunmer, E.E., & Chapman, J. (2005). The effects of varying group size on the reading recovery approach to preventive early intervention. *Journal of Learning Disabilities*, 38(5), 456-473. Retrieved March 24, 2007, from Research Library Core database.

Klingner, J.K., Artiles, A.J., & Barletta, L.M. (2006). English language learners who struggle with reading: Language Acquisition or LD? *Journal of Learning Disabilities* 39(2), 108-129. Retrieved from ProQuest Database.

Kropp, P. (2000). The phonemics phenomenon: the hottest new trend in reading readiness start with "ph," and it's not phonics. *Today Parent*. Vol. 17, Iss. 9; pg. 57. Toronto: Oct

- Lane, K L., Menzies, H. M., Munton, S. M.,  
VonDuering, R. M., & English, G. L. (2005). The  
effects of a supplemental early literacy program  
for a student at risk: A Case study. *Preventing  
School Failure*, 50(1), 21-28. Retrieved March 24,  
2007, from Education Module database.
- Linan-Thompson, S., Vaughn, S., Prater, K., & Cirino,  
P. T. (2006). The response to rntervention of  
English learners at risk for reading problems.  
*Journal of Learning Disabilities*. Sep/Oct 2006.  
Vol. 39, Iss. 5; pg. 390-399.
- Lyon, R.G., Moats, L.C. (1997). Critical conceptual  
and methodological considerations in reading  
intervention research. *Journal of Learning  
Disabilities*. 30(6), 578. Retrieved March 26,  
2007 from Education Module database.
- Manning, M., & Szecsi, T. (2006). Phonemic awareness:  
A natural step toward reading and writing.  
*Childhood Education*, 82(4), 241-243. Retreived  
March 24, 2007 from ProQuest Education Journals  
database.

McCoach, B.D., O'Connell, A.A., & Levitt, H. (2006).

Ability Grouping Across Kindergarten Using an  
Early Childhood Longitudinal Study. *The Journal  
of Educational Research*. Vol. 99, Iss. 6; pg.  
339-348. Bloomington:Jul/Aug 2006.

Moats, L. C. (1997). Spelling: The difference  
instruction makes. *CORE Reading Research  
Anthology*, 2<sup>nd</sup> edition, (pgs. 99-101). California:  
Arena Press.

Moats, L. C. (2005/06). How spelling supports reading:  
And why it is more regular and predictable than  
you may think? Retrieved March 17, 2007, from  
American Educator Web site:  
[http://www.aft.org/pubs-reports/American  
educator/index.htm](http://www.aft.org/pubs-reports/American_educator/index.htm)

Moats, Louisa C. (2005), Word Study, and the  
Alphabetic Principle. *LETRS*. Longmont, CO: Sopris  
West

National Institute for Literacy. (2005). What is  
scientifically based research? Retrieved March 5,  
2007 from web site:



[http://www.nifl.gov/partnershipforreading/publications/pdf/lit\\_interventions.pdf](http://www.nifl.gov/partnershipforreading/publications/pdf/lit_interventions.pdf)

O'Connor, R. E., Harty, K. R., & Fulmer, D. (2005). Tiers of intervention in kindergarten through third grade. *Journal of Learning Disabilities*. Vol. 38, Iss. 6; pg. 532-539. Austing: Nov/Dec 2005.

Oudeans, M. (2003). Integration of Letter-Sound Correspondences and Phonological Awareness Skills of Blending and Segmenting: A Pilot Study Examining the Effects of Instructional Sequence on Word Reading for Kindergarten Children with Low Phonological Awareness. *Learning Disability; Fall 2003; Vol. 26, Iss. 4; Pscyc Info*.

Roberts, T, A. (2005). Articulation accuracy and vocabulary size contributions to phonemic awareness and word reading in English language learners. *Journal of Educational Psychology*, 97(4), 601-616. Retrieved March 24, 2007, from Research Library Core database.

- Schwartz, R. M. (2005). Literacy learning of at-risk first-grade students in the reading recovery early intervention. *Journal of Educational Psychology*, 97 (2), 257-267. Retrieved March 24, 2007, from Research Library Core database.
- Schwartz, R. M. (2007). Using phonemic awareness with esl students. Retrieved March 5, 2007 from Reading Horizons. Website:  
<http://www.readinghorizons.com/research/>
- Vaughn, S., Cirino, P. T., Linan-Thompson, S., Mathes, P. G., et al (2006). Effectiveness of a Spanish Intervention and an English Intervention for English-Language Learners at Risk for Reading Problems. *American Educational Research Journal*. Fall 2006; Vol. 43, Iss 3; pg. 449.
- Vellutino, F.R., Scanlon, D.M., Small, S., Fanuele, D.P., (2006). Response to intervention as a vehicle for distinguishing between children with and without reading disabilities: evidence for the role of kindergarten and first-grade interventions. *Journal of Learning Disabilities*,

39(2), 157-170. Retrieved March 26, 2007, from  
Research Library Core database.

Wright, J. (2006). Learning interventions for  
struggling students. *The Educational Digest*. Vol.  
71. Iss. 5; pgs.35-40. Ann Arbor: Jan 2006.

#### SUPPLEMENTAL REFERENCES

Adams, M.J., Foorman, B. R., Lunderberg, I., & Beeler, T. (1998b). Phonemic Awareness in young children: A classroom curriculum. Baltimore: Paul H. Brookes.

Allor, J. H. Gansle, K. A., & Denny, R K.. (2006). The Stop and Go Phonemic Awareness Game: Providing Modeling, Practice, and Feedback. *Preventing School Failure*, 50(4), 23-30. Retrieved March 24, 2007, from Education Module database.

Ashmore, R. A., Farrier, M. J., Paulson, L. H., & Chu, X. (2003). The effects of phonemic awareness drills on phonological awareness and word reading performance in a later learned alphabetic script. *Reading Improvement*, 40(1), 33. Retrieved March 24, 2007, from ProQuest Education Journals database.

Gambrell, Linda B. (2004). Exploring the connection between oral language and early reading. The

Reading Teacher, 57(5), 490-492. Retrieved March 24, 2007, from Research Library Core database.

Justice, Laura M. (2006). Evidence-based practice, response to intervention, and the prevention of reading difficulties. *Language, Speech & Hearing Services in Schools*. Vol. 37, Iss. 4; pg. 284-298. Washington; Oct 2006.

Mayo, C., Scobbie, J. M., Hewlett, N., & Waters, D. (2003). The influence of phonemic awareness development on acoustic cue weighting strategies in children's speech perception. *Journal of Speech, Language, and Hearing Research*, 46(5), 1184-1196. Retrieved March 24, 2007, from Research Library Core database.

Otaiba, S., Schatschneider, C., & Silverman, E. (2005). Tutor-Assisted intensive learning strategies in kindergarten: How much is enough? *Exceptionality*, 13(4), 195. Retrieved March 24, 2007, from Education Module database.