

2016

# Effects of Phonological Intervention on At-Risk Kindergarten Students with Reading Difficulties

Laura Lees  
llees@k12.wv.us

Follow this and additional works at: <http://mds.marshall.edu/etd>



Part of the [Curriculum and Instruction Commons](#), and the [Liberal Studies Commons](#)

---

## Recommended Citation

Lees, Laura, "Effects of Phonological Intervention on At-Risk Kindergarten Students with Reading Difficulties" (2016). *Theses, Dissertations and Capstones*. Paper 980.

This Research Paper is brought to you for free and open access by Marshall Digital Scholar. It has been accepted for inclusion in Theses, Dissertations and Capstones by an authorized administrator of Marshall Digital Scholar. For more information, please contact [zhangj@marshall.edu](mailto:zhangj@marshall.edu), [martj@marshall.edu](mailto:martj@marshall.edu).

Running head: PHONOLOGICAL INTERVENTION WITH AT-RISK STUDENTS

Effects of Phonological Intervention on At-Risk Kindergarten Students with Reading Difficulties

Research Paper

“Submitted to the Special Education Faculty of Marshall University College of Education and Professional Development in Partial Fulfilment of the Requirements for the Degree Masters of Arts”

Laura Lees

May 3, 2016

**Abstract**

This study provides additional data supporting the argument of implementing phonological reading intervention. The study consisted of 20 kindergarten students' ages five and six years old. Students were identified at-risk for reading difficulties by a teacher created pretest and the administration of STAR a school computer assessment tool. Using a multi-sensory approach, all students received whole and small group instruction in segmentation and blending words. In addition, students at-risk received 30 minutes of intensive instruction four days a week. Results indicated that there was positive reading growth when students were provided direct and systematic phonological instruction. The students at-risk who received an additional 120 minutes of intensive instruction per week produced a greater reading growth in both segmentation and blending compared to their typical peers.

*Keywords:* phonological awareness, at-risk for reading difficulties, segmentation, blending, explicit, systematic

**TABLE OF CONTENTS**

<b>ABSTRACT</b> .....	ii
<b>TABLE OF CONTENTS</b> .....	iii-iv
<b>CHAPTER 1: INTRODUCTION</b> .....	1
Statement of the Problem.....	2
Rational of the Study.....	3
Research Question.....	3
Hypothesis.....	3
<b>CHAPTER 2: REVIEW OF RELATED LITERATURE</b> .....	6
Phonological Intervention.....	7
At-Risk Students.....	9
Phonological Instruction and Whole Language Instruction.....	10
Summary.....	11
Conclusion.....	12
<b>CHAPTER 3: RESEARCH METHODOLOGY</b> .....	14
Hypothesis.....	14
Setting and Participants.....	14
Variables.....	15
Threats to Validity.....	15
Treatment.....	15
Measures.....	16
<b>CHAPTER 4: DATA ANALYSIS</b> .....	18
Figure 4.1.....	18

Figure 4.2.....19

Figure 4.3.....19

Figure 4.4.....20

Figure 4.5.....20

Figure 4.6.....21

Figure 4.7.....21

**CHAPTER 5: DISCUSSION**.....22

    Summary.....22

    Limitations.....23

    Future Research.....24

    Conclusion.....24

**REFERENCES**.....25-29

**APPENDIX**.....30-36

## **Chapter One: Introduction**

The development of reading skills begins early in a child's life. The exposure to sounds and experiences helps a child build his or her vocabulary. Young children who are read to and talked to exhibit greater skills for reading development than children without exposure to environmental literacy (Lonigan & Shanahan, 2010). Early identification of students at-risk for reading difficulties and supplying reading intervention are critical to closing the gap with their at-level peers (Vadasy, Sanders, & Peyton, 2006).

Phonemic awareness, phonics, fluency, vocabulary, and reading comprehension are the five elements of phonological instruction that are taught through explicit teaching and are highly effective for reading intervention (National Institute of Child Health and Human Development [NICHD], 2000). In the study performed by Lonigan and Shanahan (2010), significant reading growth with at-risk kindergarten and 1<sup>st</sup> grade students was found when using phonics instruction.

Phonological awareness is hearing and changing the sound structure of words regardless of the words' definition (Phillips, Clancy-Menchetti, & Lonigan, 2008). The foundation to learning phonics is phonemic awareness (Stahl, 2001). Rhymes, words, syllables, onsets and rimes, and phonemes are all used to identify and manipulate spoken language. Phonological awareness uses these elements to produce new words through rhymes (cat, fat, bat, etc.), by segmenting into syllables (tad/pole) and small components (sh/ip), and blending them back together (Burns, Griffin, & Snow, 1999). Stahl (2001) states the foundation to learning phonics is the development of phonological awareness.

Phonemic awareness (PA) is a crucial element that has been shown to assist in preventing reading difficulties when instruction begins in preschool (Wolff, 2011). According to Murphy

and Schuele (2003), PA is the ability to analyze the sounds structure of language at the phoneme (the smallest unit of language- b /b/) level. This includes the ability to segment (take apart) and blend (put together) the phonemes (Murphy & Schuele, (2003). Acquiring the ability to manipulate and identify the sequences of phonemes create a strong foundation for novice readers (Burns, Griffin, & Snow, 1999).

### **Statement of the problem**

Reading deficiencies that begin in kindergarten may follow a student throughout his or her life. Pikulski (1994) found evidence that first-grade students with reading achievement difficulties who were not reading independently by third grade, would continue to exhibit literacy problems throughout their lives (as cited by Maddox & Feng, 2013). Teachers need to be able to identify students with reading problems and implement teaching strategies and techniques to improve the students' reading abilities (Kamps et al., 2008). Early identification of students at-risk for reading difficulties and providing quality instruction can help prevent future reading problems (Individuals with Disabilities Education Improvement Act [IDEA], 2004). Regular classroom instruction is not adequate enough for at-risk readers who require additional explicit phonological instruction to achieve the greatest reading benefits (Ukrainetz, Ross, & Harm, 2009).

Intensive intervention over shorter periods of time was found more effective than remedial instruction over longer periods of time (Torgesen, 2002). Lonigan and Shanahan (2010) found teacher-led small group and one-on-one PA instruction produced large and positive effects on students' blending and segmenting skills. This author wants to find out if previous phonological intervention studies' results will generalize with the population used for this study.

**Rational for the study**

This study provides additional data for supporting the argument of implementing phonological reading intervention. Initial PA instruction starts with the identification of a letter and the sound the letter makes (Leafstedt, Richards, & Gerber, 2004). Instruction is explicit and systematically taught concentrating on one or two of the five phonological skills to achieve the greatest gains in a student's reading ability (Cavanaugh, Kim, Wanzek, & Vaughn, 2004). Early intervention is the key for at-risk students with reading difficulties to provide reading skills for academic success in the future. The most effective predictor of at-risk students' reading success is the phonological intervention with blending and segmenting words (Vadasy & Sanders, 2010).

**Research Question**

To what extent does reading intervention using phonological instruction affect reading growth for students at-risk with reading difficulties?

Is there a significant relationship between reading growth of students at-risk for reading difficulties and their peers not at-risk for reading difficulties?

**Hypothesis**

The purpose of this study is to evaluate the effectiveness of phonological awareness intervention using a multi-sensory approach. Visual, auditory, and tactile activities will be used to focus on the reading growth of typical and at-risk kindergarten students' segmenting and blending skills.

For the purpose of this study, the operational definition of phonological awareness is the hearing, identifying, and manipulating the sounds of words (National Reading Panel [NPR], 2000). The participants' hearing and vision was screened before entering kindergarten and the results were within the normal parameters for all intended participants. Participants will identify



and manipulate phonemes (sounds) by blending and segmenting words verbally and with tactile activities (finger tapping and touching letters). The independent variable is the phonological awareness intervention.

The intervention of phonological awareness skills will be delivered systematically and explicitly. The teacher will use scaffolding strategies such as (a) supportive verbal prompts, (b) modeling, and (c) guided practice for student achievement.

The dependent variable is the student's reading growth of the segmenting and blending skills. To assess the student's segmenting skill the teacher will create a list of 20 words using consonant-vowel-consonant (CVC), consonant-consonant-vowel-consonant (CCVC), and consonant-vowel-consonant-consonant (CVCC) words. The teacher will model the segmenting skill by using an example word and breaking the word apart by saying individual phonemes while tapping the thumb with a finger for each sound. The student will segment the assessment words.

To assess the student's blending skill the teacher will create a list of 20 words using CVC words, CCVC words, and CVCC words. Using an example word, the teacher will model the blending skill by putting a finger under each letter and identifying the phoneme for each letter then blending the sounds together to create a word. The student will blend the assessment words.

The population identified for this study is 20 kindergarten students; eight girls and 12 boys with three students repeating kindergarten. The population also consists of four students who have Individualized Education Programs (IEP) for speech and four students who are medicated for attention deficit hyperactivity disorder (ADHD) as reported by their parents. Five students have been identified at-risk for segmentation and seven students have been identified at-risk for blending skills by teacher assessment and the STAR Early Literacy assessment, which is

an assessment tool used by the school district of this study's population. The students identified at risk will receive additional instruction for 30 minutes per day for four days a week with CADRE (a group of retired teachers).

## Chapter 2: Review of Related Literature

Decades of research indicate the need to identify and provide phonics-based intervention to children at-risk for reading difficulties (Vadasy et al., 2006). Children from low-income, minority, and English as a second language families are the highest population at risk for reading difficulties in school (Vadasy et al., 2006). The longitudinal study by Catts, Fey, Tomblin, and Zhang (2002) found over 70% of poor readers had a history of PA or oral language deficiency in kindergarten. This indicates an early identification of students at risk for reading difficulties is critical.

Hatcher, Hulme, and Snowling (2004) suggest children's foundation for learning to read should be phonological awareness instruction. Phonological instruction through explicit teaching in kindergarten may be a primary determinant of reading problems (Qi & O'Connor, 2000). NRP states phonics instruction has the greatest effect on reading progress in kindergarten and first grade with a mean effect size of  $d=0.56$  and  $d=0.54$  respectively, whereas the mean effect size of grades 2<sup>nd</sup> through 6<sup>th</sup> was only  $d=0.27$  (NICHD, 2000). Research indicates phonological instruction provides student growth in reading skills. Students who have strong phonological skills are more likely to be proficient readers by third grade (Cavanaugh et al., 2004; Muter, Holme, Snowling, & Stevenson, 2004).

Citing large-scale intervention studies, Torgesen (2002) proposes that the use of intensive systematic instruction can reduce a school population rate of reading failure 4% to 6%. The NRP supports the use of systematic phonics instruction for students in kindergarten through sixth grade who are at-risk for reading difficulties because of the considerable benefits it provides (NICHD, 2000). Reading is one of the largest indicators for academic success while

phonological awareness skills are significant predictors of later literacy achievement (Lonigan & Shanahan, 2010).

### **Phonological Intervention**

Research provides evidence that explicit and systematic instructions are effective methods for teaching at-risk students reading skills (Cavanaugh et al., 2004). Mandated school policies that use the same curricula and are taught at the same time with identical materials are criticized by Kamps et al. (2008) because students' individual abilities are ignored. Phonological instruction should provide opportunities for active participation of students using differentiated lessons that include modifying the content, delivering instruction, and monitoring response. It is suggested that these practices of differentiated lessons be used with small and large reading group instruction (Carlson, n.d.; Kent, Wanzek, & Otaiba, 2012). Explicit phonics instruction is scripted, fully developed, and precise in all areas of phonological learning (Villaume & Brabham, 2003). *Put Reading First* provides an example of explicit instruction:

Teacher: Listen: I am going to say the sounds in the word jam-/j/ /a/ /m/.

What is the word? Children: jam.

Teacher: You say the sounds in the word jam. Children: /j/ /a/ /m/

Teacher: Now let's write the sounds in jam: /j/, write j; /a/, write a; /m/, write m.

Teacher: (Writes jam on the board.) Now we're going to read the word jam.

(Armbruster, Lehr, & Osborn, 2001, p.8).

Explicit PA instruction provides the greatest benefits to prevent reading failure of at-risk students, regardless of the smaller reading skill achievements gained (NICHD, 2000; Ukrainetz et al., 2009).

Systematic phonics instruction is a sequence outline for teaching the letter-sound correlation at a student's pace (Villaume & Brabham, 2003). Sounds and skills are deliberately taught in a planned sequence with systematic instruction (Phillips et al., 2008). *Put Reading First* provides an example of systematic instruction and the relationship between sounds and a single letter, like the sound /a/ with the letter a (Armbruster et al., 2001). The NRP found instruction for building important reading skills should be direct and systematic (NICHD, 2000).

One model of intense intervention practice is the Response to Intervention (RTI) using a three-tiered system (Wackerle-Hollman, Schmitt, Bradfield, Rodriguez, & McConnell, 2015).

- Tier 1 provides periodic screening with evidence-based instruction. The first step is to assess the student to determine if intervention is necessary. Primary intervention should be conducted by the general educator for the majority of students (Kamps et al., 2008). The assessment determines which level of RTI the student will receive (Wackerle-Hollman et al., 2015).
- Tier 2 increases support, small group instruction, and increased progress monitoring if progress was not obtained with Tier 1 curriculum (Wackerle-Hollman et al., 2015). Kamps et al. (2008) state small group instruction for a specified period of time should be used in a secondary intervention with progress monitoring to evaluate a student's learning.
- Students who need intensive, individualized intervention are provided instruction in Tier 3 along with progress monitoring more frequently, at least once a week (Wackerle-Hollman et al., 2015). When the regular classroom does not provide adequate instruction for "weaker" learners, the learners will need more intensive instruction (Ukrainetz et al., 2009). Intensive intervention for the third level is

provided by using pull-out instruction, multiple opportunities to engage, systematic feedback, and progress monitoring (Kamps et al., 2008). Kamps et al. (2008) state specifically taught skills need to be continually data-base progress monitored.

### **At-Risk Students**

Early intervention before starting school through shared reading, improvement of language interaction, parent programs, and print-rich environments help prepare students for literacy success (Lonigan & Shanahan, 2010). Predictors for decoding words, reading comprehension, and spelling achievements can be measured by the primary skills of a student (Lonigan & Shanahan, 2010).

Identification of students at-risk for reading difficulties should be completed as early as possible, which is often in kindergarten (Cavanaugh et al., 2004). Children who are struggling with reading in early education continue to fall behind peers unless reading intervention is provided (Cavanaugh et al., 2004). The National Early Literacy Panel (NELP) found predictive correlations between early and later reading skills through a meta-analysis of published peer-reviewed journals (as cited by Wackerle-Hollman et al., 2015). Research found phonological awareness skill (e.g., letter naming, rhyming, blending, and segmenting) performance in kindergarten may predict a student's reading ability in second grade (Muter et al., 2004). Students' oral language contributes to future literacy achievement (Lonigan & Shanahan, 2010).

Vadasy et al. (2006) states in the longitudinal data, disadvantaged students with lower reading skills struggle to close the reading gap with their peers. Recent reports state 33% of U.S. students are failing in basic reading levels in elementary schools at the 4<sup>th</sup> grade level (National Center for Education Statistics [NCES], 2011). Students' risk factors are socio-economic status

(SES), fewer literacy experiences, and deficits in phonological skills (Cavanaugh et al., 2004). Leafstedt et al. (2004) add difficulty understanding individual phonemes and decoding words as problems for at-risk students. The NCES (2011) states students in the lower 25<sup>th</sup> percentile for reading were white students (33%), Hispanic students (35%), black students (25%) and Asian students (3%). Environment (poverty), parent's educational level, cultural or language diversity, and educational expectations are listed as academic risk factors by Musti-Rao and Cartledge (2007). Regardless of pre-literacy interactions before school, students can master the skill of reading beginning with phonological instruction (Phillips et al., 2008).

### **Phonological Instruction and Whole Language Instruction**

Phonics and whole language are two controversial theories for teaching reading (Maddox & Feng, 2013). Phonics instruction is taught by focusing on word decoding skills whereas whole language instruction focuses on the whole-word (Maddox & Feng, 2013). Maddox and Feng (2013) define phonics instruction as systematic and explicit, while the whole language approach teaches reading contextually and holistically using print rich materials. Supporters for whole language state phonics can be boring while learning to segment and blend words, and words lose meaning when decoded down to their smallest parts (Goodman, 2005; Jeynes, 2008). Phonics instruction is taught embedded in reading using a basal text whereas child-centered whole language instruction is indirectly acquired (Jeynes, 2008; Morrow & Tracey, 1997). Both theories are advantageous to early readers. However, Maddox and Feng conclude explicitly taught phonics is more effective for early readers.

Phonological instruction consists of phonemic awareness, phonics, vocabulary, comprehension, and fluency. Phonological awareness is understanding the sound structure of auditory language and being able to distinguish among the sounds (Leafstedt et al., 2004;

Lonigan & Shanahan, 2010). Rhyming, alliteration, and blending are skill characteristics of the domain called phonological awareness (Wackerle-Hollman et al., 2015). Phillips et al. (2008) define phonological awareness as “the ability to detect and manipulate the sound’s structure of words independent from their meanings” (p.3).

Alphabet knowledge, phonological awareness, rapid automatic naming, writing, and phonological memory are early literacy skills that help develop a student’s reading abilities and are predictors of future reading success (Lonigan & Shanahan, 2010; Musti-Rao & Cartledge, 2007). With concepts of print, print knowledge, reading readiness, oral language, and visual processing, Lonigan and Shanahan (2010) suggest preschool students and kindergarten students will have higher success rates in reading if they come to school with these multi-literacy experiences. For larger academic gains in phonemic awareness and alphabet principle knowledge, students need instruction with phoneme segmentation, blending, and substitution versus instruction using just rhymes and alliterations (Musti-Rao & Cartledge, 2007).

### **Summary**

Providing explicit and systematic reading intervention with differentiated lessons will benefit students at-risk for reading difficulties (Cavanaugh et al., 2004; Kent et al., 2012; Villaume & Brabham, 2003). Different models for reading intervention can be implemented by the teacher, such as small and large groups, one-on-one, and/or the RTI system (Kamps et al., 2008; Wackerle-Hollman et al., 2015). Numerous explicit instructional strategies, states Phillips et al. (2008) are used by the teacher to clearly explain tasks, model tasks, and support students’ efforts.

Students at-risk for reading difficulties need to be identified as early as possible for reading intervention (Cavanaugh et al., 2004). NCES (2011) reports 33% of U.S. 4<sup>th</sup> grade



students are failing basic reading levels with studies declaring they will struggle to reach proficient reading levels (Vadasy et al., 2006). Literacy exposure, SES, and difficulty with PA skills are some of the indicators for students at-risk (Cavanaugh et al., 2004; Leafstedt et al., 2004).

Maddox and Feng (2013) discuss phonics and whole language and state both can be used to teach reading, but phonics provides greater reading growth among young students.

Phonological instruction starts with students identifying letters and producing sounds to blend and segment words (Lonigan & Shanahan, 2010; Wackerle-Hollman et al., 2015). Emerging at-risk readers in preschool and kindergarten, when supplied with phonological intervention, may develop successful reading skills (Lonigan & Shanahan, 2010; Musti-Rao & Cartledge, 2007).

### **Conclusion**

Students come to school with different experiences. Students who have been exposed to rich language and supplied with many opportunities to explore language materials thrive with classroom instruction. Low socio-economic status, lack of literacy-rich environments, and English as a second language are some of the potential indicators that students might be at risk for reading difficulties.

The research indicates early intervention is most beneficial for at-risk students with reading difficulties. At-risk students who are supplied with an intensive intervention such as the RTI model in the primary grades may improve their reading performance to become proficient in reading areas. This study will examine the effects of intensive phonological instruction with identified, at-risk students for reading difficulties in the classroom.

The studies cited state that reading intervention is effective when using explicit and systematic instruction with differentiated instruction. Phonological instruction consists of five

parts: phonemic awareness, phonics, fluency, vocabulary, and comprehension. The teaching skills used for this study will be phonemic awareness (segmenting) and phonics (blending). Early intervention with phonological skills is stated in the studies to be beneficial for reading growth in all students, but is essential for at-risk students with reading difficulties.

### **Chapter 3: Procedures and Methods**

#### **Hypothesis**

Multi-sensory intervention using explicit and systematic phonological instruction with at-risk students with reading difficulties will show positive growth with segmentation and blending skills using a teacher created assessment.

#### **Setting and Participants**

The population identified for this study was 20 kindergarten students between five and six years of age. The students had hearing and vision testing before entering kindergarten. Vision and hearing of all students were within normal parameters. The population included eight girls and 12 boys. Within the population three students had repeated kindergarten, four students had an Individualized Education Programs (IEP) for speech, and four students were medicated for attention deficit hyperactivity disorder (ADHD) as reported by their parents. Five students had been identified as at-risk for reading difficulties with segmenting skills and seven students' blending skills were identified at-risk by the teacher created pretest and the STAR Early Literacy assessment. The students identified at-risk for reading difficulties received additional instruction four days a week for 30 minutes per day with CADRE (a group of retired teachers).

The sampling method used for this study was convenience sampling. Prior to the 2015-2016 school year, students were randomly placed into the classroom using a computer generated program. The advantages for using convenience sampling were data collection in a short period of time, subjects were available to the researcher, and it was cost-effective. The disadvantages for using convenience sampling were the opportunities for bias, no concrete conclusions for the data, and sampling error.

The reading instruction was presented by qualified teachers and staff members. The staff members included the kindergarten teacher, the kindergarten aide, and CADRE. CADRE were retired teachers who work with identified at-risk students throughout the school year.

### **Variables**

The independent variable was the phonological awareness intervention for segmenting and blending word skills. The dependent variable was the student's reading growth of the segmenting and blending word skills using a teacher constructed pretest and posttest. Additional practice at home of the segmenting and blending skills was considered as an extraneous variable and may have impacted the results of a student's reading growth measurements. The measurement scale selected to interpret the data was the ratio scale. Using the ratio scale, the data collected was ranked, classified, and measured using a true zero point.

The studies limitation was the short duration for the study (22 days), student absence, and weather related school closings.

### **Threats to Validity**

Threats to internal validity were the short duration for testing and the teacher-created assessment. A threat to external validity was generalizability. The study was a small sample of the kindergarten population.

### **Treatment**

The kindergarten classroom in this study used the McGraw-Hill (2014) Wonders curriculum. The curriculum incorporated leveled readers for differentiated instruction and age appropriate child-centered activities that included circle time, writing in journals, and retelling stories. Skills and strategies were taught through whole group and small group (four students) during language arts instruction time (Qi & O'Conner, 2000). Students received whole group

phonological instruction during circle time for 10 minutes five days a week. Students received 15 minutes five days a week in small group reading instruction with the teacher. Students received 10 minutes four days a week in small group reading instruction with the teacher aide. Students at-risk received 30 minutes four days a week with CADRE.

Instruction targeted the phonological skills of segmenting and blending three and four letter words. The teacher provided phonological learning activities and instruction for the teacher aide and CADRE.

Identified students at-risk used the CardMaster five minutes a day for three days a week. The CardMaster offered an audiovisual method for teaching a variety of academic skills (Califone.com, 2016). The teacher prerecorded the skill on individual cards according to the student needs. The skills prerecorded for this study were segmenting and blending words. Mental connections between the written and spoken word were reinforced with the repeated, visual, auditory, and kinesthetic use of the prerecorded cards (Califone.com, 2016).

During the study, students at-risk received phonological instruction 60 minutes four times a week and 25 minutes one day a week. The teacher documented student time spent actively engaged in segmenting and blending learning instruction.

### **Measures**

A teacher created test was used for assessing the student's phonological skills of segmenting and blending. The identical test was given as a pretest and as a posttest. Both segmenting and blending assessments consisted of 5 three-letter and 5 four-letter nonsense words and 5 three-letter and 5 four-letter real words. The teacher administered both tests to all students individually in a quiet location. The tests were administered in the morning when students were rested and attentive.

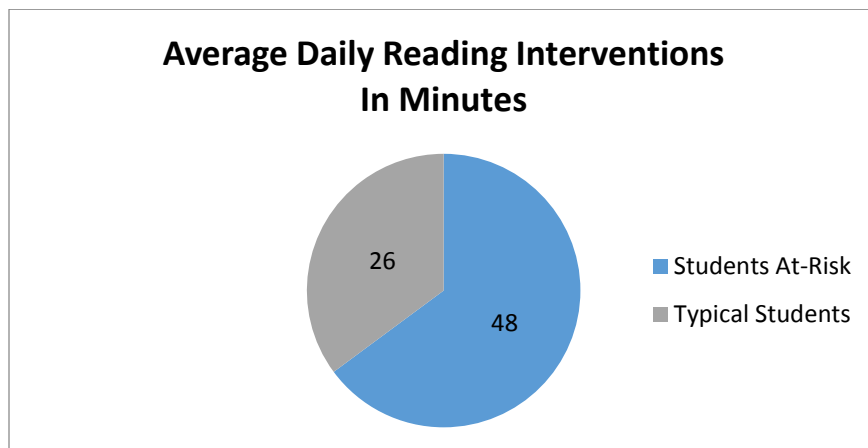
The teacher presented a list of words to be segmented to the student and explained that some of the words are nonsense words and some of the words are real words. The teacher then said, “I will say the word and you will tell me the sounds of the words. Here is an example of a real word: “cat” and you will say cat /k/ /a/ /t/. Let us begin (Good & Kaminski, 2003).” The teacher said each word and used the assessor’s response sheet to document student’s response for each word.

The teacher presented a list of words for blending by the student and explained that some of the words were nonsense words and some of the words were real words. The teacher then put a finger on the example and said, “/k/ /a/ /n/ can. I can say the sounds for each letter and say the word.” The teacher repeated /k/ /a/ /n/ can and then say, “Please put your finger on the first word and begin (Good & Kaminski, 2003)”. Teacher used the assessor’s response sheet to document student’s response for each word.

### Chapter 4: Data Results

This study examined the effects of intervention using phonological instruction in a kindergarten classroom. Students at-risk for reading difficulties were identified by the classroom teacher using a teacher created pre-test to assess students' skill with segmenting and blending words. Students who fell below 60% received extensive phonological intervention. Figure 4.1 shows students at-risk for reading difficulties received a daily average of 48 minutes of reading intervention and their typical peers received an average of 26 minutes of reading instruction. The students at-risk for reading difficulties received an average of 22 additional minutes of reading intervention daily compared to their typical peers.

**Figure 4.1:** Average daily reading intervention.

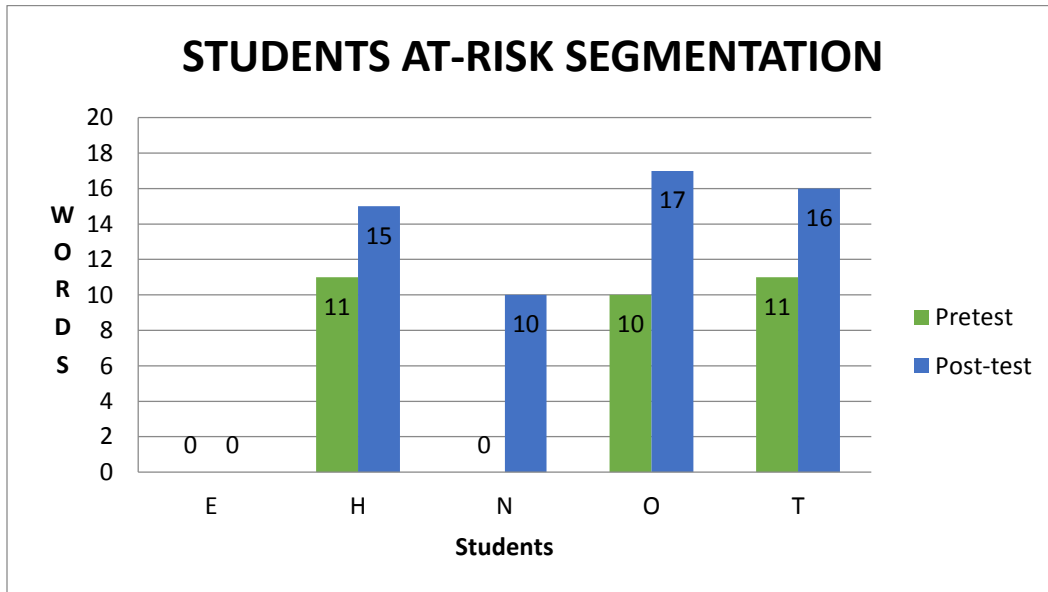


The first question in this study “To what extent does reading intervention using phonological instruction affect reading growth for students at-risk with reading difficulties” the results are described in Figure 4.2 and Figure 4.3.

Figure 4.2 and Figure 4.3 present the results of the pretest and the posttest for segmenting and blending skills of students at-risk for reading difficulties. Figure 4.2 presents the segmentation results where four out of the five students showed a mean growth of .26. Student E showed no growth with the intensive segmenting intervention. Figure 4.3 presents the results for

blending words where all seven students at-risk for reading difficulties showed a mean growth of .46.

**Figure 4.2:** Pretest and Posttest results of students at-risk for reading difficulties in segmentation.



**Figure 4.3:** Pretest and posttest of students at-risk for reading difficulties blending words.

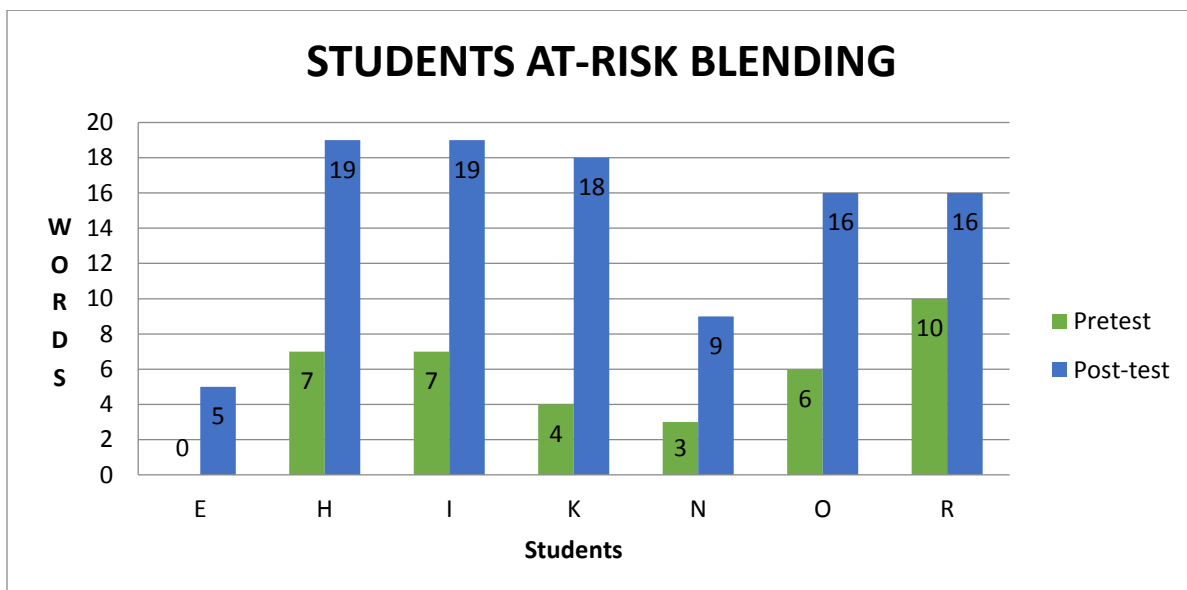
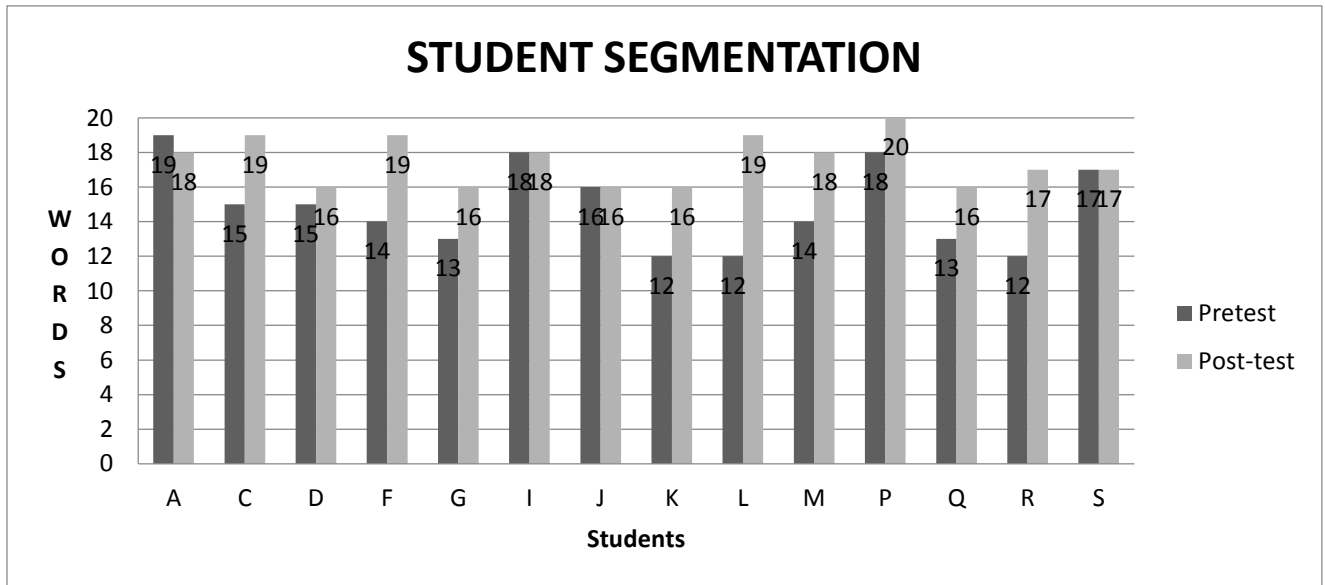


Figure 4.4 and Figure 4.5 present the results of the pretest and posttest for segmenting and blending skills of typical students. Figure 4.4 presents the segmentation results where all but one

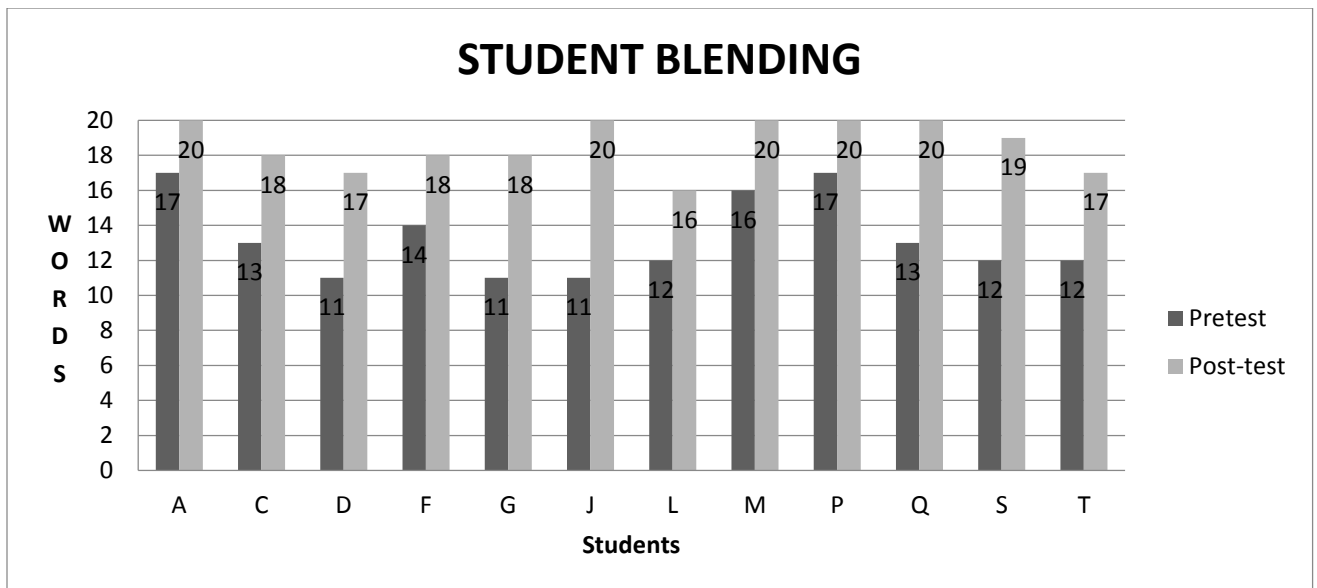


student maintained or showed a mean growth of .13 with the segmenting skill. Student A had a -0.5 testing result. Figure 4.5 presents the blending results where all students showed a mean growth of .27 with the blending skill.

**Figure 4.4:** Pretest and Posttest results of typical students in segmentation.



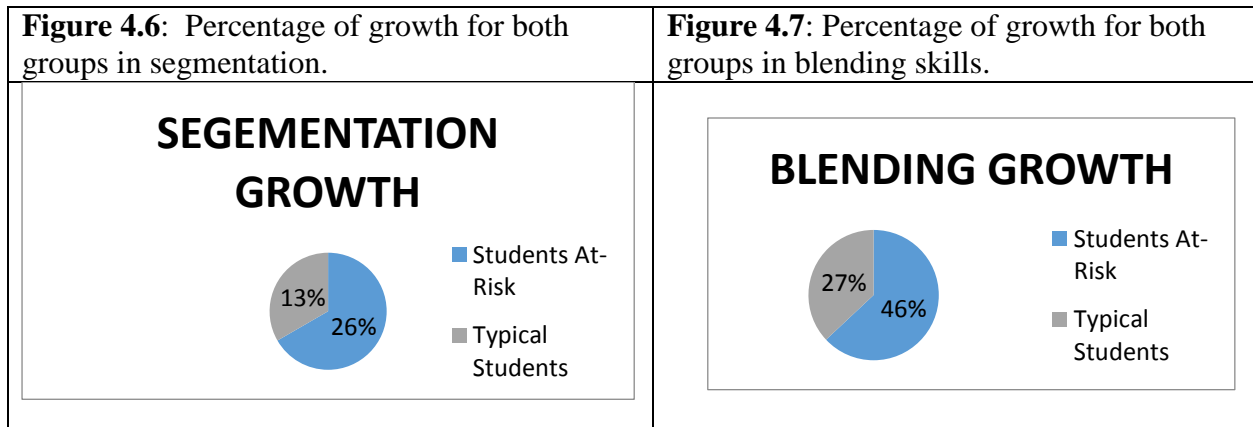
**Figure 4.5:** Pretest and Posttest results of typical students with blending skills



The second question this study examined was the relationship between reading growth of students at-risk for reading difficulties and their peers not at-risk for reading difficulties. Results

given in Figures 4.2 and 4.4 show that with one exception, segmentation skills of all students were maintained or showed growth. Figure 4.6 shows the results for students at-risk of reading difficulties had an average increase of 26% and their typical peers had an average increase of 13%. The students at-risk of reading difficulties had produced a greater growth by 13% with segmentation skills compared to their typical peers.

The results for blending skills of all students were maintained or showed growth with blending words in Figure 4.3 and Figure 4.5. Results showed students at-risk for reading difficulties had an average increase of 46% and the typical peers had an average increase of 27%. The students at-risk of reading difficulties had produced a greater growth by 19% compared to their typical peers.



The results of this study support the hypothesis in that intensive phonological intervention produces reading growth in students.

## Chapter 5: Discussion

The purpose of this study was to evaluate the effectiveness of phonological instruction intervention and to examine the reading growth of five and six year old kindergarten students at-risk for reading difficulties and their typical peers with segmenting and blending word skills.

### Summary

First, to what extent does reading interventions using phonological instruction affect reading growth for students at-risk with reading difficulties? This study focused on two of the five components of phonological instruction (segmentation and blending). All classroom students in this study received direct and systematic instruction in segmentation and blending words. The students identified at-risk for reading difficulties received an additional 30 minutes of pull-out instruction with CADRE four days a week. This instruction was considered a Tier 3 intervention in the RTI model of intensive intervention practices. The findings provided positive support for intensive intervention for students at-risk for reading difficulties. One student showed zero segmentation growth with the posttest, but did show improvement with the acquisition of producing more letter sound in each word. The mean for the four additional students at-risk showed a growth of .26 for segmentation.

The findings provided a larger gain with blending skills for the students at-risk for reading difficulties. The seven identified students at-risk showed substantial reading growth with a mean of .46. It appears providing additional support for phonological instruction can produce positive results, which supports this study's hypothesis.

The second inquiry of this study was to identify if a significant relationship between reading growth of students at-risk for reading difficulties and their typical peers could be

identified. The testing results for the typical peers produced a segmentation growth mean of .13 and a blending growth mean of .27.

Comparing both groups, the students at-risk produced a growth mean of .13 greater in segmenting skills to their typical peers and a greater blending growth mean of .19. It appears additional intensive intervention with phonological skill instruction can produce greater results and help close the gap between students at-risk and their typical peers.

Both of the questions addressed in this study offer additional data for the importance of providing phonological instruction for young children to succeed in developing their reading skills. This study found that providing explicit and systematic instruction provides growth in all students, but students at-risk advanced to a higher degree with the implementation of intensive intervention.

### **Limitations**

There were a number of limitations connected to this study. One crucial limitation was the time frame. This study supplied only 22 days of intervention in both the segmenting and blending instruction. One student moved in the middle of the study and a number of students were absent throughout the study. School was delayed two days and closed two days due to weather. Instruction schedules were interrupted which may have hindered student results.

The sample size of the population studied was small which provided another limitation, generalization, because the results may not adequately represent the larger population.

The last limitation was maintaining the planned instruction. To perform the exact number of teaching interventions is extremely difficult cautioned Warren, Fey, and Yoder (2007). Students practicing the skill at home and receiving additional classroom teaching may have affected the data collection results from being strictly the study's scheduled interventions.

**Future Research**

Similar research using direct and systematic instruction with larger populations would endorse the support for intensive instruction if the results continue to show student reading growth. This study used two of the five phonological components: PA and phonics. Additional studies using the other three phonological skills (i.e., fluency, vocabulary, and comprehension) could be examined for future support of intensive phonological instruction for students at-risk.

**Conclusion**

When conducting the review of related literature for this study, it was apparent that implementation of interventions for students at-risk of reading difficulties had shown positive results. This study also produced positive results in all students reading skills. I would have preferred to have had more time conducting the study to see if student E would have yielded positive results in segmentation. I feel the strategies and interventions were effective and will continue to incorporate them into the classroom.

### 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*. Washington, D.C.: National Institute for Literacy, National Institute of Child Health and Human Development, U.S. Dept. of Education.
- Burns, M.S., Griffin, P. & Snow, C.E. (eds.) (1999). *Starting out right*. Washington, DC: National Academy.
- Califone.com. (2016). *CAR2020- CardMaster™ card reader-supplemental reading and writing-califone*. Retrieved from <http://www.califone.com/products/car2020.php>
- Catts, H.W., Fey, M.E., Tomblin, J.B., & Zhang, X. (2002). Longitudinal investigation of reading outcomes in children with language impairments. *Journal of Speech, Language, and Hearing Research, 45*(6), 1142-1157.
- Carlson, A. (n.d.). What is differentiated instruction? Retrieved from <http://www.readingrockets.org/article/what-differentiated-instruction>
- Cavanaugh, C. L., Ae-Hwa Kim, C. L., Wanzek, J., & Vaughn, S. (2004). Kindergarten reading interventions for at-risk students: Twenty years of research. *Learning Disabilities -- A Contemporary Journal, 2*(1), 9-21.
- Good, R., & Kaminski, R. (2003). *DIBELS dynamic indicators of basic early literacy skills* (6<sup>th</sup> ed.) Longmont, CO: Sopris West Educational Services.
- Goodman, K. (2005). *What's Whole in Whole Language*. Berkeley CA: RDR Books.
- Hatcher, P. J., Hulme, C., & Snowling, M. J. (2004). Explicit phoneme training combined with phonic reading instruction helps young children at risk of reading failure. *Journal of Child Psychology and Psychiatry, 45*(2), 338-358.

Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C. 1400 et seq.

Jeynes, W. H. (2008). A meta-analysis of the relationship between phonics instruction and minority elementary school student academic achievement. *Education and Urban Society, 40*(2), 151-166.

Kamps, D., Abbott, M., Greenwood, C., Wills, H., Veerkamp, M., & Kaufman, J. (2008). Effects of small-group reading instruction and curriculum differences for students most at risk in kindergarten. *Journal of Learning Disabilities, 41*(2), 101-114.

Kent, S. C., Wanzek, J., & Al Otaiba, S. (2012). Print reading in general education kindergarten classrooms: What does it look like for students at-risk for reading difficulties? *Learning Disabilities Research & Practice (Wiley-Blackwell), 27*(2), 56-65.

Leafstedt, J. M., Richards, C. R., & Gerber, M. M. (2004). Effectiveness of explicit phonological-awareness instruction for at-risk english learners. *Learning Disabilities Research & Practice (Wiley-Blackwell), 19*(4), 252-261.

Lonigan, C.J. and Shanahan, T. (2010). The national early literacy panel: A summary of the process and the report. *Educational Researcher, 39*(4), 279-284.

Maddox, K., & Feng, J. (2013). Whole language instruction vs. phonics instruction: Effect on reading fluency and spelling accuracy of first grade students. *Online Submission*.

McGraw-Hill. (2014). *McGraw-Hill wonders reading and language arts program*. New York: Author.

Morrow, L. M., & Tracey, D. H. (1997). Strategies used for phonics instruction in early childhood classrooms. *Reading Teacher, 50*(8), 644.

Murphy, N. D., & Schuele, C. M. (2003). *The intensive phonological awareness (IPA) program*.

Musti-Rao, S., & Cartledge, G. (2007). Effects of a supplemental early reading intervention with

- at-risk urban learners. *Topics in Early Childhood Special Education*, 27(2), 70-85.
- Muter, V., Hulme, C., Snowling, M.J., & Stevenson, J. (2004). Phonemes, rimes, vocabulary, and grammatical skills as foundations of early reading development: Evidence from a longitudinal study. *Developmental Psychology*, 40(d), 665-681.
- National Center for Education Statistics. (2011). *The nation's report card: reading 2011*. (NCES 2012-457). Institute of Education Sciences, U.S. Department of Ed.
- National Early Literacy Panel. (2005). *Report on a synthesis of early predictors of reading*. Louisville, KY: author.
- National Reading Panel, B.M. (2000). Teaching children to read: An evidence-based assessment or the scientific research literature on reading and its implications for reading instruction.
- National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Reports of the subgroups (NIH Publication No. 00-4754). Washington, DC: U.S. Government Printing Office. Retrieved on October 16, 2015 from <https://www.nichd.nih.gov/publications/pubs/nrp/Pages/smallbook.aspx>
- Phillips, B.M., Clancy-Menchetti, J., & Lonigan, C.J. (2008). Successful phonological awareness instruction with pre-school children: Lessons from the classroom. *Topics in Early Childhood Special Education*, 28(1), 3-17.
- Pikulski, J. J. (1994). Preventing reading failure: A review of five effective programs. *The Reading Teacher*, 48(1), 30-39.
- Qi, S., & O'Connor, R. (2000). Comparison of phonological training procedures in kindergarten classrooms. *Journal of Educational Research*, 93(4), 226.



- Stahl, S. A. (2001). Teaching phonics and phonological awareness. In S. B. Neuman and D. K. Dickinson (Eds.), *Handbook of Early Literacy Research*. New York, NY: Guilford Press.
- Torgesen, J. K. (2002). Lessons learned from intervention research in reading: A way to go before we rest. In R. Stanthorp & P. Tomlinson (Eds.), *Learning and teaching reading* (pp. 89-103). *British Journal of Educational Psychology Monograph Series II*, No. 1.
- Ukrainetz, T.A., Ross, C.L., & Harm, H.M. (2009). An investigation of treatment scheduling for phonemic awareness with kindergartners who are at risk for reading difficulties. *Language, Speech, and Hearing Services in Schools*, 40(1), 86-100.
- Vadasy, P. F., Sanders, E. A., & Peyton, J. A. (2006). Code-oriented instruction for kindergarten students at risk for reading difficulties: A randomized field trial with paraeducator implementers. *Journal of Educational Psychology*, 98(3), 508-528.
- Vadasy, P. F., & Sanders, E. A. (2010). Efficacy of supplemental phonics-based instruction for low-skilled kindergartners in the context of language minority status and classroom phonics instruction. *Journal of Educational Psychology*, 102(4), 786-803.
- Villaume, S. K., & Brabham, E. G. (2003). Phonics instruction: Beyond the debate. *Reading Teacher*, 56(5), 478-82.
- Wackerle-Hollman, A. K., Schmitt, B. A., Bradfield, T. A., Rodriguez, M. C., & McConnell, S. R. (2015). Redefining individual growth and development indicators: Phonological awareness. *Journal of Learning Disabilities*, 48(5), 495-510.
- Warren, S.F., Fey, M. E., & Yoder, P. J., (2007). Differential treatment intensity research: A missing link to creating optimally effective communication interventions. *Mental Retardation and Developmental Disabilities Research Reviews*. 13. 70-77.
- Wolff, U. (2011). Effects of a randomized reading intervention study: An application of

structural equation modelling. *Dyslexia*, 17(4), 295-311.

## Appendices

## Student's Assessment Sheet

Words to Blend:

Name \_\_\_\_\_ Date: \_\_\_\_\_

Nonsense Words	Real Words
nom	tug
stip	desk
riv	honk
pask	kit
neg	fed
bruk	grab
juv	snug
spom	ham
dac	not
klem	trip

Words to Blend: Name \_\_\_\_\_ Date: \_\_\_\_\_

Assessor's Response Sheet

Word	Student Blends	Student Says	Correct Letter Sound	Correct
can	/k/ /a/ /n/	can	3/3 – 4/4	⊕ --
nom				+ --
stip				+ --
riv				+ --
pask				+ --
neg				+ --
bruk				+ --
juv				+ --
spom				+ --
dac				+ --
klem				+ --
tug				+ --
desk				+ --
honk				+ --
kit				+ --
fed				+ --
grab				+ --
snug				+ --
ham				+ --
not				+ --
trip				+ --

## Student's Assessment Sheet

Words to Segment:

Name \_\_\_\_\_ Date: \_\_\_\_\_

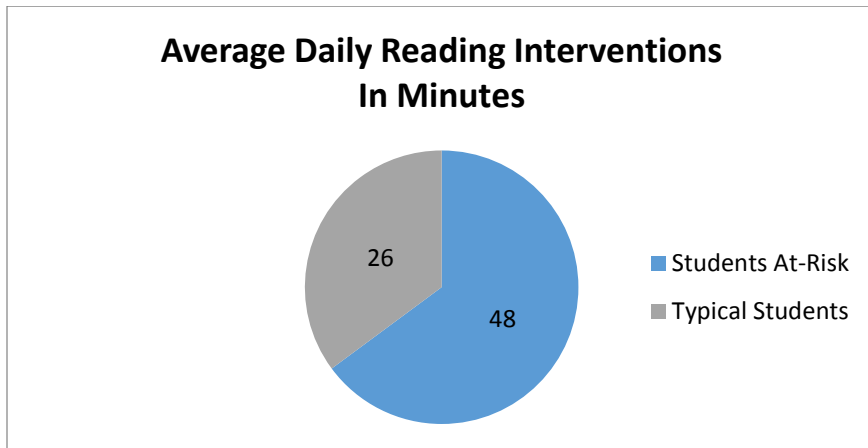
Nonsense Words	Real Words
lut	jug
glum	best
sim	sob
brip	spin
kav	had
fomp	plum
tev	get
staz	flop
wob	zig
frex	brag

Words to Segment: Name \_\_\_\_\_ Date: \_\_\_\_\_

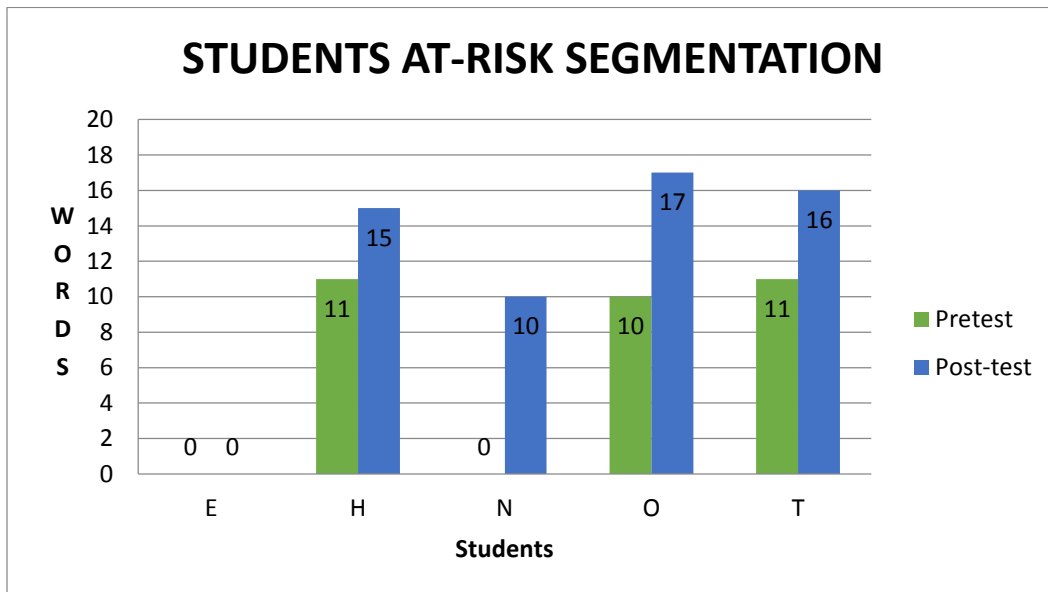
Assessor's Response Sheet

Word	Student Says	Scoring Procedure	Correct Letter Sound	Correct
cat	"k...a...t"	/k/ /a/ /t/	3/3 – 4/4	⊕ - -
lut				+ --
glum				+ --
sim				+ --
brip				+ --
kav				+ --
fomp				+ --
tev				+ --
staz				+ --
wob				+ --
frex				+ --
jug				+ --
best				+ --
sob				+ --
spin				+ --
had				+ --
plum				+ --
get				+ --
flop				+ --
zig				+ --
brag				+ --

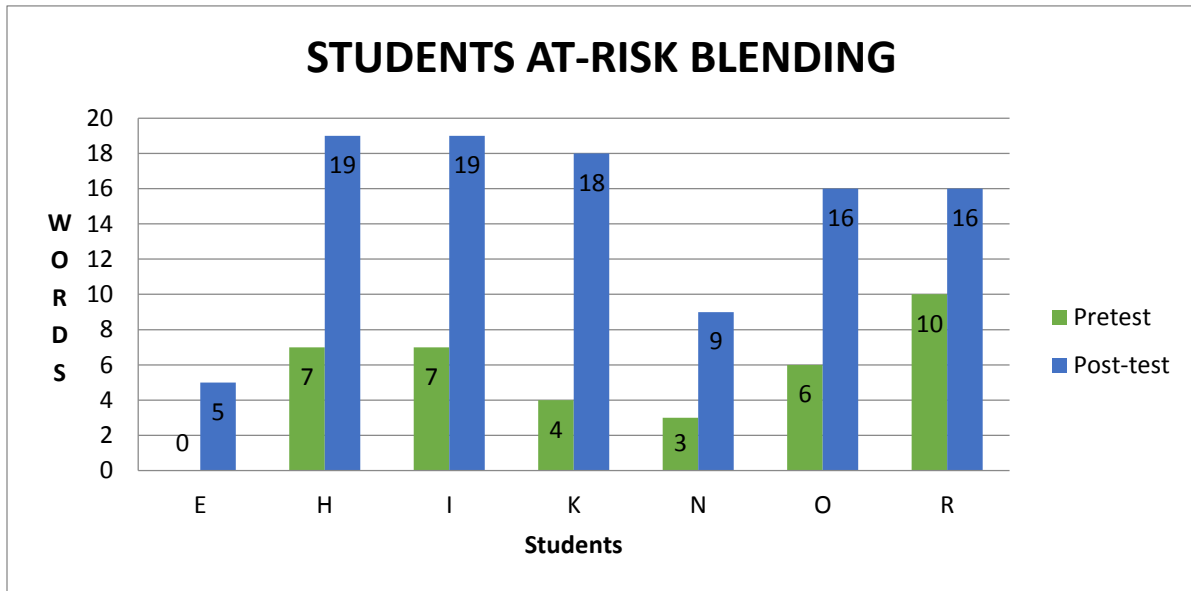
**Figure 4.1:** Average daily reading intervention.



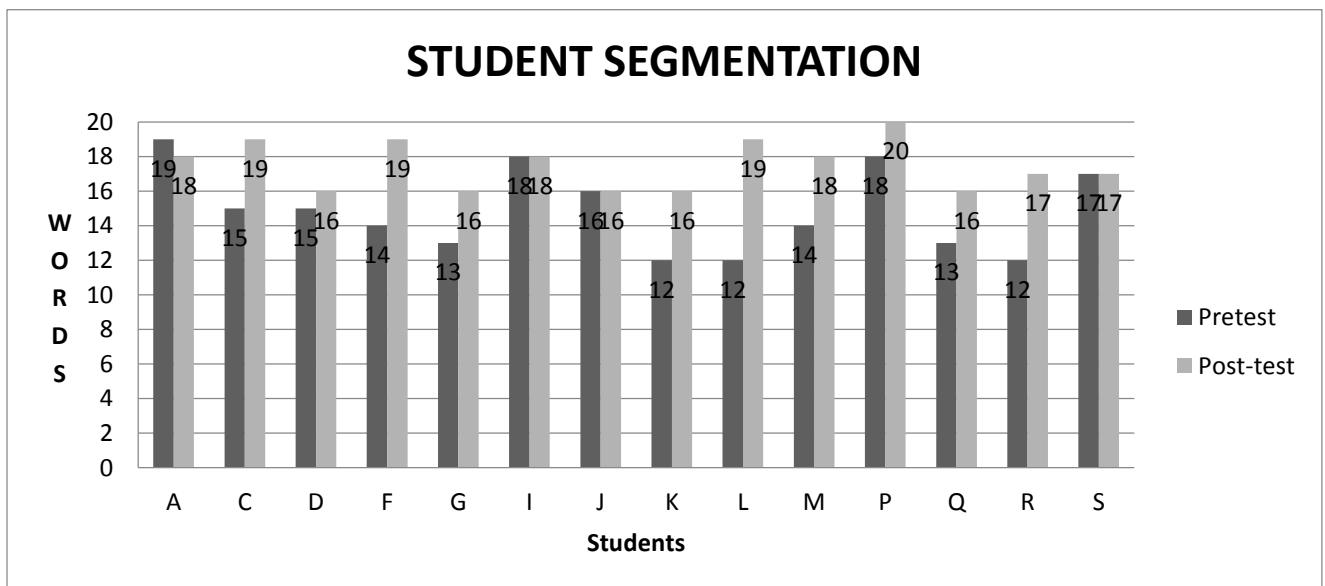
**Figure 4.2:** Pretest and Posttest results of students at-risk for reading difficulties in segmentation.



**Figure 4.3:** Pretest and posttest of students at-risk for reading difficulties blending words.

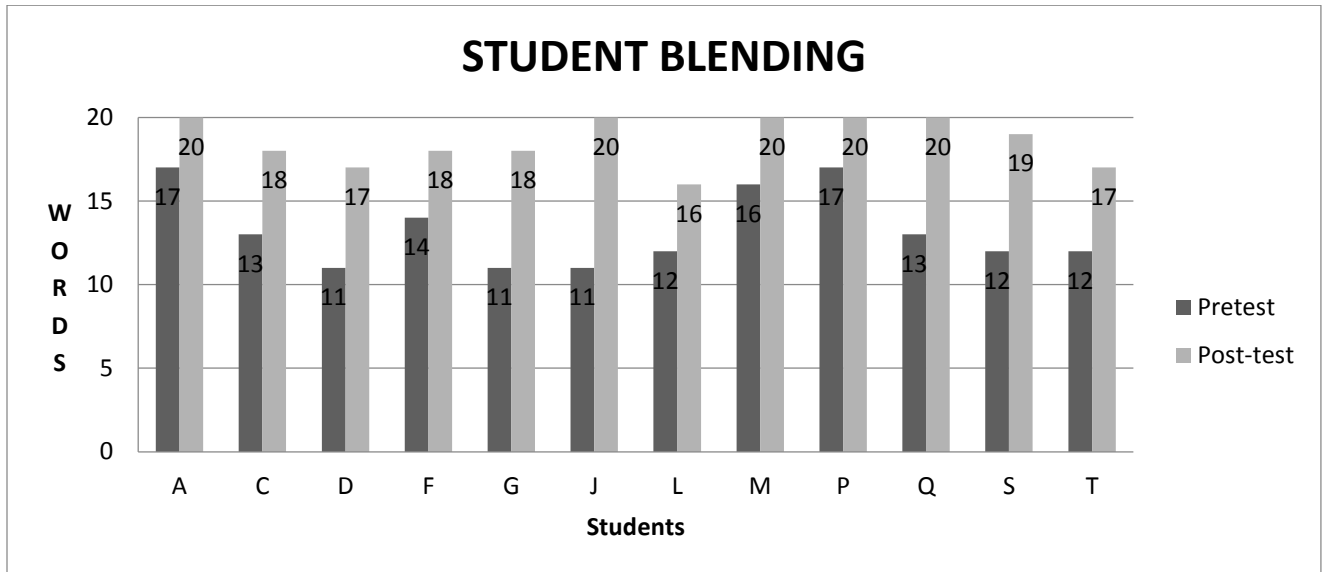


**Figure 4.4:** Pretest and Posttest results of typical students in segmentation.

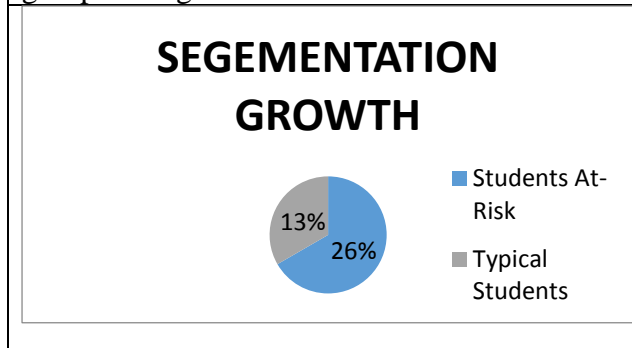




**Figure 4.5:** Pretest and Posttest results of typical students with blending skills



**Figure 4.6:** Percentage of growth for both groups in segmentation.



**Figure 4.7:** Percentage of growth for both groups in blending skills.

