Master's Theses, Capstones, and Projects

7-28-2016

The effects of phonological awareness based centers to enhance literacy skills in kindergarten

Nancy P. Burns

Recommended Citation

Burns, Nancy P., "The effects of phonological awareness based centers to enhance literacy skills in kindergarten" (2016). *Master's Theses, Capstones, and Projects*. 311.
https://digitalcommons.stritch.edu/etd/311

The Effects of Phonological Awareness Based Centers

To Enhance Literacy Skills in Kindergarten

By

Nancy P. Burns

An Action Research Master's Thesis

Presented in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

Language and Literacy

College of Education and Leadership

Cardinal Stritch University

Milwaukee, Wisconsin

August, 2016

This Graduate Field Experience

For Nancy P. Burns

Has been approved for Cardinal

Stritch University by

Luann Dreifuerst
(Advisor)

July 25, 2016
(Date)

Running head: Effects of Phonological Awareness Centers

Abstract

The purpose of this study was to examine the effects of using phonological awareness centers to facilitate development of kindergarten students' phonological awareness skills. The research question asked: How will facilitating phonological awareness centers make kindergarten students better readers? The research design consisted of quantitative pre/post assessments, small group study research design. The findings/results of the action research confirmed my hypothesis which was that the kindergarten students would significantly show growth in reading skills after 7 weeks of using phonological awareness centers. The fact that the students were able to show significant improvements in seven of the eight subcategories on the PASS assessment verifies that the students were able to increase their understanding of phonological awareness skills. The significance/implications of the research shows that teachers need to have access to continuous effective instructional activities to help their students become more competent with the use of phonemes to strengthen their reading skills.

Table of Contents

Page

Chapter 1
Introduction

Literacy has been the cornerstone of my kindergarten classroom for four years where I have witnessed how crucial phonological awareness skills are to ensure a child's reading development. It has always been interesting to me how different academic levels range from student to student in kindergarten. It is my responsibility to reach all learners. At the urban Academy where I am teaching the majority of the students are bi-lingual. This study reached out to the students who were struggling with phonological awareness skills. According to Culatta, Reese, & Setzer (2006) phonological awareness is one of the important early literacy components that transfer from one language to another. Furthermore, phonological awareness is defined as a child's ability to recognize, analyze, and manipulate the phonological components of spoken language. So with this in mind my chosen action research topic would benefit both my bi-lingual students and my teaching content with more emphasis on phonological awareness skills.

The purpose of this study was to determine the effects of using phonological awareness Centers to facilitate development of kindergarten students' reading skills, in addition to my group teaching of the phonological skills. Researchers agree that early intervention is key (Hogan, Catts, Little, 2005; Olofsson & Niedersoe, 1999). My research question was, how will facilitating Phonological Awareness Centers stimulate K5 students and then to become better readers? I hypothesized that the kindergarten students would show significant growth in reading skills after 7 weeks of participating in these phonological awareness centers. This study was a quantitative pre/post assessments study with small group study research design. I administered a pre and post test to determine who would be in my study; students who scored below 20% on the PASS were in need of intervention.

Working with eight of 22 students, 5 boys and 3 girls, in two small groups for 7 weeks. My goal was to explicitly teach phonological awareness skills to these students in hopes to increase their phonological awareness skills. The intervention and the independent variable consisted of phonological awareness activities. Some lessons included reading the BOB book (2006) series. The activities (Grace, 2007) included: phoneme graphing mapping vowels, kinesthetic syllables, sound bingo, name the vowel, match the rhyme, roll-a-constant vowel constant (CVC) word, highlight the vowel, and picture sorts.

This study connected to the following six Common Core Standards in the area of phonological awareness: CCSS.ELA-Literacy.RF.K.2 Demonstrate understanding of spoken words, syllables, and sounds (phonemes). CCSS.ELA-Literacy.RF.K.2.a Recognize and produce rhyming words. CCSS.ELA-Literacy.RF.K.2.b Count, pronounce, blend, and segment syllables in spoken words. CCSS.ELA-Literacy.RF.K.2.c Blend and segment onsets and rimes of single-syllable spoken words. CCSS.ELA-Literacy.RF.K.2.d Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words.[1] (This does not include CVCs ending with /l/, /r/, or /x/.) CCSS.ELA-Literacy.RF.K.2.e Add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words.

Summary Conclusion

Throughout this chapter 1, I discussed the topic of my research and my rationale behind the choice to create Centers for teaching phonological awareness skills. My choice to enhance the phonological awareness skills of my students was influences by reflections of my current practices and my desire to find an instructional method that would be interesting as well as

important to enhance student literacy performance. In order to best understand how to teach this topic, it was imperative for me to further study by tapping into the research of other educators. In chapter two, I will further explain the studies I reviewed that helped me formulate the model of my research for my group of eight kindergarten students, all of whom were bi-lingual. In chapter three, I will explain the process used in the creation of the Phonological Awareness Centers' content. In chapter four, I will present the data and the conclusions made from this study. Finally, in chapter five, I will connect the results of my research back to information presented in chapter two and offer more explanations of the results of my study. The strengths and limitations of my study will be noted and I will provide recommendations for further research surrounding this topic.

Chapter Two
A Review of the Literature

The studies in this chapter link and anchor the action research study described in chapter three which confirms and supports to existing literature why phonological awareness skills are crucial to a student's literacy achievement. Studies within the first section highlight instructional methods that have been found to be effective. These studies were conducted with students from a variety of backgrounds.

Reading Centers

The researchers Green, Britt, & Parker (2002) observed that the kindergarten students did not visit the reading center during center time as often as they visited other centers. In fact the researchers noted that the reading center was the least visited center of all the centers offered. They wanted to figure out a way to get the students to interact with books more often during center time and they agreed that participating in the reading center activities could be an indicator of the student's motivation to read. The purpose of this study was to provide activities to encourage the students to go to the reading center in a kindergarten classroom. The research question of the study asked: How to entice children to more frequently visit the reading center?

The site and sample took place in a rural elementary school pre-kindergarten through fifth grade. The kindergarten class consisted of 21 students. 16 European American (8 boys and 8 girls), five African Americans (3 girls and 2 boys). Twelve of these students qualified for free or reduced fee lunch.

The researchers conducted this study over a course of thirteen weeks. The procedure they used was to test three separate approaches to get books into the hands of their students. Activities would be presented each day, and every third day the researchers would start again with the first

activity. Day one was called "Read to" day when the teacher would introduce the book in the morning in an effort to get the students excited about the book. Then during center time at the reading center, the teacher would again read the book aloud to the students. Day two was called, "On Tables" day. Baskets of books would be placed on the tables when the students came into the classroom. The students were encouraged to look at the books and talk quietly about them. Day three was called "In Centers" day. The book baskets would be out for the students during center time. The students could also take books from the book baskets into other centers such as housekeeping or the writing center. For example, the students in the writing center could copy sentences out of the books.

To collect data, the researchers used charts and stickers to track where the students went to the reading center. The chart included all the students' names with dates and the alternating daily activities across the top. A check mark would be placed by the students name when they used the books to meet the objective of each of the three daily activities. A star sticker was given whenever students visited the reading center and read books in addition to the daily activities. This system was used for the entire thirteen week period. The researchers met about every two weeks to look at the data collected and to determine if any patterns emerged. A couple of weeks into the study, the researchers noted that three students who had low literacy skills had no stars. In order to reach these students, the researchers handpicked books for them on day one that would spark their interest, on "Read to" days, for example, some of the students had a high interest in dogs, so the researchers picked specific books about dogs to read to the students. The researchers than developed a list of books that piqued the interest of reluctant students.

The researchers found that voluntary use of the reading center increased over time, with 34 students visiting the reading center on the last nine days of the study in comparison to 14

during the first nine days. Students showed more interest on the "Read to" days, with a median

of three students per day. "On tables" day and on the "In Centers" days a median of one student

per day visited the reading center.

The researchers concluded that this study did get books into the hands of kindergarten

students. The researchers noted that the students asked to be read to more often and they were

staying in the reading center for longer periods of time. The researchers decided they would use

this strategy in following years to continue to get students excited about using books.

The next study also looked at instruction to guide phonemic awareness instruction and

concepts about print to enhance kindergarten students' phonemic awareness and concepts of

print development.

The most difficult level of phonological awareness is phonemic awareness. Phonemic

awareness is to understand that words are composed of individual sounds or phonemes and the

ability to manipulate these phonemes by segmentation, blending, or changing individual

phonemes within words to create new words. Nichols, Rupley, & Rickelman (2004) conducted a

study with the purpose of examining relationships between demographic characteristics that

included gender, socioeconomics, preschool experiences, and the ethnicity of kindergarten

students and their phonemic awareness and concepts of print development. The second purpose

of the study was to determine the effects of intervention, therefore determining what teachers

needed to know regarding phonemic awareness to help kindergarten students. Nichols et al.,

developed four questions in this descriptive correlational research study.   The first question

queried if students with certain characteristics were at a higher risk for not developing phonemic

awareness and concepts of print in kindergarten than others. Second, which components of

phonemic awareness were present in students. Third, to what degree do phonemic awareness

and concepts of print development vary for kindergarten children? Fourth, were the students

who were in the classrooms of teachers who received phonemic awareness staff development

and used the suggested decodable texts make significant improvement in phonemic awareness

compared to those who did not receive explicit staff development?

The two-year study occurred in kindergarten classrooms in three urban schools in the

Southeastern part of the United States. The participants, included 145 kindergarten students

from one urban school and the ethnicity of the participants consisted of 51 white students, 74

African Americans, 11 Latino American students, three Asian American students, and six who

identified themselves as other. Eighty-three students were identified as economically

disadvantaged based upon established state criteria. During the second year of the study the

students consisted of 53 Latino kindergarten students from three schools within the same district

including students from the original school. This group of students consisted of 24 males and 28

females. Thirty-two students were identified as being economically disadvantaged.

The kindergarten teachers participated in four professional development seminars with a

focus on phonemic awareness. During the first session, the teachers examined results of the

diagnostic tests and determined individual strengths and weaknesses. The second session

focused on sound matching training and activities. In the third session, the teachers focused on

making words while the fourth session focused on the importance of read-alouds to develop

phonemic awareness.

To collect data for a pretest, both groups of students received the Curriculum-Based

Literacy Assessment-Revised (CBLA-R; Jetton, Rupley, & Willson, 1995) administered in a

small group setting at the beginning of the school year during the initial study and again at the

beginning of the school year two years later for the follow up study. The test measured the

following categories: recognizing letters from non-letters, naming letters, identifying features of

print, recognizing letter sounds, comprehending simple narrative text, recognizing rhyme,

demonstrating orthographic knowledge, identifying onsets, and recognizing sight words. The

teachers used the information from this test to guide successful reading instruction. At the end of

the initial school year the summative CBLA-R (Jetton et, al., 1995) was used to further assess

students' achievement of reading strategies and skills to examine improvements made in relation

to auditory and visual features associated with phonemic awareness and concepts of print.

The results of this study demonstrated that low socioeconomic status (SES) and Latino

children were at a greater risk of not developing phonemic awareness and concepts of print

development. Sixty-two students identified as having a low SES were behind the other

kindergarten students in identifying rhyme. The study, demonstrated gender was not a factor in

developing phonemic awareness skills. By October, all kindergarten students distinguished

between a letter and a non-letter. The study demonstrated Hispanic students were most likely to

have difficulty with phonemic awareness and print concepts. The study results also

demonstrated that students who did not receive preschool and having lower SES and identified as

Hispanic were at the most at risk of not developing phonemic awareness and print concepts in

kindergarten compared to other kindergarten groups. Students who were learning to read needed

to be taught how to attend to phonemes and to develop an understanding regarding concepts of

print. When kindergarten teachers used diagnostic data to guide instruction the students

developed stronger phonemic awareness skills and print concept skills than if teachers did not

use diagnostic data.

Bilingual Students

Another study looked at bilingual students and their development of phonological awareness skills Pae, Sevcik, & Morris (2010) examined the cross-language reading development. The purpose of the study was to examine how Phonological Awareness (PA) and Rapid Automatized Naming (RAN; Denckla & Rudel, 1974) skills of children's dominant language (DL), and a less-dominant sequential language (SL), were inter-related with their reading acquisition in the Sequential language (SL). DL was identified as spoken instantly and effortlessly (Pae et al., 2010) while SL was identified as the second or less dominant language (Pae et al., 2010).

Researchers examined which domain of PA and RAN skills in the DL had a more fundamental role in learning to read in an SL. The researchers posed four research questions: First, how was the participant's sensitivity to phonemes in different positions within the word acquired in English and Korean? This question examined phonemic acquisition in the specific position within the word. Second, what was the relationship between the Korean-American children's PA and RAN skills and their reading abilities in their DL? Third, how does the role of the participants PA and RAN skills effect reading proficiency in their SL? This question examined the children's within language relationships between PA, RAN and reading proficiency.   Fourth, how did the children's PA and RAN proficiency in their DL influence the level of reading performance in their SL? The researchers conducted a descriptive correlation research study to analyze the cross-language reading development. The focus was to examine how PA and RAN skills in a child's DL and SL were interrelated with reading acquisition in the SL. This study was a descriptive correlational research study.

The sample participants were 50 Korean-American elementary school students with a mean age of 7.02 which consisted of 23 boys and 27 girls. The bilingual students were in kindergarten through second grade who received English formal instruction at their mainstream schools, and were sequentially learning to read Korean at a Korean Saturday school in a metropolitan area of the southeastern United States. All of the participant's parents provided written consent to participate in the study.

The students had both English and Korean language exposure at home. English was the participants DL and Korean their SL. This was determined first by obtaining the child's background information from the parent, along with descriptions of home literacy activities and home environment. Secondly, the researchers briefly interviewed the child in the two languages. The language dominance of the participants was validated using object serial naming test that measures how quickly students can name aloud objects, pictures, colors, or symbols, for example letters or numbers.

A bilingual examiner individually administered the phonological awareness (PA), and Rapid Automatized Naming (RAN; Denckla & Rudel, 1976) to determine the reading abilities of the students in English and Korean. The assessments occurred at the Korean school or at the participant's home in the second semester of school. The researchers split the participants into two groups, a lower level and higher level, to examine the role of PA and RAN in the SL reading proficiency.

The data collected in English were US norm-referenced tests. The data collected in Korean were experimental tests that were adapted from the English norm-referenced tests. Data analysis included a phonemic awareness skill that was measured by the Elision subtest of the

Comprehensive Test of Phonological Processing (CTOPP; Wagner, Torgesen & Rashotte, 1999).

The Elision test measured the student's ability to say a specific word after deleting a sound told

by the researcher. For example, saying cat without the /c/. Each student was administered six

practice questions and then 20 actual questions. The students were also assessed on blending

words with the Comprehensive Test of Phonological Processing (CTOPP; Wagner et al., 1999).

For example, if the researcher stated, /c/ /a/ /t/, the student would need to blend the sounds

together to state the correct word *cat*. In the Korean blending words test three questions

combined spoken sounds by syllable level and the following questions by the phoneme level.

The next test administered was administered the Phoneme Detection Tasks (Bradley & Bryant,

1983). The purpose of this test was to measure the student's ability to distinguish between an

odd sound in the initial, medial, and final position in given consonant vowel consonant (CVC)

words. For example, which of these three words begins with a different sound: *sit, man, make*?

The answer was *sit* because this word beginnings with a /s/ not a /m/.

Subtests letter and object naming from Rapid Automatized Naming (RAN; Denckla &

Rudel, 1976) was also administered. The students named random letters and objects as quickly

and correctly as possible. The test consisted of 50 monosyllabic symbols in English.

Modifications to the Korean naming test was followed by the rules of the English naming test.

For example, the letter /o/ was changed into a grapheme with the closest sound in the Korean

vowels. Letter and word identification was administered, using subtests from Woodcock

Reading Mastery Test- Revised/NU (WRMT-R/NU; Woodcock, 1998).

Another assessment was used with the Orthographic Awareness Test which consisted of 30

questions that had two stimulus pairs in both English and Korean. The questions were placed in

order from easy to difficult. An example of a difficult pair would be, *bainz* versus *bains*, and then

the students would have to determine which word appears most like a word they would see in

text. The Pseudohomophone Test (Olsen, Wise, Conners, Rack, & Fulkner, 1989) had 25 words

from the WRMT-R word identification test (WRMT-R/NU; Woodcock, 1998), and the words

were paired with a pronounceable nonword for example, *laff* versus *laugh*, and then the student

had to choose the real word. In Korean, this test was adapted from the Modern Korean Copular:

Word Frequency (Suh, 1998).

Therefore, the researchers determined that PA in English was a predictive attribute of reading

achievement in Korean regardless of the dissimilar orthographies. When studying the lower

level participants PA was a strong predictor of Korean reading whereas in the higher-level group

the strong predictor was RAN. The results indicate that the reading skills in English can be

transferred into Korean reading skill.7y6y

The following study continued to focus on bilingual students and the effectiveness of an

early literacy intervention to attain literacy skills. In this study, Culatta, Reese, and Setzer (2006)

obtained insights into how language of origin influences performances in instruction in two

languages English and Spanish. According to National Center for Education Statistics (2005),

58% of children from Spanish speaking backgrounds in the United States read below basic

reading levels by fourth grade. It is a common misconstruction that native language instruction

may delay a child's acquisition of English reading skills, when in fact; research indicates that

skills learned in the native language will transfer to the second language (Culatta et al., 2006).

Furthermore, research indicates improved reading performance in the second language has a

strong positive correlation with better phonological awareness in the first language (Culatta et

al., 2006).

The purpose of the study had three focal points. The first was to determine the effectiveness of an early literacy program, Systematic and Engaging Early Literacy Instruction (SEEL), that embeds skills-based instruction into meaningful context. The second focus was to document children's engagement in the instruction. The third focus was to determine the extent to which children mastered different phonological awareness tasks in relation to the language of origin and the language of instruction with focus on Spanish-speaking children's acquisition of English specific phonological awareness targets. The researcher's suggestion for early literacy instruction for second language learners included using these four components. The first component was capitalizing on teaching in the child's native language when possible. The second component was teaching the skills systematically and explicitly. The third component was, providing motivated, meaningful instruction. The fourth component was providing instruction in phonological awareness as well as phonics. These four components were integrated in two-way (Spanish-English) dual-language kindergarten classrooms to teach phonological awareness and early reading skills.

The research question in this study evaluated the effectiveness of an early literacy program based on integrating explicit instruction into a variety of meaningful and engaging contexts to teach phonological awareness and early reading skills to both English and Spanish speaking students enrolled in a dual language kindergarten classroom. The researchers hypothesized that children from low income and second-language backgrounds could acquire phonological awareness and word recognition skills in Spanish and English when instruction was entrenched in a highly engaging program.

Research method and design included the program, Systematic and Engaging Early Literacy Instruction (SEEL), a meaningful approach that highlights literacy targets in hands-on

and interactive activities. Researchers monitored the progress of the participants in the dual

language classrooms and compared performance where instruction was applied to different skills

at different times.

The site and sample included two kindergarten classes, from an elementary school in

Provo, Utah. The half-day kindergarten classes received dual Spanish-English instruction. The

same bilingual teacher taught both classes. Fifty percent of the participants lived at or below

poverty level and qualified for, free and reduced lunch. Parents filled out a questionnaire when

the children registered for school, then the researchers used this information to determine the

dominant language spoken at home and other background information.

The morning kindergarten class contained 20 students, seven females and 13 males with

an average age of 5 years and 8 months. This class included six students who were Spanish

dominant speaking and one student as bilingual. Four of the students were exposed to Spanish

but mainly spoke English, and nine of the students only spoke in English. The afternoon

kindergarten class had 18 students which included eight females and ten males. The average age

of the class was five years and nine months. In the afternoon class, five students were Spanish

dominant speaking, three students were bilingual, one student was exposed to Spanish but

English was dominant, and nine only spoke in English. The independent variables in this study

were the class and time. This study followed the student's progress toward literacy goals using

the experimental groups as each other's controls.

The procedure in both morning and afternoon classes included the teacher's instruction

which was verbalized half in Spanish and half in English, hence spending two days in Spanish

and three days in English. The study lasted for 12 weeks and consisted of small groups of

children (5 or 6 per group) in two dual language kindergarten classes which received 55 minutes of additional large and small group instruction weekly. Instruction targeted rhyme and alliteration recognition and generation, word recognition, and blending through concrete, hands on activities accompanied by explicit instruction in both Spanish and English. Trained SEEL instructors included six bilingual undergraduate students who attended Brigham Young University. Two instructors conducted each small group session (4 sessions a week, with each child encountering two SEEL sessions per week.

This study has implications for creating curricula for dual language classrooms. Spanish speaking children may have performed better on alliteration than on rhyme because they may encounter rhyming less often as a form of word play. Children's experience of word play is important because it provides a base for the development of phonological awareness skills (MacClean, Bryant, & Bradkey, 1987). Teaching rhyming in Spanish and English to Spanish-speaking children in a dual-language program does, have several advantages. Rhyming is a useful pre-literacy skill as it can lead to awareness of words onset (initial consonant or cluster) and rime (vowel and final consonant or cluster) a step between syllable and sound segmentation. These skills may be especially important for Spanish-speaking children who live in an English-dominant country and who will be expected to read and write in English. When rhyming is introduced in Spanish and to English Spanish-speaking children, both learn an abstract skill in a familiar language and also are exposed to many rich and concrete English rhyme examples. Spanish speaking children may simple need more intense and concrete exposure.

For data collection, comparable tools in Spanish and English were used to measure rhyming, sound alliteration (same-first-sound identification) sound blending, and word recognition. Also measured was syllable alliteration (same-first-syllable recognition) and was

administered to the Spanish-speaking children because of the syllabic nature of the Spanish language.

To evaluate the effectiveness of the SEEL training, a quasi-experimental crossover design was used to compare the performances of the two classes. The first class received 6 weeks of rhyme instruction followed by 6 weeks of alliteration instruction. The second class received the same instruction but in the opposite order. A pretest was given. The classrooms were randomly assigned to receive supplemental small group instruction focusing on either rhyming or alliteration in the first six weeks phase of the study. After completion of the initial instruction period all literacy assessments were re-administered and the focus of instruction in the classroom was exchanged. Following the second 6-week period instruction, the literacy assessments were re-administered.

The English assessment administered was Phonological Awareness Literacy Screening-Kindergarten (PALS-K) to assess rhyme and alliteration recognition. Because a Spanish version of PALS was unavailable, the researchers created a Spanish assessment consisting of: rhyme recognition, rhyme generation, sound alliteration, and syllable alliteration, sound blending, and word recognition. Only students who had strong language abilities in both Spanish and English were tested in both Spanish and English.

Using the Systematic and Engaging Early Literacy Instruction (SEEL) used hands on theme-based activities to enhance literacy learning (Culatta et al., 2006). In this study, a weekly whole group session taught phonological awareness and early phonics skills explicitly. During the large group, the theme was introduced to the students by dramatically telling a key story that highlighted the theme. The small group sessions consisted of phonological awareness and

phonics activities based on the targeted theme or story. Activities focused on specific skill sets in the areas of; rhyming, alliteration, sound blending, and letter-sound association.

An analysis was conducted to evaluate students' progress over time and to compare performance of children receiving rhyme versus alliteration instruction at different times. An increase in performance from the pretest to posttest 2 can be seen for all variables. Both groups performed better in the trained phonological skill (rhyme or alliteration) than in the untrained skill. The Spanish-speaking students made significant improvement over the course of the instruction. A significant interaction effect for alliteration indicates that the gains in this area were tied to when alliteration instruction was received. Instructors observed that Spanish-dominant children had difficulty transitioning from alliteration to rhyme instruction. The students tended to confuse rhyme with alliteration responses when they began the rhyme instruction. A greater proportion of English-speaking children (82% v. 26%) demonstrated rhyming skills by the end of the 12 weeks. Discrepancy with alliteration between Spanish and English speaking student's skills was less pronounced (96% English, 66% Spanish).

Spelling Development and Literacy

The following study focuses on another aspect of literacy, spelling development. Students develop from preliterate to alphabetic spellers as they master letter-sound correspondence. The researchers Otaiba, Puranik, Rouby, Greulich, Sidler, & Lee (2010) extended on a previous study by Ritchey (2008) to connect important contributions to spelling that can serve as reliable and stable indicators for determining spelling development and for identifying students at risk for future spelling difficulties. A framework for this current study demonstrates that students learn to spell using a variety of strategies based upon their background knowledge about alphabetic and

word reading, literacy interactions, and exposure to words. Increasing connections among invented spelling and measures of phonological awareness and reading were noticed in the primary grades.

The purpose of this study was to examine the role of home literacy, parental education, and demographic factors in addition to conventional literacy skills at the beginning and end of kindergarten to predict end of kindergarten spelling achievement. The study contained two research questions. The first question asked, what are the relations among conventional language and literacy skills and spelling at the end of kindergarten? The second question asked, to what extent is end of the year spelling prediction by the students' home literacy, parental education, and demographic factors, as well their initial and concurrent conventional language and literacy skills?

The study collected data from parents in the fall. In both fall and spring data was collected from the students. The site and sample included nine schools and 29 classrooms, 288 full time kindergarten students whom all had 90 minutes of reading instruction daily. The mean testing age was 5.18 years which 54.2% were male and 53.8% were female. 61% of students were from minority racial backgrounds and 52.6% received free and reduced price lunch.

Procedures included an at home literacy assessment. The parents filled out a questionnaire about their own education, their child's home literacy environment, and their child's preschool history. Assessments at school included word reading, letter-word identification, vocabulary, phonological awareness and phonemic awareness, letter writing fluency, and spelling. Each assessment was given to each student individually. Word reading was assessed in fall and in spring using Letter-Word Identification subtest of the Woodcock Johnson

–III Tests of achievement. To assess letter recognition in the fall the Letter naming Fluency task

of the Dynamic Indicators of Basic Early Literacy Skills (DIEBELS) was used. In fall and spring

to assess vocabulary the Picture Vocabulary subtest of the WJ-III was administered. Also in fall

and spring phonological awareness and phonemic awareness was assed using Blending words

and Elision subtest of the Comprehensive Test of Phonological Processing. Assessment of

student's ability to write letters fluently was administered with a rubric developed by Beringer

and Fuller (1992). Spelling was assessed by an untimed spelling task of decodable and high

frequency irregular sight words.

The researchers (Otaiba et al., 2010) found that the students did increase their scores from

fall to spring in the areas of vocabulary, letter word reading, letter naming fluency and phoneme

segmentation fluency. There was no indication that the parent's background information

influenced the student's ability to acquire reading skills. This may be due to the explicit and

systematic reading instruction provided to the students. The results of this study demonstrated

why it is important to understand whether spelling skills are associated with home literacy

experiences prior to kindergarten or to other variables. The students variance was 65.6%. slightly

less that the study by Ritchey (2008) which concluded 70%.

The following study focused on letter sounds and how the development of consonant

sounds increased phonological awareness skills. Mann and Foy (2007) examined a relationship

between speech production and early literacy skills. The researchers questioned if there was a

connection between speech production and early literacy skills. According to Kahn-Lewis

(1986) phonological analysis determined that if children failed to secure consonant sounds it

could lead to issues in phonological awareness skills. The opposite was noticed as well; if the

consonant sounds were secure, their phonological awareness skills were strengthened. The

researchers had two research questions. First, speech production will be linked with measures of early literacy skills. Second, patterns of consonant errors will predict speech perception, vocabulary, naming, and digit span, and their relation to reading and phonological awareness as they relate to the representation of phonological structure. The research study was a descriptive correlational research.

The study occurred in February and March. The sample consisted of 102 preschool age children 52 girls and 50 boys. There were 52 four year olds, 45 five year olds, and five six year olds who attended seven preschool or daycare programs in Southern California. The study had an ethnically diverse group of students, which consisted of Caucasian, African-American, Hispanic, Asian American, and multi-ethnic children. English was the primary spoken language among the students and families. The children were from low to upper middle class families. Thirteen of the 102 children came from families who had a history of reading difficulties.

The preschool and daycare programs did not offer reading or phonological awareness skills, however, certain students were exposed to letter recognition activities. The researchers assessed speech production, speech delay analysis, expressive language, early literacy skills, phonological awareness, rhyme awareness, and speech perception. First, the researchers used the Woodcock Reading Mastery Test (WRMT; Woodcock, 1987) in the areas of Word Identification and Word Attack. The pretest demonstrated that none of the 102 children could read more than two words and therefore, this sample study consisted of a group of non-readers. The researchers administered a plethora of tests to determine the student's speech patterns. The Sounds-In-Words subtest of the Goldman-Fristoe Test of Articulation (GFTA; Goldman & Fristoe, 1986) was administered to the children individually. The tests were tape recorded for the researchers so they would transcribe phonetically later by a certified speech-language pathologist. The next

test was the Digit Span subtest of the Weschler Intelligence Scale for Children – Revised

(WISC-R; Wechsler, 1992) on verbal short-term memory. The third test was Wechsler

Preschool and Primary Scale of Intelligence Vocabulary subtest (WPPSI; Wechsler, 1992) to

measure expressive vocabulary. The Concepts about Print Test (CLAY; 1979) was administered

to identify letter identification and letter sound recognition.   Next phoneme awareness was

assessed using practice trials and test items for each six subtests assessing, phoneme judgment,

phoneme deletion, and phoneme substitution in the beginning and the end of the word.

The children were assessed individually in quiet rooms and they received stickers as

encouragement. The tests were administered in two 30-minute sessions on two separate days.

The tests were administered in a fixed order.

In determining a relationship between speech production and early literacy skills, the

researchers divided the results into three categories: the delayed group, the typical group, and the

advanced group. The delayed group was children who made one error on the Shriberg Early-8

sounds (Shriberg, 1993). For example, early-8 sounds include letter sounds such as /m/, /b/, /n/,

and /w/. The results demonstrated that the children from the 13 families who were previously

considered at risk readers scored at 38% (5/13) and 17% (10/58) of the remaining kids scored in

the delayed group. The typical group was children with no errors on Shriberg early-8 sounds

however an error was made on the late-8 sounds. The late-8 sounds include /r/, /z/, and digraph

sounds such as /sh/and /th/. The results demonstrated that the children from the 13 families who

were previously considered at risk readers scored at 46% (6/13) and 72% (42/58) of the

remaining kids scored in the typical group. The advanced group demonstrated no errors in the

early-8 or late-8 sounds. The results demonstrated that the children from the 13 families who

were previously considered at risk readers scored at 15% (2/13) and 10% (6/58) of the remaining students scored in the advanced group.

In determining a relationship between consonant errors related to reading difficulty, the phonological process results demonstrated: deletion (22%) which is removing a specific sound from a word, stopping (15.29%) an example of a stopping sound is /p/, /t/, and /k/, liquid simplification (14.41%), cluster simplification (9.79%), palatal fronting (4.70%), and consonant harmony (4.07%).

The combination of the tests results suggested that process errors such as substitutions and deletion failed to significantly predict rhyme phoneme awareness. The researchers determined speech production and phonological awareness both required internal depiction of phonological awareness. This study additionally suggested that phoneme awareness was not dependent upon how words were articulated however; there was a steady link between rhyme awareness and articulation.

The Matthew Effect

The following study discusses an important phenomenon called the Matthew Effect which is the amplification of any initial advantage. Meaning students who enter schooling with a stronger vocabulary and phonological awareness skills enhance literacy skills further than students who enter schooling with low vocabulary and phonological awareness skills.

According to Carreker, Neuhaus, & Swank, (2007) the purpose of the study was to determine whether Language Enrichment (LE) instruction in first and second grades was associated with a cumulative longitudinal advantage (the Matthew effect) in reading comprehension when the students were measured from third to fifth grades. Furthermore, the

study intended to determine whether bilingual students were similarly advantage when they were given early LE instruction. The statement of the problem was a longitudinal investigation to determine the growth of reading comprehension from third to fifth grades in a cohort of students who received Language Enrichment (LE) during first and second grades.

The researchers hypothesized that a Matthew effect for reading comprehension would be shown for this cohort of mono and bilingual students. This study was a longitudinal progress of a cohort of mono- and bilingual fifth grade students. The student's third grade assessments were noted. The results of the study follows the reading comprehension growth of these students from third to fifth grades.

All participants were included in a third grade assessment of reading comprehension. Participants included 536 fifth grade students. There were 242 females and 277 male students. 45.17% of the students were bilingual and 54.83% were monolingual. The independent variable was the students in first grade who were followed through third grade and received LE instruction. The dependent variable was the reading achievement levels at third, fourth, and fifth grades. To demonstrate the Matthew Effect over time, indicators included; amplified positive development, increased variance of the skill level of students from initial to final performance, and growth rate of reading comprehension.

The participants were taught by 89 first grade teachers and 85 second grade regular education teachers. Some were trained in Language Enrichment. All students received 90 minutes of language arts instruction daily. The teachers who used LE used the last 30 minutes for LE instruction. Teachers who did not use LE used Houghton-Mifflin literature based basal series.

Data collection included a hierarchical linear modeling to assess the reading progress of individual students and the data was used to calculate random and fixed effects in a serially constructed two stage model. The researchers investigated data analysis methods through individual growth trajectories as well as correlates of change. This type of analysis was threefold in purpose to determine which group of students in third grade to fifth grade accelerated in reading. First, to determine whether the rate of growth of reading comprehension of the students whose teachers had LE instruction experience, secondly, to a teacher who had a little LE instruction, and thirdly, a teacher who had no LE instruction.

The researchers confirmed their hypothesis that reading comprehension growth of the rich readers became richer over time (Matthew Effect) and the reading comprehension growth of the poor readers was not as significant as that of the early proficient readers.

The study acknowledged a Matthew effect in reading comprehension for both monolingual and bilingual students. Their findings provide evidence that support the hypothesis that the students longitudinal reading comprehension growth was improved by their early successful reading experiences associated with informed teachers who directly and explicitly taught a comprehensive course of basic reading subskills.

The next study discusses the relationship between phonological awareness and literacy development. The researchers Hogan, Catts, & Little (2005) wanted to determine if phonological awareness measured in kindergarten would predict word reading in second grade. In addition, the researchers wanted to determine if phonological awareness measured in second grade would predict word reading in fourth grade. The study extends the work of Wagner (1997).

The researchers were speech language pathologists who used phonological awareness assessments in many ways. This study examined the usefulness of these assessments in kindergarten and second grade. The researchers investigated if phonological awareness, measured in kindergarten, would predict word reading in second grade beyond a measure of letter identification. The hypothesis was that both letter identification and phonological awareness would be significant predictors of second grade word recognition. Furthermore, the researchers investigated if phonological awareness measured in second grade, would predict word reading in fourth grade. Measures of phonological and letter identification were administered in kindergarten, and measures of phonological awareness, phonetic decoding, and word reading were administered in second and fourth graders to a sample 570 children participating in a longitudinal study of reading and language impairments.

Participants in this epidemiologic study used a stratified cluster sample of more than 7,000 children stratified by residential setting. Out of that sample, 328 children with language impairments and/or nonverbal impairments in kindergarten consented to participate in a follow up longitudinal investigation of language and reading development. The final longitudinal sample included 604 children (328 with language impairment, 276 unimpaired). All participants were English speaking. By the end of the study, 570 children remained with complete data sets through fourth grade.

Assessments administered by trained examiners with undergraduate or graduate degrees, were in the areas of: phonological awareness, letter identification, word reading, and phonetic decoding. The assessments were completed during 2 two hour sessions at each grade level. Results analysis showed that kindergarten measures of phonological awareness and letter

identification provided information to the prediction of 2nd grade reading. In second grade, measures of reading offered information to the prediction of 4th grade reading.

The results confirmed the researchers' hypothesis. Kindergarten phonological awareness and second grade word reading were more strongly correlated than kindergarten letter identification and second grade phonological awareness. In second grade, word reading and fourth grade word reading were not significantly correlated. The results of the study suggest that at least by second grade, measures of phonetic decoding may provide unique information about concurrent word reading than will phonological awareness.

Using Technology

The following study incorporates technology into the equation of literacy development as an aid to helping students develop phonological awareness skills.

According to Segers & Verhoeven (2004) the purpose of the study was to determine whether kindergarten students with specific language impairment (SLI) could develop phonological awareness skills through computer intervention and whether speech manipulation in instruction produced additional learning.

The study had two research questions. First, to what extent do Dutch kindergarten students with SLI develop their phonological awareness skills by using an adaptive computer program? Second, does speech manipulation as part of the instruction of phonological awareness using an adaptive computer program produce additional learning?

The researchers explored to what extent kindergarten students attending a school for children with severe language delay would develop specific phonological abilities by working

with a computer program. Three groups of students received computer treatment. Two

experimental groups were given rhyming and phoneme synthesis intervention with either

rhyming and phoneme synthesis intervention or without manipulated speech, and a control group

with vocabulary intervention. The participants included 31 males and 5 females from 5 different

classrooms in two schools. The average age was 5 years nine months.

Assessments were administered by a school psychologist after fall break. The tests were

administered individually over the course of two weeks. Data collection included a pretest and

post test which contained five phonological awareness tests and the Coloured Progressive

Matrices. Next, the students were placed in groups of three for two to three 15 minutes computer

phonological awareness intervention sessions per week for five weeks with was followed by the

post test. Finally, 18 weeks later, the phonological awareness tasks were re-administered to

investigate possible long term intervention effects considered as post test 2.

Results showed significant progress was made between the pretest and the post test 1 and

post test 2 on the syllable awareness task, rhyme awareness task, phoneme analysis task, and

phoneme synthesis task. The progress of experimental group one exceeded the progress of the

control group. Kindergarten students with SLI benefited from the five week rigorous computer

phonological awareness intervention. This study showed that kindergarten students with speech

and language problems can develop phonological awareness by working with a computer

program.

Language Enrichment

The last study discusses early language development and phonological awareness skills

are a predictor for students reading development in later grades. According to Olofsson &

Niedersoe (1999) this longitudinal study was to relate early language development at age 3 to kindergarten phonological abilities and reading acquisition in grades 2 to 4. The purpose of the study was to examine early indicators of phonology and other language related factors well before the development of phonological awareness and school entry and to relate these factors to the development of word decoding ability. The study's research question looked at both social, family related factors, and linguistic and metalinguistic variables to compare the relative strengths of these variables associations with later reading abilities.

The participants were from the Danish island of Bornholm. Danish children start school at the age of 7. The 481 students were at the end of fourth grade. Of these students 205 had language and speech data from when they were three years old from the speech therapist. For 370 of these students, data from a parent questionnaire from first grade was available.

This was a longitudinal study measure from 7 sessions. First session was in the children's home, the second and third in kindergarten, the last four sessions in the students schools. Data Collection included the following tests that were used at the screening at 3 years of age: vocabulary, phonology 1, speech comprehension, sentence comprehension, sentence construction, morphology.

The hypothesized causal relationships were found to be significant for effects of early language abilities via kindergarten language awareness on later word decoding ability. The results support the hypothesis that there is stability from early development in phonology to learning to read 8 years later. Phonology in speech production, in working memory, and in language awareness seems to be implicated. These results also indicate that the early language

reading relationships has a direct component that is mediated independently of phonological

awareness.

Conclusion

These studies helped me formulate the model of my research for my group of eight

kindergarten students, all of whom were bi-lingual. In chapter three, I will explain the process

used in the creation of the Phonological Awareness Centers' content and their impact on my

students learning. A description of my data collection will be included as well as the analysis of

this data with student growth with phonological awareness skills in mind.

Chapter Three
Methodology

The purpose of this study was to examine the effects of using phonological awareness centers to facilitate development of kindergarten students' phonological awareness skills. Crumrine & Lonegan (2000) define phonological awareness (PA) as the ability to understand that the words we speak have a structure and one of the major factors hindering the acquisition of reading. A way to help students increase PA skills is explicitly focusing lessons on phoneme development.

The research question was: How will facilitating phonological awareness centers make kindergarten students better readers? I hypothesized that the kindergarten students would significantly show growth in reading skills after 7 weeks of using phonological awareness centers. The intervention and the independent variable consisted of phonological awareness activities. Some lessons included reading the BOB book (2006) series. The activities included: phoneme graphing mapping (Grace, 2007) vowels, kinesthetic syllables, sound bingo, name the vowel, match the rhyme, roll-a-constant vowel constant (CVC) word, highlight the vowel, and picture sorts (see Table 1 for explanation of phonological awareness activities).

Participants in the study each completed a pre and post assessment. The assessment administrated was the Phonemic-Awareness Skills Screening (PASS). The pre and post test were compared to determine if there was a significant increase in phonological awareness skills.

Table 1	
Phonological Awareness Activities Used in the Study	
Phoneme Graphing Mapping (PGM)	Students will use letter naming, sound correspondence, letter writing, hear phonemes

	in words.
Kinesthetic Syllables	Students used their bodies to distinguish syllables in words. The students chose how to act out the syllables by clapping, stomping, nodding, or shrugging out each syllable.
Sound Bingo	Is similar to BINGO, using boards that had pictures of CVC words, the students had to listen for the vowel sound, beginning sound, or the ending sound.
Name the Vowel	Vowel picture cues were placed on popsicle sticks. The students had two sticks each representing a vowel. A word was stated and the students raised the corresponding vowel stick. For example, a popsicle stick had the letter and a picture taped to it for each vowel. For the letter *a* with a picture of an apple, letter *e* with a picture of an edge of a table, letter *i* with a picture of a dog itching , letter *o* with an octopus, and letter *u* with an up arrow.
Match the Rhyme	The students each had a rhyming picture mat. Next the students chose an object from the rhyming mystery box. They named the object and checked to see if the object rhymes with any pictures on their mat.
Roll-A-Constant Vowel Constant (CVC) Words	Students took turns rolling three letter cubes. They put them in the color order yellow, pink, green (YPG). They read the CVC word that they rolled and colored the corresponding CVC picture on their worksheet. If they rolled a non real word they read it and rolled again. This activity focused on initial, medial, ending sounds, as well as deletion and changing phonemes.
Picture Sorts	Students sorted pictures by the short vowel sound, beginning sounds, and ending sounds.
Phonemic Awareness Task Cards (CVC Words)	Students looked at the picture and said the word. Then, the student placed their finger in the series of boxes, as they segmented the word into its individual phonemes.
Highlight Vowels	The students were given a list of CVC words. The students repeated the word and segmented the individual sounds. Next the student repeated the vowel sound and used a highlighter to highlight the vowel on the word list.
BOB Books	Read aloud and echo read these BOB books.

	Count how many words are in each sentence.
I Have, Who has Game	A CVC words and pictures game. The student read "I have (CVC Word), Who has (CVC Word). The student with that card reads their card aloud.

Site and Sample

The study was conducted in an urban private choice elementary school in the Midwestern part of the United States, with 398 students enrolled in K4 through fifth grade. The student population consisted of, 64% Latino, 21% multi-racial. 60% of the students are from families who primarily spoke Spanish. Nearly 100% were low-income families (under $40,000 a year) and nearly 100% qualified for free or reduced lunch. The sample in this study consisted of a kindergarten class, which had 22 students, eleven boys and eleven girls whose ages ranged from 5 to 6 years old.

Procedures Used

This study occurred over a seven week period. Participants were divided into two groups; group 1 and group 2 and were grouped according to their ability level. Each group participated in a twenty minute lesson, four times a week. During the first week, the PASS test was administered as a pretest (Crumrine & Lonegan, 2000).

Each subsequent week, the two groups participated for 20 minute lessons with the teacher for four days a week. The group not working with the teacher participated in other classroom center activities. The weekly lesson activities included: picture sorts, bingo, kinesthetic syllables, name the vowel, highlight vowels, PGM, CVC words, reading a BOB book, Roll-A-CVC Words, Phonemic Awareness Task Cards (CVC Words), and I Have, Who Has game (see Table

2 for summary of daily intervention activities). During the final week the PASS was

administered as a post test.

Table 2 Summary of Intervention Activities			
Week 1	**Day 1**	**Day 2**	**Day 3**	**Day 4**
	Administered PASS Pre-Test	Administered PASS Pre-Test	Administered PASS Pre-Test	20 minute small group work. Short a and o picture sort, kinesthetic syllables, Bob book
Week 2	**Day 5**	**Day 6**	**Day 7**	**Day 8**
	20 minute small group work. Short a and o picture sort, bingo, kinesthetic syllables, name the vowel	20 minute small group work. Short a and o picture sort, bingo, kinesthetic syllables, match the rhyme	20 minute small group work. Highlight vowels, PGM short a and o CVC words, BOB book	20 minute small group work. Highlight vowels, PGM short a and o CVC words, BOB book
Week 3	**Day 9**	**Day 10**	**Day 11**	**Day 12**
	20 minute small group work. Short a and o picture sort, kinesthetic syllables, match the rhyme	20 minute small group work. Short a and o picture sort, kinesthetic syllables, match the rhyme	20 minute small group work. Highlight vowels, PGM short a and o CVC words, BOB book	20 minute small group work. Highlight vowels, PGM short a and o CVC words, BOB book
Week 4	**Day 13**	**Day 14**	**Day 15**	**Day 16**
	20 minute small group work. Short i and u picture sort, bingo, kinesthetic syllables, match the rhyme	20 minute small group work. Short i and i picture sort, bingo, kinesthetic syllables, match the rhyme	20 minute small group work. Highlight vowels, PGM short i and u CVC words, BOB book	20 minute small group work. Highlight vowels, PGM short i and u CVC words, BOB book
Week 5	**Day 17**	**Day 18**	**Day 19**	**Day 20**
	20 minute small group work. Roll-A-CVC Words, Phonemic Awareness	20 minute small group work. Short e picture sort, Roll-A-CVC Words, Phonemic	20 minute small group work. Highlight vowels, PGM short e CVC words, BOB book	20 minute small group work. Highlight vowels, PGM short e CVC words, BOB book

	Task Cards (CVC Words), kinesthetic syllables, match the rhyme	Awareness Task Cards (CVC Words), kinesthetic syllables, match the rhyme		
Week 6	**Day 21**	**Day 22**	**Day 23**	**Day 24**
	20 minute small group work. Roll-A-CVC Words, kinesthetic syllables, match the rhyme	20 minute small group work. Roll-A-CVC Words, kinesthetic syllables, match the rhyme	20 minute small group work. Highlight vowels, BOB book	20 minute small group work. Highlight vowels, BOB book
Week 7	**Day 25**	**Day 26**	**Day 27**	**Day 28**
	20 minute small group work. I have, who has game. Match the rhyme	Administered PASS Post-Test	Administered PASS Post-Test	Administered PASS Post-Test

Data Collection and Assessment Instruments

Data collection occurred during the spring of the 2015-2016 school year. The data

collection method used was the PASS which was used as a pre and post assessment. This

assessment was given to determine the phonological awareness skills. These skills were divided

into eight subcategories; Rhyme, Sentence Segmentation, Blending, Syllable Segmentation,

Deletion, Phoneme Isolation, Phoneme Segmentation, and Phoneme Substitution. The

assessment had a total of 50 points where a score of 20% and lower placed a student who was in

need of intervention. A copy of the PASS assessment is located in Appendix A.

Data Analysis Plan

Data was analyzed using quantitative pre/post assessments, small group study research

design. The study compared the pre test responses to the post test responses. The study analyzed

the mean number of errors on the pretest to the mean numbers of error on the post test.

Summary of Methodology

In summary, the purpose of this action research study was to examine the effects of using phonological awareness centers to facilitate the development of kindergarten students' phonological awareness skills. After the participants completed a pre test, two experimental groups were formed and the students participated in 20 minute small group work, four times a week for seven weeks, with the teacher explicitly focusing on the sub skills of phonological awareness. Moreover, the teacher compared the pre and post test scores to determine any growth in Phonological Awareness skills. In the next chapter, the results and findings of this classroom action research are explained in more detail.

Chapter Four
Results

In this study, the researcher examined the effects of using phonological awareness centers to facilitate development of kindergarten students' phonological awareness skills. The research question was as follows: How will facilitating phonological awareness centers make kindergarten students better readers? The study was a quantitative, pre/post test assessment, one group study research design. To examine the research question and collect data, students participated in pretests during week one, followed by small group interventions during weeks two, three, four, five, six, and concluded with posttests during week seven.

Summary of Results

The results showed significant improvements in scores in seven of the eight subcategories of phonological awareness; rhyming, sentence segmentation, blending, syllable segmentation, deletion, phoneme isolation, phoneme segmentation. The subcategory phoneme substitution showed no significant improvement.

The first subtest of the assessment administrated from Crumrine & Lonegan (2000) Phonemic-Awareness Skills Screening (PASS) was rhyming. This section had a total of six rhyming questions. The first three questions were recognizing rhyme: The administrator gave 3 words and the student would determine which 2 of the three words rhymed. The following three questions produced rhyme: the administrator gave one word and the student had to provide a rhyming word. To rhyme successfully the students must attend to the sound at the end of the word.

As seen in Table 1 and Figure 1, the mean of the pretest (M pre=2.73) was lower than the mean of the posttest (M post=4.41). The standard deviation decreased when comparing the

Running head: Effects of Phonological Awareness Centers

pretest (SD pre= 2.82) to the posttest (SD post=2.12). A decreasing standard deviation paired

with an increasing mean indicated that as rhyming increased, the distribution of scores became

more concentrated.

Table 1. Comparison of mean rhyme scores

Assessment	Mean Rhyme Score	Standard Deviation
Pretest	**2.73**	**2.82**
Posttest	**4.41**	**2.12**

Figure 1. Comparison of mean rhyme scores
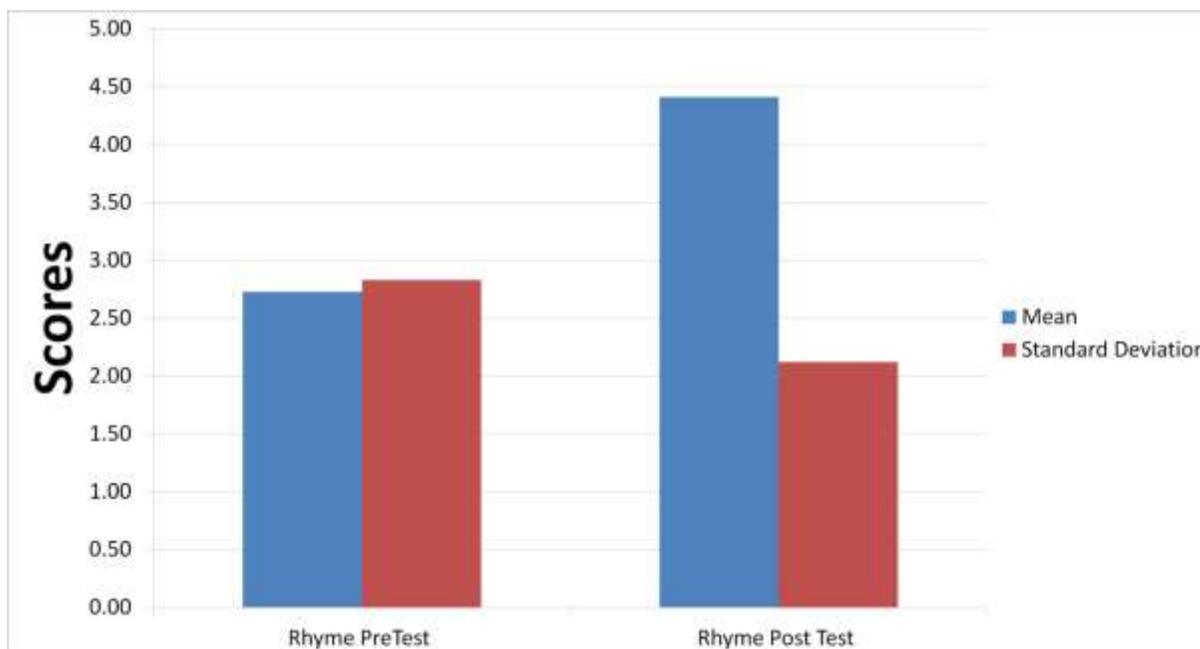
The second subtest of the assessment administrated from Crumrine & Lonegan (2000)

Phonemic-Awareness Skills Screening (PASS) was sentence segmentation. This section had five

questions. The administrator provided short sentences to the student who must state how many

words are in the particular sentence. In order to finish this task the student must understand the

concepts of a word as a discrete unit.

As seen in Table 2 and Figure 2, the mean of the pretest (M pre=2.91) was lower than the

mean of the posttest (M post=3.64). The standard deviation decreased when comparing the

pretest (SD pre= 0) to the posttest (SD post=.70). A decreasing standard deviation paired with an

increasing mean indicated that as sentence segmentation increased, the distribution of scores

became more concentrated.

Table 2. Comparison of mean sentence segmentation scores

Assessment	Mean Sentence Seg. Score	Standard Deviation
Pretest	2.91	0
Posttest	3.64	.70

Figure 2. Comparison of mean sentence segmentation scores
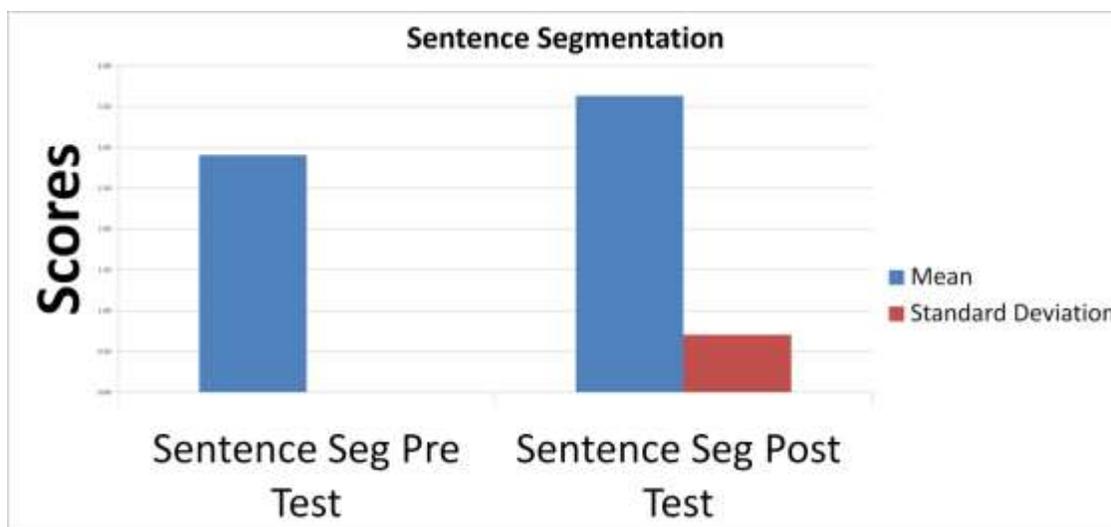
The third subtest of the assessment administrated from Crumrine & Lonegan (2000)

Phonemic-Awareness Skills Screening (PASS) was blending. The researcher administered 7

questions. Blending requires the student to process and recall a sequence of individual sounds in

the correct order and blend them into a word. Blending is a prerequisite to decoding. A student

can not decode unless the student can blend. For example, the administrator said parts of a word

slowly and the student would need to provide the word quickly. Administrator would slowly say,

pa-per, the student would need to state the word, paper, fluently.

As seen in Table 3 and Figure 3, the mean of the pretest (M pre=2.91) was lower than the

mean of the posttest (M post=5.59). The standard deviation decreased when comparing the

pretest (SD pre= 3.53) to the posttest (SD post=.70). A decreasing standard deviation paired with

an increasing mean indicated that blending increased, the distribution of scores became more

concentrated.

Table 3. Comparison of mean blending scores

Assessment	Mean Blending Score	Standard Deviation
Pretest	2.91	3.53
Posttest	5.59	.70

Figure 3. Comparison of mean blending scores

Running head: Effects of Phonological Awareness Centers
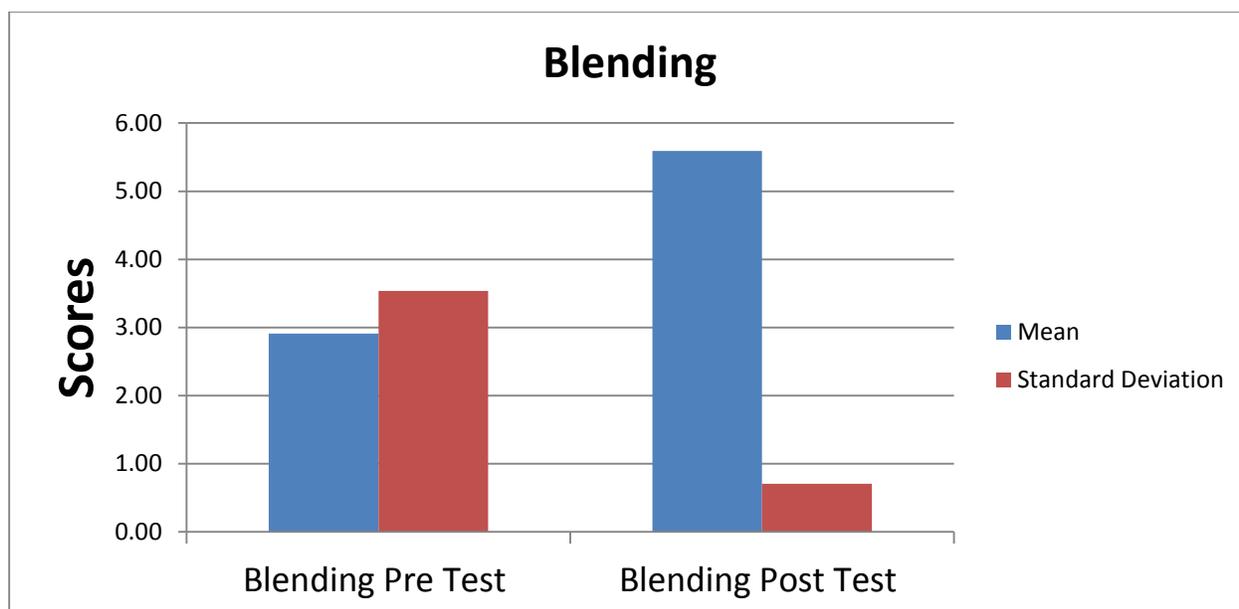
The fourth subtest of the assessment administrated from Crumrine & Lonegan (2000).

Phonemic-Awareness Skills Screening (PASS) was syllable segmentation. This section had a

total of five questions. The administrator provided a word. The student would repeat the word

and clap for each syllable in the word.

As seen in Table 4 and Figure 4, the mean of the pretest (M pre=2.36) was lower than the

mean of the posttest (M post=3.32). The standard deviation decreased when comparing the

pretest (SD pre= 2.82) to the posttest (SD post=1.41). A decreasing standard deviation paired

with an increasing mean indicated that as syllable segmentation increased, the distribution of

scores became more concentrated.

Table 4. Comparison of mean syllable segmentation scores

Assessment	Mean Syllable Seg. Score	Standard Deviation
Pretest	2.36	2.82
Posttest	3.32	1.41

Figure 4. Comparison of mean syllable segmentation scores
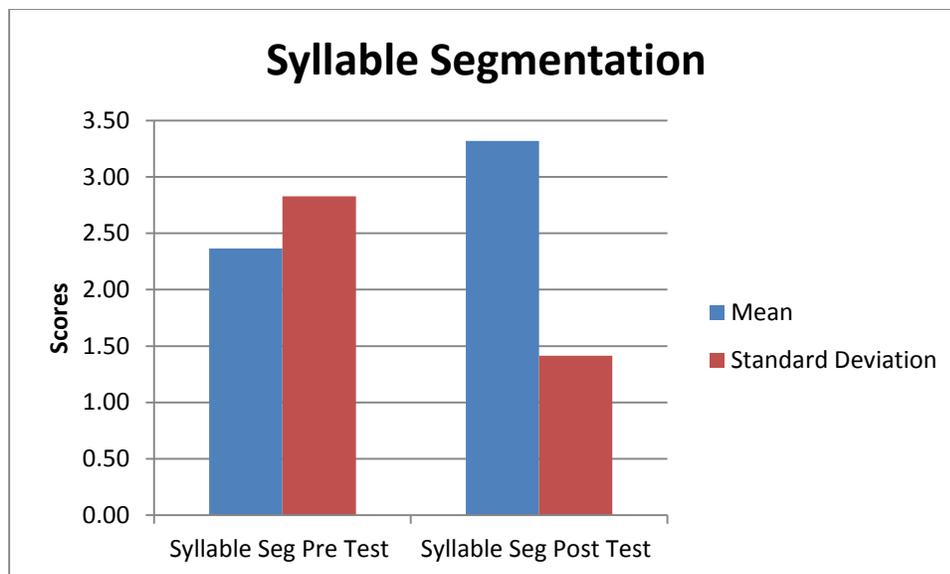
The fifth subtest of the assessment administrated from Crumrine & Lonegan (2000) Phonemic-Awareness Skills Screening (PASS) was deletion. This section had a total of six deletion questions. This task requires the students to isolate a speech sound and hold it in memory while performing a second operation. The student must delete an initial or final sounds while retaining the sequence of sounds that remain. For example, the researcher provided a word, raincoat, then the student repeated the word again but did not say coat. The students correct response would be rain.

As seen in Table 5 and Figure 5, the mean of the pretest (M pre=2.18) was lower than the mean of the posttest (M post=3.36). The standard deviation decreased when comparing the pretest (SD pre= 3.53) to the posttest (SD post=1.41). A decreasing standard deviation paired with an increasing mean indicated that as deletion increased, the distribution of scores became more concentrated.

Table 5. Comparison of mean deletion scores

Assessment	Mean Deletion Score	Standard Deviation
Pretest	**2.18**	**3.53**

Posttest	3.36	1.41

Figure 5. Comparison of mean deletion scores

The sixth subtest of the assessment administrated from Crumrine & Lonegan (2000)

Phonemic-Awareness Skills Screening (PASS) was phoneme isolation. This section had a total

of nine phoneme isolation questions. The researcher asked three questions on initial, medial, and

final sounds. Phoneme isolation is a prerequisite to segmenting sounds.

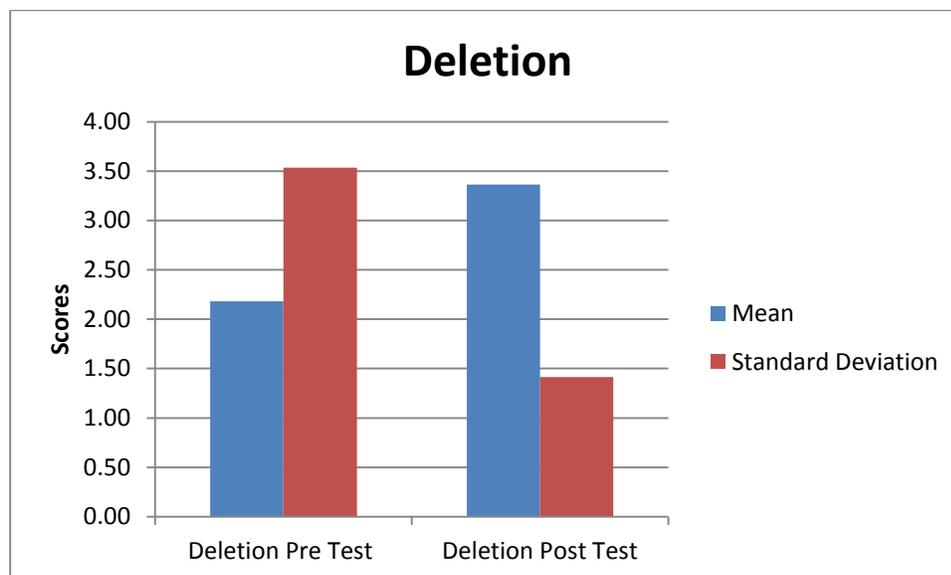As seen in Table 6 and Figure 6, the mean of the pretest (M pre=4.45) was lower than the

mean of the posttest (M post=7.5). The standard deviation decreased when comparing the pretest

(SD pre= 2.82) to the posttest (SD post=1.41). A decreasing standard deviation paired with an

increasing mean indicated that as phoneme isolation increased, the distribution of scores became

more concentrated.

Table 6. Comparison of mean phoneme isolation scores

Assessment	Mean Phoneme Iso. Score	Standard Deviation
Pretest	4.45	2.82

Posttest	7.5	1.41

Table 7. Comparison of mean phoneme isolation scores

The seventh subtest of the assessment administrated from Crumrine & Lonegan (2000).
Phonemic-Awareness Skills Screening (PASS) was phoneme segmentation. This section had six
phoneme segmentation questions. The researcher provided a word and the student would say
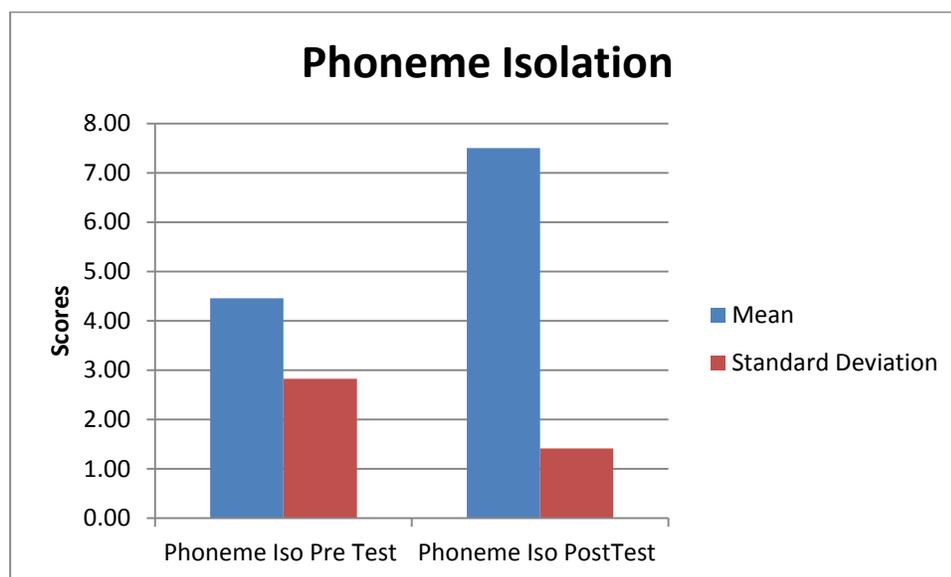each sound in the provided word.

As seen in Table 7 and Figure 7, the mean of the pretest (M pre=1.59) was lower than the
mean of the posttest (M post=3.09). The standard deviation decreased when comparing the
pretest (SD pre= 2.82) to the posttest (SD post=1.41). A decreasing standard deviation paired
with an increasing mean indicated that as phoneme segmentation increased, the distribution of
scores became more concentrated.

Table 7. Comparison of mean phoneme segmentation scores

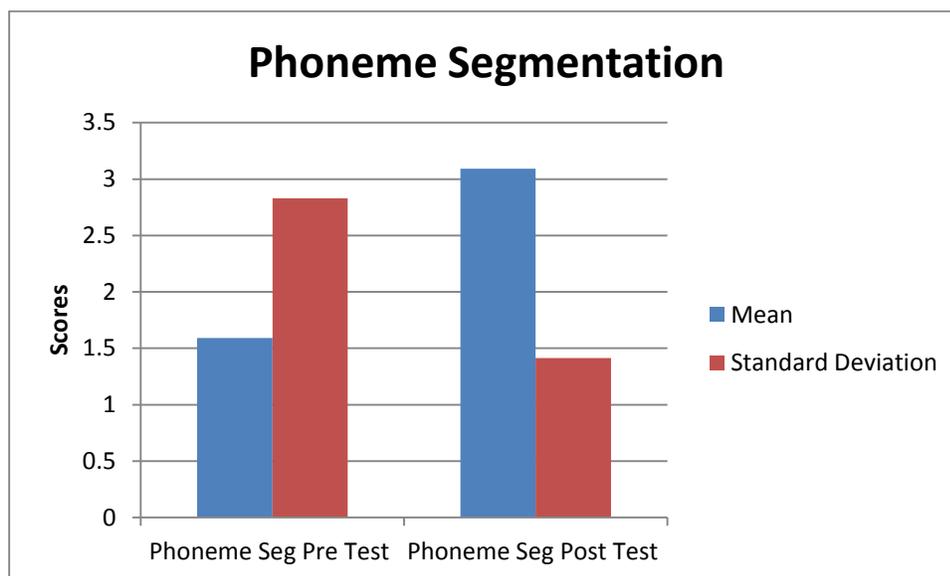| Assessment	Mean Phoneme Seg. Score	Standard Deviation
Pretest	1.59	2.82
Posttest	3.09	1.41

Figure 7. Comparison of mean phoneme segmentation scores

The eighth subtest of the assessment administrated from Crumrine & Lonegan (2000)

Phonemic-Awareness Skills Screening (PASS) was phoneme substitution. This section had a

total of six phoneme substitution questions. The researcher provided a word and then asked the

student to repeat the word but change either the initial, medial, or final sound in the word to a

new sound to make a new word. This is the highest level of the phonological awareness skills.

As seen in Table 8 and Figure 8, the mean of the pretest (M pre=.63) was lower than the

mean of the posttest (M post=1.59). The standard deviation decreased when comparing the

pretest (SD pre= 2.12) to the posttest (SD post=2.82). A decreasing standard deviation paired

with an increasing mean indicated that as phoneme substitution increased, the distribution of

scores became more concentrated.

Table 8. Comparison of mean phoneme substitution scores

Assessment	Mean Phoneme Sub. Score	Standard Deviation
Pretest	.63	2.12
Posttest	1.59	2.82

Figure 8. Comparison of mean phoneme substitution scores
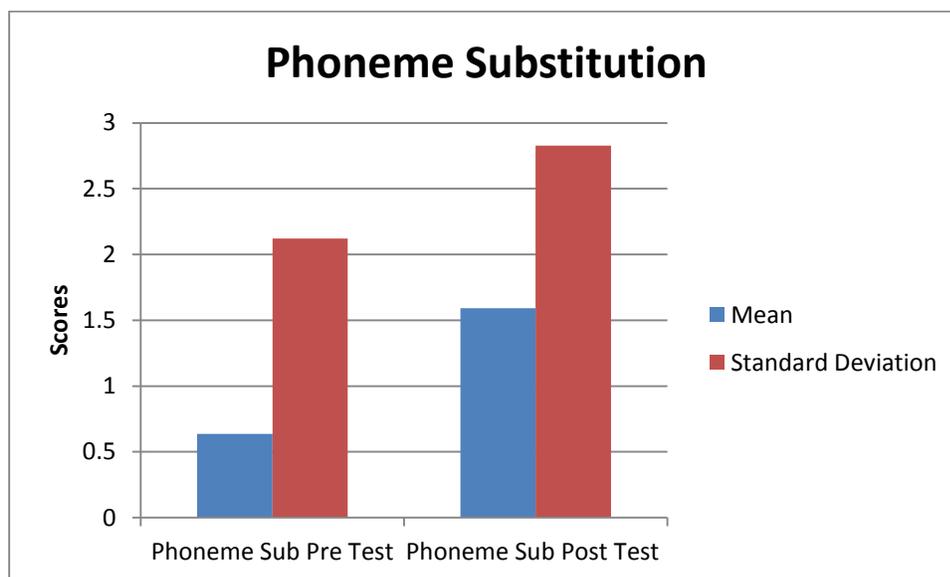
Findings Related to the Research Question

The evidence supports my research question and confirms my hypothesis. I hypothesized

that the kindergarten students would significantly show growth in reading skills after 7 weeks of

using phonological awareness centers. The results showed in the category of Rhyme, eight out of

eight students showed improvement. In the category of Sentence Segmentation, six out of eight

students showed improvement. In the category of Blending, seven out of eight students showed

improvements. In the category of Syllable Segmentation, seven out of eight students showed

improvements. In the category of Deletion, six out of eight students showed improvement. In the

category of Phoneme Isolation, eight out of eight students showed improvement. In the category

of Phoneme Segmentation, seven out of eight students showed improvement. In the category of

Phoneme Substitution, zero out of eight students showed improvement. The fact that the students

were able to show significant improvements in seven of the eight subcategories on the PASS

assessment verifies that the students were able to increase their understanding of phonological

awareness skills.

Conclusion

Chapter 4 disclosed the data accumulated throughout this study. The scores of students on

both pretest and posttest were presented. Analysis of the results showed improvement in each of

the eight phonological awareness subtests. The next chapter connects the results of this study to

research presented in chapter 2. Chapter 5 provides a further explanation of the results of this

study and discusses strengths and weakness found in this classroom action research. Lastly,

recommendations for future directions of this study will be presented.

Chapter Five

Explanation of Results

The purpose of this action research was to determine how explicit phonological awareness instruction would improve phonological awareness skills in kindergarten students. To measure this question, the students took the Phonemic-Awareness Skills Screening (PASS) pre and post assessment. Phonemic awareness refers to the specific ability to focus on and manipulate individual sounds (phonemes) in spoken words. Phonemes are the smallest units of sound in spoken language.

The researcher wanted to build the students' phonological awareness skills by having the students focus on identifying rhyming sounds, beginning sounds, medial, and ending sounds. The goal was to hear, identify, and manipulate the phonemes in spoken language and apply this knowledge to print. Phonological awareness skills are important to develop good reading skills. To have effective phonological awareness skills means that a student would be able to manipulate sounds in words, or to play with sounds in words.

Connections to Existing Research

According to Nichols, Rupley, & Rickelman (2004), students who were learning to read needed to be taught how to attend to phonemes and to develop an understanding regarding concepts of print. These skills are developed through repeated exposure and guidance, including activities with specific skills in mind such as segmenting words into smaller units, syllables and sounds, counting each syllable, and/or playing with CVC words.

According to Carreker, Neuhaus, & Swank, (2007), these researchers confirmed their hypothesis that reading comprehension growth of the rich readers became richer over time and the reading comprehension growth of the poor readers was not as significant as that of the early

proficient readers which is known as the Matthew Effect. I think this holds true across all of the studies and proves that early intervention and exposure to literacy skills helps students become stronger readers.

Connection to the Common Core Standards

This study's activities connected to the following six Common Core Standards in the area of phonological awareness: First CCSS.ELA-Literacy.RF.K.2 which states that students must demonstrate understanding of spoken words, syllables, and sounds (phonemes) which was represented in the activity phoneme graphing mapping (Grace, 2007) vowels, kinesthetic syllables, sound bingo, name the vowel. The next standard relevant to this study was CCSS.ELA-Literacy.RF.K.2.a where students must recognize and produce rhyming words which was represented by the activity match the rhyme. Another standard was CCSS.ELA-Literacy.RF.K.2.b which stated that students must count, pronounce, blend, and segment syllables in spoken words which was represented by the activity kinesthetic syllables. CCSS.ELA-Literacy.RF.K.2.c stated that students must blend and segment onsets and rimes of single-syllable spoken words. Another standard addressed in this research was CCSS.ELA-Literacy.RF.K.2.d which stated that students must isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words.[1] (This does not include CVCs ending with /l/, /r/, or /x/.) which was represented in the activity roll-a-constant vowel constant (CVC) word . Standard CCSS.ELA-Literacy.RF.K.2.e stated that students must add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words which was represented in the activity roll-a-constant vowel constant (CVC) word.

Strengths and Limitations

One of the strengths of this study were that the students were able to participate four times a week in reading stations to focus on phonological awareness skills. These skills were divided into eight subcategories that ranged from easier to more difficult tasks, Rhyme, Sentence Segmentation, Blending, Syllable Segmentation, Deletion, Phoneme Isolation, Phoneme Segmentation, and Phoneme Substitution. Eight students were part of the experimental group who worked with the researcher four times a week for twenty minutes.

The results showed in the category of Rhyme where, eight out of eight students showed improvement while in the category of Sentence Segmentation, six out of eight students showed improvement. In the category of Blending, seven out of eight students showed improvements while in the category of Syllable Segmentation, seven out of eight students showed improvements. In the category of Deletion, six out of eight students showed improvement while in the category of Phoneme Isolation, eight out of eight students showed improvement. In the category of Phoneme Segmentation, seven out of eight students showed improvement while in the category of Phoneme Substitution, zero out of eight students showed improvement.

One of the limitations of this study was the sample size which was small. A longer time frame for the research would have been a benefit for my bilingual students so they could study phonological awareness skills for longer than seven weeks. These students needed explicit instruction in a slower systematic pace. None of the students showed improvement in the phoneme substitution subcategory of phonological awareness because this is the most challenging task and although the students were gaining an understanding of phonemes they were not yet ready to manipulate them in this way.

Conclusion

I would recommend further study by teachers to focus on phonological awareness skills' development in kindergarten students as literacy is the cornerstone of all fundamental skills in life. Continued research will help all teachers to acquire better training to guide our students to be successful. Teachers need to have access to instructional activities that can help their students become aware of phonemes and teachers also need to realize that phonemic awareness instruction will become more complicated as students' reading skills develop. This action research project has reinforced the fact that early intervention is key in helping students develop literacy skills.

Running head: Effects of Phonological Awareness Centers

Appendix A

Phonemic-Awareness Skills Screening (PASS)

Linda Crumrine and Helen Lonegan

Child's Name _____ DOB _____ C.A. _____ Grade ____

Teacher's Name _____ School _____

School Year _____ Test Date _____ Examiner _____

Sections	Score Possible 20% cutoff	Scoring: 1 = correct
1. Rhyme	____ (6) 4	0 = incorrect
2. Sentence Segmentation	____ (5) 2	Child Score: ____ (max 50)
3. Blending	____ (7) 4	
4. Syllable Segmentation	____ (5) 3	Child Score / 50 = Percent Correct
5. Deletion	____ (6) 3	____ / 50 = _____ %
6. Phoneme Isolation	____ (9) 7	
7. Phoneme Segmentation	____ (6) 2	
8. Phoneme Substitution	____ (6) 1	

Before beginning, say, *"Today we'll be playing with words and the sounds in words."*
It is important to administer all practice items, even if the child appears proficient
at the task.

20% cutoff = needs instruction

1. Rhyme

Recognizing Rhyme
Directions: *"I'm going to say 3 words. Tell me which 2 words rhyme or sound the same at the end:*
pat, sat, hill" (child response). If correct, say, *"Yes, **pat** and **sat** rhyme because they sound the
same at the end. Now try these."*

If incorrect, say, *"That's a good try, but **pat** and **sat** rhyme because they sound the same at the
end. Now try these."*

Item	Correct Response	Score
1. log, him, dog	log, dog	____
2. camp, star, car	star, car	____
3. net, pill, pet	net, pet	____

Producing Rhyme
Directions: *"**Fit, sit, bit** all rhyme because they sound the same at the end. Tell me a word that
rhymes with **sad**"* (child response). If correct, say, *"That's correct, they rhyme because they
sound the same at the end".* If incorrect, say, *"That's a good try, but they don't rhyme because
they don't sound the same. **Dad, bad,** and **mad** all rhyme with **sad** because they all sound the
same at the end."*

"Now try these. Tell me a word that rhymes with each of these words."

Item	Response	Score
4. cake	____	____
5. nest	____	____
6. sun	____	____

1. Rhyme Total _____ (of 6)

PA18

2. Sentence Segmentation

Directions: "Sentences are made up of words. Listen to this sentence: **Birds fly.** This sentence has 2 words: birds fly." (Hold up fingers to represent each word while segmenting the sentence). *"Now listen to this sentence, and hold up a finger for each word in the sentence. **Girls are fun"*** (child response). If correct, *"That's right. It has 3 words: girls are fun. Now you try these."* If incorrect, explain and readminister the example. (If the child has difficulty, you may use a segmenting board or chips).

Item	Correct Response	Score
1. Lions roar.	2	_____
2. The children have a puppy.	5	_____
3. Kittens chase mice.	3	_____
4. He went swimming in the ocean.	6	_____
5. The wind is blowing.	4	_____

2. Sentence Segmentation Total _____ **(of 5)**

3. Blending

Directions: "*Words are made up of sounds and syllables. I am going to tell you parts of a word very slowly. Listen carefully so you can put them together to say the word fast, **pen-cil*** (child response)." If correct, say "*That's right. **Pen** and **cil** go together to make pencil. Now try this one, **win-dow**.*" If incorrect, explain and readminister example.

Item	Correct Response	Score
1. pa-per	paper	_____
2. t-ie	tie	_____
3. c-up	cup	_____
4. m-ake	make	_____
5. n-a-p	nap	_____
6. f-a-s-t	fast	_____
7. s-l-i-p	slip	_____

3. Blending Total _____ **(of 7)**

4. Syllable Segmentation

Directions: "*Syllables are parts of words. I am going to say some words. I want you to repeat each word and then clap for each syllable or part of the word. Listen carefully and watch me: **flagpole** (clap twice), **eat** (clap once). Now you try one, **sandwich**"* (child response). If correct, "*That's right, **sandwich** has 2 parts. Now try these.*" If incorrect, explain and re-administer example. (If the child has difficulty, you may use a segmenting board or chips).

Item	Correct Response	Score
1. football	2	_____
2. snap	1	_____
3. television	4	_____
4. dinosaur	3	_____
5. brush	1	_____

4. Syllable Segmentation Total _____ **(of 5)**

2 *PA19*

Directions: *"I am going to say a word. Listen carefully and then do what I ask you to do. Say* **raincoat***"* (child response). *"Now say* **raincoat** *again, but don't say* **coat***."* If correct, *"That's right, now try these."* If incorrect, demonstrate using pictures found at the end of the manual. Show pictures, then cover up the picture of the coat as you say, *"but don't say* **coat***."* "Say _____ (response), say _____ again, but don't say (___)."

Item	Correct Response	Score
1. (sun)light	light	_____
2. yel(low)	yel	_____
3. sis(ter)	sis	_____
4. (b)it	it	_____
5. to(p)	to	_____
6. (p)lane	lane	_____

5. Deletion Total _____ (of 6)

6. Phoneme Isolation

Directions: *"I am going to say the word* **boat***.* **Boat** *starts with a /b/ sound. I am going to say another word,* **make***. You say that word, and then tell me the sound it starts with."* If correct, say, *"That's right. Now tell me the first sound you hear in these words."* If incorrect, explain and try additional demonstration items:* **top***,* **sat***.* If the child states the letter name rather than the sound, say, *"that's the letter it starts with, now tell me the sound, not the letter".*

Item	Correct Response	Score
1. fast	/f/	_____
2. big	/b/	_____
3. nod	/n/	_____

Directions: *"I am going to say the word* **boat** *again.* **Boat** *ends with a /t/ sound. I am going to say another word,* **lip***, and you say that word and then tell me the sound it ends with"* (child response). If correct, *"That's right. Now tell me the ending sound you hear in these words."* If incorrect, try additional demonstration items:* **ham***,* **sad***.*

Item	Correct Response	Score
4. take	/k/	_____
5. miss	/s/	_____
6. not	/t/	_____

Directions: *"I am going to say the word* **boat** *again.* **Boat** *has an /o/ sound in the middle. I am going to say another word,* **pick***, and you say that word and then tell me the sound that is in the middle"* (child response). If correct, say, *"That's right. Now tell me the middle sound you hear in these words."* If incorrect, try additional demonstration words:* **hug***,* **fib***.*

Item	Correct Response	Score
7. mat	/a/	_____
8. tug	/u/	_____
9. time	/i/	_____

6. Phoneme Isolation Total _____ (of 9)

3 *PA20*

7. Phoneme Segmentation

Directions: *"I am going to say a word, and I want you to say each sound in the word. Watch me: Cat, c-a-t* (hold up a finger for each sound that you say, pausing slightly between sounds). *"Cat has 3 sounds. Now you try one. The word is go"* (child response). If correct, say, *"That's right. Go has 2 sounds. Now try these."* If incorrect, explain and try additional demonstration words: **sun, we.** (If the child has difficulty you may use a segmenting board or chips).

Item	Correct Response	Score
1. ride	/r/-/i/-/d/	_____
2. toe	/t/-/o/	_____
3. shot	/sh/-/o/-/t/	_____
4. plug	/p/-/l/-/u/-/g/	_____
5. Ed	/e/-/d/	_____
6. trick	/t/-/r/-/i/-/k/	_____

7. Phoneme Segmentation Total _____ **(of 6)**

8. Phoneme Substitution

Directions: *"I am going to say a word and then make a new word by changing a sound. The word is pink. I am going to change the /p/ to /s/ and now I have sink. Now I want you to try some. The word is van. Say van* (child response). *Now say it again, but instead of /v/, say /p/"* (child response). If correct (*pan*), say, *"That's right. Now try these."* If incorrect, explain and try additional demonstration words such as *"the word is kid* (child response). *Now say it again, but instead of /k/ say /h/* (child response). *The word is Sam* (child response). *Now say it again, but instead of /s/ say /p/"* (child response).

"Say _____ (response), Now say it again, but instead of / /, say / /."

Item			Correct Response	Score
1.	/j/ump	/b/	bump	_____
2.	/m/ eat	/s/	seat	_____
3.	cu /t/	/p/	cup	_____
4.	/s/ lap	/f/	flap	_____
5.	t /i/ p	/o/	top	_____
6.	m /u/ st	/i/	mist	_____

8. Phoneme Substitution Total _____ **(of 6)**

Note: A letter between 2 slashes (/ /) denotes a *letter sound, not a letter name.*

ADDITIONAL NOTES AND OBSERVATIONS

4 *PA21*

Reference

Brennan. F., & Ireson. J. (1997). Training phonological awareness: A study to evaluate the effects of a program of metalinguistic games in kindergarten. Reading and Writing: An Interdisciplinary Journal 9:241-263.

Carreker, S. H., Neuhaus, G. F.,& Swank, P.R. (2007) Teachers with linguistically informed knowledge of reading subskills assoiciated with a Matthew effect in reading comprehension for monolingual and bilingual students. Reading Psychology, 28:187-212.

Culatta, B., Reese, M., & Setzer, L.A. (2006). Early Literacy Instruction in a dual –language (Spanish-English) Kindergarten. Communication Disorders Quarterly, 27, 2. Retrieved from http://cdq.sagepub.com/content/27/2/67.short#cited-by

Grace, K (2007). Phonics and Spelling Through Phoneme-Grapheme Mapping. Longmont, CO:

Sopris West Educational Services.

Green, S.K., Britt, C. (2002). When Do They Choose the Reading Center? Promoting Literacy in a Kindergarten Classroom. Reading Horizons 43. Retrieved from http://web.a.ebscohost.com.csu.ezproxy.switchinc.org/ehost/pdfviewer/pdfviewer?sid=68b3fc1b-f9a0-43fc-a370-d3ff6affcb96%40sessionmgr4002&vid=3&hid=4201

Hogan, T. P., Catts. H. W., & Little. T. D. (2005) The relationship between phonological awareness and reading: implications for the assessment of phonological awareness. Language, Speech & Hearing Services in Schools, 36,4.

Mann, V. A., & Foy, J. G. (June 2007). Speech development patterns and phonological awareness in preschool children. *Annals of Dyslexia, 57(1), 70-85.*

Nichols, W. D., Rupley, W. H., & Rickelman, R. J. (2004). Examining Phonemic Awareness and Concepts of Print Patterns of Kindergarten Students. Reading Research and Instruction, 43(3), 56-82.

Olofsson. A., & Niedersoe. J. (1999). Early language development and kindergarten phonological awareness as predictors of reading problems: from 3 to 11 years of age. Journal of Learning Disablities; 32,5; Education Database pg 464.

Otaiba, S.,Puranik, C. S., Rouby, D.A., Greulich, L., Sidler, J.F., & Lee, J. (2010) Predicting kindergartens end of year spelling ability based on their reading, alphabetic, vocabulary, and phonological awareness skills, as well as prior literacy experiences. Learning Disability Quarterly, Volume 33. Retrieved from

http://search.proquest.com.csu.ezproxy.switchinc.org/education/docview/744494658/30D1C3AFC1A94844PQ/1?accountid=9367

Pae, H. K., & Sevcik, R. A., & Morris, R. D. (2010). Cross-language correlates in phonological awareness and naming speed: evidence from deep and shallow orthographies. Journal of Research in Reading, Volume 33(4), 374-391. doi: 10.1111/j.1467-9817.2009.01417.x