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## Filling the Gap: Phonological Awareness Activities for a Montessori Kindergarten

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### Recommended Citation

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Filling the Gap:

Phonological Awareness Activities for a Montessori Kindergarten

An Action Research Report

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Filling the Gap:

Phonological Awareness Activities for a Montessori Kindergarten

Submitted on May 6, 2016

in fulfillment of final requirements for the MAED degree

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## Abstract

This action research was conducted to determine if small group explicit phonological awareness (PA) instruction using materials from *Early Reading Mastery* (Klein, 2015) and *Words Their Way* (Bear et al., 2006) would increase students' ability to segment phonemes (i.e., break words into sounds) and build three letter consonant-vowel-consonant (CVC) words. The research was completed in a full-day public suburban Montessori kindergarten. Data was collected using phonological awareness tests, a teacher adapted spelling test, tally sheet, and researcher's log. Pre-test data was used to create homogenous small groups for the four-week intervention. Explicitly worded lessons taught PA and phonic skills using traditional and supplementary Montessori materials. Post-intervention data showed an increase in the number of students able to segment CVC words. Establishing a research-based structure of PA lessons and materials has strengthened the researcher's ability to teach students the foundational PA skills necessary to begin their reading journey. Further research to determine if this instructional practice reduces reading difficulties could be studied.

*Keywords:* phonological awareness, Montessori, Kindergarten, explicit instruction, small homogenous groups

Learning to read is one of the most significant skills a child will master in school. Sorting through the vast array of instructional practices to find the best way to teach reading has been an ongoing challenge for me. In the course of my search, I was introduced to the Montessori method, prompting me to become a Montessori teacher. During my training, I discovered the founder Maria Montessori, a physician who spent her life researching how children learned. Through her experimentation and scientific observations, she created educational materials, which she believed could inspire a child's "inner guide." Montessori then sequenced lessons to match the materials so children could "...teach themselves without hindering the process of natural development" (as cited in Dwyer, 2002, p.3). Learning about her instructional materials and methods gave me an appreciation of the pedagogy that I believed would best lead my students to become better readers.

During my pupil's language instruction, I noticed that many students had difficulty applying their letter-sound knowledge to a reading activity known as the *Pink Box* series (see Appendix A for an example of this material). This boxed series was the beginning of a color-coded educational material known as the *Classified Cards*. Each of the *Classified Cards* sets was comprised of multiple boxes of the same color categorization. The colors represent the phonetic difficulty of its level. The first color of difficulty is pink followed by blue and green. The *Pink Boxes*, being the entry point, focus on developing a student's knowledge of short vowel three-letter words. These individual *Pink Boxes* include small 3D representations and cards containing the matching words written on them. There are multiple objects and corresponding cards within each box. Pupils use each object as a prompt to know what word they are to

segment into letter sounds. Then the student uses a Montessori material referred to as the Moveable Alphabet to represent the letter sounds. This alphabet was contained in a box with 26 compartments holding plastic or wood lower-case letters. Each compartment housed one letter of the alphabet and contained multiple copies of the letter. The student orally segments the phonemes of the object's word and then represents each sound with a Moveable Alphabet letter. After the student has built the object's word with this alphabet, they decoded the letters by blending the sounds together to pronounce the word. Finally, they use the corresponding card to check and see if they wrote the word correctly.

When students started this work, I noticed they were unable to identify all the letters of each word even though they knew all the letter sounds. I began to wonder if there was a gap in my instruction that was causing the student's inability to transfer the skill of naming letter sounds in isolation to segmenting these sounds into a word. This concern caused me to review research on how students learn to read. During my research, I found that a critical piece for establishing a solid reading foundation was developing a child's phonological awareness (PA)(Schuele & Boudreau, 2008). Were these PA skills the missing component needed to fill the gap in my instruction? With this information in mind, I began examining the language lessons within my American Montessori Society (AMS) training Language manuals. I wanted to determine if they taught the PA skills required to ensure my students had this foundational knowledge to become good readers.

My AMS manual provides a variety of pre-writing and oral language activities prior to the *Pink Box* series. It was within these activities that phonological awareness

(PA) skills were taught. The PA skill of isolating the beginning, middle and ending sound was taught using the *I Spy* game, letter –sound association was taught using Sandpaper Letters and segmenting was taught by building words with the Moveable Alphabet.

During the *I Spy* game, teachers showed known objects and instructed students to listen for the letter sounds at the beginning, end, or middle of the names of objects they were viewing. Teachers used the Sandpaper Letters (boards which have one lower-case letter cut from smooth sandpaper) to aid students in attaching the letter sound to its symbol through sight, sound, touch and muscular movement. After learning 10-12 letter sounds, children were introduced to the Moveable Alphabet. The child used this alphabet under teacher guidance to build and write words, which the teacher felt the child was ready to learn. Although these activities provided an overall framework for the children to learn the phonological awareness (PA) skills, I found they were highly teacher dependent. Also, I felt the structure lacked a precise sequence for me to follow and ensure that all the PA skills were taught. In addition, I believed there was not enough scaffolding and materials for the students to independently practice and progress through these critical PA skills. I wanted to explore if adding explicit PA skill lessons and materials, which paralleled the Montessori language sequence, would increase students' ability to work with the Montessori *Pink Box* series and Moveable Alphabet. Therefore, my primary research question was “Will giving small group phonological awareness (PA) skill lessons, using additional material from *Early Reading Mastery* (Klein, 2015) and *Words Their Way* (Bear, Johnston, & Invernizzi, 2006), increase kindergarten

students' ability to segment and build three letter consonant-vowel-consonant (CVC) words, known as the *Pink Boxes*, to 80% accuracy using the Moveable Alphabet?"

My action research was carried out within my Montessori kindergarten class located in a suburban public dual stream school (Montessori and traditional). The school had a total population of 269 students. There were 88 pupils in the traditional K-5 program and 181 students in the K-6 Montessori program. The Montessori program is a choice program open to all families within the district and parents had selected to have their child educated using the Montessori method. All the kindergarten students were in session for a full day. There were 21 children in my class ranging from 5.17 to 6.03 years of age. Twelve of the students were male, and nine were female. Sixteen of the students were Caucasian; three had Aboriginal ancestry, and two were South Asian. All the students came from middle-class families. Two students received small group pullout speech and language services once a week from a Speech and Language Pathologist. Before coming to kindergarten, five of the students attended a Montessori Preschool, and the rest had other preschool experiences.

I was the only instructor in the classroom. Over my twenty-five years of teaching experience, I have developed a variety of teaching methods and skills. I started my career as a Learning Assistance/Resource Teacher then I taught Grade One and kindergarten within the traditional public system. Three years ago I became an AMS certified Montessori guide and started teaching in my current position. The children in my class were taught using a full range of authentic Montessori materials. They received individual or small group lessons depending upon their needs. Large group lessons were also conducted daily. Each day, children had the freedom to select learning materials and



independently complete their schoolwork on tables or the floor. It was my job as their guide to give them lessons and introduce them to materials, which would enable them to choose work that supported their intellectual development.

### **Review of Literature**

During kindergarten, teachers are responsible for helping students create a language and literacy foundation, which will determine their later reading success. Within a Montessori classroom, students learn the building blocks of this substructure from a variety of language lessons and materials. One of the language lessons given to students was the *Pink Boxes* (see Appendix A for an example). I discovered that students in my class were having difficulty completing these boxes and I began to question if there were gaps in my instruction. Wood (2003) highlighted a student within her Montessori classroom, who had similar difficulties. After she had attended a workshop, given by Dr. Sally Grimes, Wood (2003) discovered her student was missing phonological awareness skills that impeded their ability to build words with the Moveable Alphabet. She assessed the student to determine the missing PA skills and then explicitly taught these skills to the student. After the direct instruction, the student was able to transition successfully to building words with the Moveable Alphabet and by the end of the school year was reading short vowel books (Woods, 2003). When researching how students learn to read, I discovered, like Woods (2003), that students needed explicit instruction to develop their phonological awareness (PA) before they could start segmenting and blending words successfully. As segmenting and blending were the skills necessary to begin the *Pink Box* series, I wanted to learn what phonological awareness skills were,

which PA skills kindergarten students required and how to sequences and instruct these skills in a developmentally appropriate way.

Over the last two decades, researchers have highlighted the important connection between students' PA skills and their ability to read (Anthony & Francis 2005; Schuele & Boudreau 2008; Carson, Gillon, & Boustead, 2013; Hogan, Catts, & Little, 2005).

Keeseey, Konrad, and Joseph (2015) stated, "It has been well documented that students who are considered poor readers are those who entered first grade with limited phonemic awareness [which falls under the larger umbrella of phonological awareness]" (p. 167).

A meta-analytic review concluded that PA skills are one of the essential elements a child needs to learn to read successfully (Melby-Lervåg, Lyster, & Hulme, 2012). Several research studies have stated the importance of including PA instruction within the preschool and kindergarten curricula (Schuele, & Boudreau, 2008; Shapiro, & Solity, 2008; Phillips, Clancy-Menchetti, & Lonigan, 2008). Schuele and Boudreau (2008) concluded, "Phonological awareness is a critical skill that contributes to literacy acquisition, and the integration of this knowledge in educational settings can be witnessed in the inclusion of phonological awareness instruction in preschool and kindergarten curricula" (p.16). As teaching students phonological awareness was a vital ingredient of learning to read, teachers needed to understand how children acquired these skills.

Pufpaff (2009), Anthony and Francis (2005), Phillips et al., (2008) and Schuele and Boudreau (2008), all accepted a similar continuum of development for phonological skills. This development moved from large units of sound to smaller ones. The general sequence began with the word-level to syllable skills and then to the phoneme-level.

They also agreed that students acquired these skills in overlapping stages. Therefore, although a student should be taught the skills in sequence, they did not need to have mastered one skill before being introduced to the next (Phillips et al., 2008). In addition, to understanding the phonological awareness (PA) developmental sequence, teachers needed to know which skills should be introduced during the kindergarten year.

Many studies have been completed to determine which of the PA skills kindergarten students should master. Cabell et al. (2008) study found that teachers should move away from shallow PA skills such as rhyme, segmenting sentences into words and words into syllables at the mid-year point. After mid-year, they should move to more phonemic awareness instruction such as initial and final words sounds, segmenting words into sounds and spelling simple words. Schuele and Boudreau (2008) agreed that by mid-year most kindergarten children should have mastered the PA skills of rhyme, syllables, and alliteration and should move onto phonemic awareness instruction. McGee and Ukrainetz (2009) concluded teachers that scaffold PA skills instruction not only found teaching the PA skills less frustrating; they also discovered the majority of their students could isolate consonant beginning sound and segment three phoneme words by the mid-year. Therefore, in addition to an understanding of what PA skills were and their developmental sequence, teachers needed to learn how to instruct these skills using research-based strategies.

Phillips, Clancy-Menchetti, and Lonigan, (2008), summarized high-quality research on PA and how it informs effective instructional strategies. They state, “teachers who want to implement instructional strategies supported by scientific evidence should attend to the evidence from small-group or individual, systematic and explicit

instruction” (p.12). Cabell, Lee, Knighton, Schuele, Justice and Kingery, 2008, studied 56 kindergarten students from 3 classrooms using two-tier differentiated PA instruction. They found all the students in the study group were reading more quickly than their peers who were not in the study. Studies by Carson, Gillon, and Boustead (2013) of 129 five-year-old children and Sharpiro and Solity (2008) of 251 Year 1 (kindergarten) students highlighted that when teachers included quality phonological and phonics differentiated instruction within whole-class lessons, it increased student reading performance. This research suggested that effective PA instruction involved establishing differentiated learning groups of students. How did a teacher go about creating these learning groups?

According to Mokhtari, Rosemary and Edwards (2007), “instruction that is data based and goal driven sets the stage for continuous reading and writing improvement” (p. 354). Many research studies agreed that assessment of students’ phonological ability assisted in the development of intervention and instruction (Pufpaff, 2009; Phillips et al. 2008, and Schuele & Boudreau, 2008). Runge and Watkins (2006) stated, “owing to the strong relationship between phonological awareness and reading; it has been recommended that teachers assess beginning readers to ensure proper development of phonological awareness skills” (p. 371). Anthony and Francis (2005) concluded, “optimized assessment will improve early identification of children at risk for reading problems...”(p.258). Phillips et al. (2008) drew similar conclusions recommending that teachers assessed children so they could make homogenous instructional groupings that were flexible enough that one could regroup children. Runge and Watkins (2006) study of 161 kindergarten students found that PA assessment should concentrate on the skills of rhyme and phonological awareness. They recommended the Dynamic Indicators of Basic

Early Literacy Skills (DiBELS) or similar instruments (Runge and Watkins, 2006). The use of assessment tools helped teachers understand which PA skills students had acquired and which they still needed to learn. This use of formative assessment helped the teacher create differentiated groups. Al Otaiba, Connor, Folsom, Greulich, Meadows and Li (2011) found that using assessment data to establish homogenous differentiated instruction groups aided in optimal instruction for all students. Maria Montessori believed that an educator's job was to "follow the child," therefore using assessment to establish groups for differentiated learning seemed a good pedagogical fit for a Montessori environment.

Once groups had been established, studies indicated that teachers needed to plan carefully ordered and scaffolded explicit instruction. Schuele and Boudreau (2008) researched and outlined how to implement and word instruction appropriately for Speech and Language Pathologists. They found that the best instructional design included three critical points: teach, plan strategic instruction, and scaffold success (Schuele and Boudreau, 2008). Schuele and Bourdeau (2008) also established that intervention programs, which increased PA skills, extended over 7 – 12 weeks with three to five 15-30 minute sessions each week. Phillips et al. (2008), also found explicit instruction to be more beneficial to at-risk kindergarten students than implicit or incidental instruction. They also found that teachers needed to limit tasks to one or two skills, and to provide precise verbal modeling and feedback (Phillips et al., 2008). McGee and Ukrainetz (2009) provided preschool and kindergarten teachers with explicit wording and scaffolding for successful instruction. This study found when teachers' used scaffolded

PA instruction kindergarten students were able to acquire a more sophisticated level of phonemic awareness (McGee and Ukrainetz, 2009).

In conclusion, the research showed that kindergarten students needed to develop phonological awareness (PA) in order to be able to read. The research also indicated that best practice was for teachers to directly and explicitly scaffold instruction of PA skills for kindergarten students and that using criteria based data-assessment to form small homogenous groups maximized the benefit of the scaffolded instruction. The research also showed that teachers needed to know the progression of PA skills so they could give students an appropriate sequence of instruction within these small groups. Connecting all these points established that kindergarten students should benefit from assessment formed, small group, and carefully scaffolded PA instruction.

### **Description of the Research Process**

Before data collection for this action research project began, the school administrator granted permission and an assent form letter was sent home to the students' families. Parents were given an opportunity to opt-out of the research and not have their child's data used in the study. None of the families selected to opt-out. Families also received an update letter on February 4, 2016, explaining the research's progress. After the intervention was completed, child's individual results were made available to their families. Data collection started during the first week of school after the winter break, January 4-8, 2016. All students were assessed using the *Words Their Way* Phonological Awareness Emergent Assessments (see Appendix B for a copy of the *Words Their Way* assessment). Pre-test and post-test data for one male and one female student was not collected or used due to their extended absence at the beginning of the study.

The *Words Their Way* Phonological Awareness Emergent Assessments (Bear et al., 2006, p. 14 – 20) measured upper and lower-case letter recognition and three phonological skills: rhyming, beginning sounds match (alliteration) and beginning letter and sounds match. Students who identified 10-12 letters of the alphabet on the letter recognition test were given an additional; *Words Their Way* Spelling Inventory test (Bear et al., 2006, p. 22). I adapted this spelling inventory for use with the Moveable Alphabet and objects from the *Pink Box* material so it would better reflect the goal of my research (see Appendix C for a copy of this assessment).

In addition to testing, a tally sheet was used to track the number of students selecting Language work during work time (see Appendix D for this tally sheet). My assumption was that as students gained more phonological knowledge through the small group lessons, they would be more willing to independently select materials from the Language Shelves to work with during work time. The tally sheet was made to test this hypothesis and was completed pre-intervention, January 4-8, 2016, and post-intervention, February 15-18, 2016. I made a tally mark for each student who was working independently on Language Materials. Tally marks were made at 15-minute intervals during each work period.

It took me a full week to administer all the pre-tests. Testing took place in the classroom during work time or my teacher preparation time. Ideally, the best testing scenario would have been to bring each child into an uninterrupted quiet location for the duration of the testing. However, as most of the tests were conducted during work time, the children who were being tested had some unavoidable interruptions from other students as well as a noisy testing environment. Both of these situations were not optimal

but do reflect the reality of the conditions in which I regularly assess my students. Rather than give the full battery of tests to pupils all in one day, the students were given one to two sub-tests each day to maximize their attention span. As directed by *Words Their Way*, the rhyming, and the beginning sounds (alliteration) subtests were given on different days to avoid student confusion (Bear et al., 2006). I also used the wording provided by the administration instructions for each test to standardize the tests for all pupils (Bear et al., 2006). For instructional purposes, the data collected from these pre-tests supported me in grouping the students according to their phonological needs.

Pre-test data indicated that six students did not need intervention, as they completed the adapted *Words Their Way* Kindergarten Spelling Inventory test (Bear et al., 2006) with 80% accuracy. The other 13 students were divided into four homogeneous intervention groups according to their phonological understanding. Lesson plans for groups One and Two and groups Three and Four were similar as they had equivalent phonological needs. Each intervention group contained three to four children and received three 20-minute phonological lessons for four-weeks for a total of 12 lessons. The total instruction time for each small group in this study was four hours. All the lessons were taught in the classroom on a floor rug during regularly scheduled work time. There were three sources from which I gathered materials to use in the lessons.

The first resources I included were the Montessori alphabet object boxes and Sandpaper Letters. The second resources were the added initial letter sound sort picture cards from the research-based program *Words Their Way – Letter and pictures sorts for emergent spellers* (Bear et al., 2006). The third resources I incorporated were the sounds, letters and words materials from the *Early Reading Mastery Program* (Klein, 2015). A



trained Montessori teacher, who works as an early reading instruction specialist, developed this program. His hands-on materials were not research-based, but do have a “well-defined sequence of skills and practice activities that allow a child to move successfully toward early reading mastery” (Klein, 2015).

All the material from the *Early Reading Mastery Program* (Klein, 2015) were sequenced in the order identified by research as developmentally appropriate and added to the classroom’s Language shelves (Phillips, et al, 2008; Pufpaff, 2009). This was done to allow the children independent access to the Klein (2015) and Montessori materials during class work periods. Phillips, Clancy-Menchetti, and Lonigan (2008) state that when “picture cards and props from the instructional groups are made available to children for independent play...[they] support the children’s mastery of these new skills” (p.9). The intervention started on January 11, 2016, and needed to be extended by a week due to teacher and student illness to ensure that all pupils received the required number of lessons. Intervention was completed on February 12, 2016.

During the intervention, I daily outlined each group’s lesson on an observational data sheet and used this form to record my lesson observations, student responses, successes, and challenges (see Appendix E for this form). These data sheets were used to help me assess and inform my instruction to ensure I was achieving the intended goal of the research questions. They also aided me in seeing what phonological skills the students had learned and which ones they needed to continue to practice. While the day and time of lesson delivery varied, each small group received three 20-minute lessons a week (see Appendix F for schedule).

Each small group’s instruction was designed based on information obtained from

the pre-test data. I used the suggestions made by Schuele and Boudreau (2008) for the wording of the explicit directions given during each lesson. Instruction focused on two phonological skills, which were selected using the pre-test data. Each lesson followed a carefully planned sequence, explicit instructional delivery, teacher modeling and feedback, and game activities for the students as recommended by Phillips et al. (2008). Groups met at different times but their lessons plans had a similar sequence and were differentiated according to variations in phonological abilities.

Letters used in the study were selected for two reasons. Firstly, the letter used in the small intervention groups matched the letter chosen for instruction to the greater class. One letter was introduced to the class each week. Therefore, a condition of instruction for the smaller group was a class group lesson on the letter of the week before the small group lesson. The large group lesson included reading a poem and an introduction to the objects, which were contained in the letter's object box. Both these activities drew attention to the sound and name of the letter of the week. Secondly, pre-test data indicated that the intervention students did not know the letters, which were going to be introduced each week, by name or sound.

Small groups One and Two began their session using the Klein (2015) *Blending Sound Game Set 1*. Following the general delivery guidelines by Schuele and Boudreau (2008), I used the instructions that were included in the game. For this game, I displayed two to four pictures (dog, cat, bug, web) and said to one child, "Show me the /b/.../u/.../g/" using the letter sounds not their names. The child would then point to the picture of the bug and say, "bug." Then the child would take the card, and I would replace it with a new card. The next child would have a turn until each student had four

to five turns each. Then they worked as a group to determine the initial sound of an object or picture (e.g., if the child was given a picture of a cat, they will state that the first sound was /k/). Before the students began working with this material, I would explicitly demonstrate the activity by modeling my thinking. When I picked up a card, I would say:

“ We are going to listen carefully to the first sound. Here is a bat.

/B/ bat. I hear a /b/ sound at the beginning of bat.

You try /b/ bat (wait for student reply).

/B/ ball. I hear a /b/ sound at the beginning of ball.

Bat and ball both start with a /b/ sound so I will put the bat under the ball.”

The items used were from the object boxes, which contained several items beginning with the same initial sound. The pictures were from the Klein (2015) *Letter and Picture Sorting* materials. When I felt the children could demonstrate the skill of isolating the beginning sound, the letter symbol was introduced. Here I presented the letter’s name and sound using Klein (2015) *Stand-up Alphabet Cards* and the Montessori Sandpaper Letters. Each letter was matched to the group of pictures and objects the students sorted. Then I placed the Sandpaper Letter beside each image explicitly emphasizing the beginning sound. Finally, students were given individual initial sound sorting cards from *Word Their Way* (Bear et al., 2006) to work with independently. When each student completed their sort, I would review the activity with them. Here again, I explicitly emphasized the beginning sound of each picture’s name. Two letters’ sounds were introduced the first week; an additional letter was added each week to a total of 5 new letter sounds in the last week of intervention.

Small groups Three and Four also began their session using the Klein (2015)

*Blending Sound Game Set 1* as explained above. These groups also worked on alliteration and individually sorted pictures taken from *Words Their Way* (Bear et al., 2006) similar to groups One and Two. The difference in instruction came when they completed their individual work. As these two groups already knew the letter names and sounds, I did not need to teach this concept. However they did need to understand how to isolate beginning sounds. Once they understood how to complete this skill they were given *Alphabet Pocket* work (Klein, 2015). With this material, students practiced identifying and matching a picture to the appropriate first letter sound. I would review the child's work when they finished, again stressing the initial sound of each picture and the matching letter. I would also ask them to explain why they put a picture next to a letter. This questioning helped to reinforce the students' understanding of the initial letter sound.

As the weeks progressed adjustments were made to instructions, as the students learned the different phonological skills. For example, when small groups could successfully demonstrate blending sounds, the group moved to segmenting sounds. This activity used *The Blending Game* (Klein, 2015) cards in reverse. Instead of the teacher segmenting the sounds of a picture, the child was responsible for segmenting the sound. When the child was given a picture of a cat and asked what sounds are in cat, the child would say "k...a....t...." Each picture card had three circles below it for the student to place a counter in each as they said the sounds. This activity was introduced as a "My turn, Together, Your turn" activity as described in *Word Boxes Improve Phonemic Awareness, Letter-Sound Correspondences, and Spelling Skills of At-Risk Kindergarteners* (Keesy, et al., 2015, p. 36). First, I would demonstrate how to complete

the skill of segmenting. Next, the student and I completed the skill together and, finally, the student would independently demonstrate the skill. As the weeks progressed, I gradually removed my support as the students demonstrated their ability to complete this task independently.

Another adjustment made was to move two of the groups to the next phonological awareness skill of identifying the ending sound and letter of various pictures. This change was made because the students were able to determine initial sounds consistently and I decided they were ready for a new skill. Materials used were the *Ending Sounds and Letters* (Klein, 2015) and a variety of images from other Klein (2105) picture material that could be sorted by ending letter sounds. Groups were introduced to the skill of listening for the ending sound by the use of explicit verbal directions and modeling of my thinking similar to the instructions used for identifying the beginning sounds. Then students worked collaboratively to practice the concept and then work independently. Throughout all the lessons taught to each group, if a student made an error, I would use clear explicit language to draw attention to the mistake and then give verbal or visual cues to aid the child in correcting the error.

Once all students received a total of 12 intervention lessons, the same set of pre-intervention tests were administered to them. This post-testing was completed during the week of February 15-19, 2016. Once again, the testing distribution was spread over several days, with the rhyme task administered separately from the other subtests. Students who identified 10-12 letters of the alphabet, on the letter recognition test, were once more given the additional adapted *Words Their Way* Kindergarten Spelling Inventory test (Bear et al., 2006). All post-testing took place under similar conditions to

the pre-tests.

### **Analysis of Data**

The purpose of this action research was to determine if giving explicit phonological awareness (PA) instruction, using materials from *Early Reading Mastery* (Klein, 2015) and *Words Their Way* (Bear et al., 2006) would increase students' ability to segment three letter short vowel words to 80% accuracy. The Montessori material used to determine if students met the goal of 80% was the first box within the *Pink Box* series, which had objects and was used with the Moveable Alphabet. The benchmark of 80% was established because the *Words Their Way* Kindergarten Spelling Inventory (KSI) test had a benchmark score of 12 out of 15 or 80% (Bear et al., 2006, p 12). The KSI established if a child could "...segment phonemes (i.e., break words into sounds) and choose phonetically acceptable letters to represent the beginning, middle or ending sounds of simple short vowel word" (Bear et al., 2006, p.11). As this KSI testing task identified the prerequisite skills needed to work on the *Pink Boxes*, I adapted *Words Their Way* Kindergarten Spelling Inventory (now to be referred to as aKSI for "adapted KSI") test so it would emulate the process needed to start independently working on the *Pink Boxes*. The adapted test would create a control against which I could establish whether a student was ready to start working on the *Pink Box* series. I assumed that a child scoring the benchmark of 80% on the adapted *Words Their Way* Kindergarten Spelling Inventory (aKSI) would be able to proceed to work with the *Pink Box* series unassisted.

The study also included the data collection from the *Words Their Way* (Bear et al., 2006) assessments. This assessment included two PA skills subtests of Rhyme Identification and Beginning Sounds: Alliteration; the phonic skill subtest of Beginning

Letter-Sound Identification and the Alphabet Recognition Uppercase and Lowercase subtest. A tally sheet, on which I recorded the number of language materials selected independently during a work periods, was used pre- and post-intervention. Finally, notes were collected on the small group explicit instruction in a researcher's log.

The control for testing students was *Words Their Way* (Bear et al., 2006) assessments and the aKSI. These tests were given pre-intervention, followed by intervention, and then a re-evaluation of same tests post-intervention. The assessment data was looked at in four different ways.

First, I examined all intervention students' pre- and post-test results from the two PA skills subtests of Rhyme Identification and Beginning Sounds: Alliteration. When examining these scores, both the PA results of Alliteration and Rhyme Identification, increased between the pre- and post-tests (see Table 1). These increased in subtest scores suggested that the intervention was successful in improving the students' phonological awareness skills. Then I examined all the scores from the aKSI for a second time. I found that seven out of the 13 students, or 54% of the study group, were able to score 80% or higher on this test after the intervention. Three students scored between 45-60%, two students scored 33%, and one student did not know enough letters to be tested. To discover whether the phonological awareness skills were the key to the students' ability to successfully scoring 80%, I examined the scores of all the subtests within this group of seven students.

Table 1

*Mean Pre and Post-Test Results*

Word Their Way aKSI and Subtests	Mean Pre-test Results	Mean Post-test Result	Percentage Increase
Alliteration	64%	96%	+32%
Rhyme Identification	61%	89%	+28%

*Note: Scores represent the mean average from all intervention students.*

During this second evaluation of the data, I compared the pre and post PA subtest scores of the seven students to see if there was an increase in the PA skills after intervention (see Table 2). Here again, the PA subtests of Alliteration and Rhyme Identification scores increased after intervention. Correspondingly, the students were able to reach the aKSI benchmark of 80%. The increase in these two subtest scores indicated that the explicit teaching of the two phonological skills was a prerequisite to students being able to work on the *Pink Boxes*. Next I studied the data a third time to review the pre and post-test aKSI scores of the students who were unable to reach the benchmark of 80% but had received intervention.

Table 2

*Pre and Post-Test Mean Percentage Results*

Word Their Way aKSI and Subtests	Mean Pre-test	Mean Post-test	Percentage Increase
Adapted Kindergarten Spelling Inventor	57%	93%	+36 %
Alliteration	73%	100%	+27%
Rhyme Identification	62%	84%	+22%

*Note: Scores are from the seven students who scored 80% or higher on the aKSI*

When looking at the scores of the students who scored below the 80% benchmark on the aKSI, I noted that their scores were considerably under the 80% value. However, these students had increased their PA skills due to intervention, as indicated by the



alliteration and rhyming scores. Their inability to score 80%, even though their PA skills had increased, made me wonder what skills these students needed to achieve an aKSI score of 80% and required me to examine the data again.

Table 3

*Pre and Post-Test Mean Percentage*

Word Their Way aKSI and Subtests	Mean Pre-test Results	Mean Post-test Result	Percentage Increase
Adapted Kindergarten Spelling Inventory	17%	45%	+ 28%
Alliteration	60%	92%	+32%
Rhyme Identification	60%	82%	+22%

*Note: Scores are from the five students who scored under 80% on the aKSI.*

This fourth review required me to examine all post-test scores from all the students who received intervention and completed a post-test aKSI. I analyzed all the post-test subtest score of the students who received the aKSI benchmark of 80% against those who did not using the *Words Their Way* (Bear et al., 2006) post-tests. These tests included the two PA skills of Rhyme Identification and Beginning Sounds: Alliteration, a subtest for the phonic skill of Beginning Letter-Sound Identification and Alphabet Recognition Uppercase and Lowercase identified test. Each of these subtests represented an assessment of a separate language skill. I looked at these different post-test scores to see if I could determine which skill or skills the students who received less than 80% needed before they could achieve an 80% on the aKSI (see Table 4). The subtest scores seemed to indicate that these students needed to increase their ability in four areas: the PA skill of alliteration, the phonic skill of beginning letter-sound identification and recognizing the upper and lowercase alphabet letters. The intervention strategy for alliteration was positive, but results indicate that additional intervention strategies for the

beginning letter-sound identification and upper and lowercase alphabet letters names was needed.

Table 4

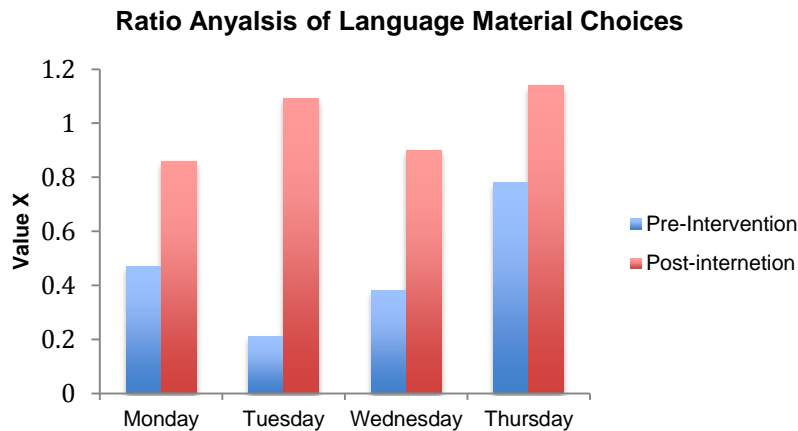
*Post-Test Mean Percentage*

Word Their Way aKSI and Subtests	Mean Post-test Results Below 80%	Mean Post-test Result 80%	Percentage Difference
Adapted Kindergarten Spelling Inventory	45%	93%	48%
Beginning Letter- Sound Identification	74%	100%	26%
Alliteration	92%	100%	8%
Rhyme Identification	82%	84%	2%
AR- Lowercase	66%	96%	30%
AR- Capitals	58%	98%	40%

*Note: Scores are from all intervention students.*

After looking at the test data, I reviewed the information contained on two separate tally collection sheets. The tallies I recorded represented the number of language materials selected independently by students during a work period pre and post intervention. I assumed there would be an increase in language material used after the intervention. Language choices were documented during work-time at 15-minute intervals. I compared the data gathered pre and post intervention. When I juxtaposed pre-intervention work periods with post-intervention work periods only corresponding times were used. Therefore, some data was discarded, as it did not have an equivalent time slot for comparison. For example, the data collected on Friday during the pre-intervention was not utilized because no post-intervention data was gathered due to a teacher in-service day. As there were several students absent during the pre-intervention I needed to create a comparative value, which I will refer to as Value X. This value was calculated to

negate the difference in attendance between pre and post intervention (see Figure 1). To arrive at Value X, I totaled the number of language materials independently selected during the total allocated work period for the day and subsequent days. Then I divided the total number of choices by the number of students per day. I arrived at a numeric value of Value X (see Table A1 for raw data). I repeated this calculation for the post data to create a comparison value. The graph (see Figure 1) shows that Value X (language choice/number of students) increased after the intervention.



*Figure 1.* Value X = Number of choices divided by students present pre and post-intervention

The last piece of data to be analyzed was the researcher's log. I collected notes on the explicit instructions given to the students, the materials used, and the students' progress during the four weeks of intervention. After I reflected on the notes, five findings emerged.

First, through the research of Schuele and Boudreau (2008), I learned how to properly word and sequence explicit instructions, so students were able to learn the PA skills. Using the clear instructions of Schuele and Boudreau (2008), children could hear my feedback on their growing understanding of the PA tasks, as the instructional delivery allowed students insight into how they should be processing the materials. For example,

during the teaching of alliteration, I verbally demonstrated how to listen carefully to the first sound heard for the picture card I had in my hand. Then I looked at the images on the carpet. I said each picture's name and orally compared it to the one I had, to see if it had the same beginning sound by saying each picture cards name out loud. When I found a picture card that matched, I placed my card underneath and said the two pictures names aloud emphasizing the beginning sound to show that they matched. Modeling my thinking helped the children understand the task and after one lesson they began using the demonstrated method to isolate the beginning sound of their picture cards. I observed as well during the second week of instruction, students saying, “/y/, “yoga” as we headed off to our yoga class indicating a transfer of instruction to practice during non-work student activities. During small group activities, when the students worked together on alliteration, they would help each other out. Students did this by isolating the first letter sound of a picture for student who was unsure. The helper student then pointed to the card on the carpet that started the same way and told them the first sound and the name of the picture. These events demonstrated that the students were learning the skill of alliteration by repeating the language I modeled.

The second finding was realizing not all the PA skills could be taught during the small group sessions. From the research, I was aware that the teaching the PA skills of alliteration and rhyming at the same time would be confusing to students as one skill required them to listen to the beginning sound and the other required students to listen to the end. Therefore, I decided to complete all rhyming lessons as a large class, separate from the small group work. Here again, I used explicit language culled from Schuele and Boudreau (2008), to demonstrate to the students that they were listening for the ending

rhyme of the picture cards they received. The re-enforcement of the instruction was in the form of a game, which kept the student's interest. For the game, I used rhyming card interlocking puzzle pieces, where two rhyming word pieces fit together. The objective was for the students to find their rhyming partner by listening to each other's word, hearing if they rhymed and then confirming that they rhymed by fitting the pieces together.

Over the four weeks of intervention, the students transitioned from not taking the time to figure-out their rhyme sound and testing anyone's piece to see if it matched to thinking carefully about their picture and the sound of the word and its rhyme, then finding someone that had a picture that ended the same way and therefore rhymed. For example, a student would approach a friend, look at their card and say, "Hose and cat, they don't rhyme," and move to find someone else. Although I moved this instruction to a large group situation, students' understanding of this skill increased (see Table 1).

A third finding was the importance of the PA skills of blending and segmenting. Blending is the ability to hear the sounds /b/, /a/, /t/, and know that these sounds create the word "bat". Segmenting is the reverse, looking at a representation of an object or picture. An example would be a picture of a cat and a child being able to tell you the sounds in the word cat are, /k/, /a/, /t/. All small-group intervention lessons began with the playing of the *Blending Game* (Klein, 2015). The students enjoyed the game and were actively engaged once they understood, through instruction and teacher examples, how to play. During the game, they would look carefully at my mouth and listen to the sounds I was saying before guessing what picture the sounds represented. When they

guessed the picture name correctly, they appeared to feel successful which they indicated often with a smile.

After two weeks of instruction, I judged most of the small groups competent in their blending abilities and ready to move to segmenting. During the first week of segmenting instruction, I started to notice that some students were beginning to apply this skill to different activities. One child started segmenting their friends' names for others to guess. Also, during a work period a student was independently drawing a cat in their drawing book. Then this student segmented the sounds /k/-/a/-/t/ and wrote down the word "cat". Both these incidents illustrate an understanding, by students, of the segmenting process through learning to blend sounds first.

Another event that emphasized the importance of the segmenting skill came to my awareness in reviewing the pre and post-test aKSI scores of the seven children who reached a post-test score of 80%. Of these seven children, pre-test scores indicated that four students could only hear the beginning sound and the other three could hear the beginning and ending sounds of the words they needed to write with the Moveable Alphabet. However, during the post-test, all seven children were able to segment and hear each separate letter sound. The ability to segment the sounds enabled them to select the appropriate corresponding letter needed to spell the word correctly. This result indicates that the students had learned and could apply the skill of segmenting to writing a word with the Moveable Alphabet.

The fourth insight was the importance of giving students the opportunity to reinforce the PA skills they were learning in their small group through independent practice during a work period. This support was established by placing the small group

PA skill instructional materials sequentially on the language shelf. As with any Montessori material, the order of difficulty is represented by its placement on the shelf. The easiest work is located on the top left moving to the hardest on the bottom right. Having access to these materials during a work period gave the children the opportunity to independently review the PA skills they were learning in the small groups. It also gave them the opportunity to progress onto to the next developmentally appropriate skill once they worked through their group's material. Student could return to the language shelf, get the next material in the progression as indicated by the placement on the shelf and ask for a lesson on this new material before working with it.

An example of the influence of this sequencing was featured during the second week of instruction. One student was interested in and independently worked daily on the group's language materials. As the language materials had been sequenced, the student was able to ask for and was given the next lessons. By the time this student's group met again, this particular student had moved from isolating the beginning sound to building three letter words with the *3 Letter Word Pockets* (Klein, 2015). The other students were so intrigued with what this student was doing that they started to work every day on the beginning sound activities so they too could move to building three letter words.

Finally, through observation, I suggest redundancy should be a component within the materials a teacher selects for phonological awareness instruction. *The Early Reading Mastery* (Klein, 2015) materials use the same pictures throughout the series. This redundancy likely makes it easier for children to move from the PA skills (awareness of oral sounds) to the phonic skills of working with the letters that represent the sounds.

One example from practice: I overheard one child remark, “I’m getting better at this,” when they had moved from alliteration to isolating the beginning letter sound. I feel that the redundancy in the materials may have helped this student gain confidence in learning the new skill of identifying the beginning letter sound because the student already knew the picture name and the first sound that it made from their previous lesson. At the next stage they were able to apply their knowledge of the picture to establish letter-sound correspondence.

My primary research question for this action research was: Would giving small group PA skill lessons, using additional material from *Early Reading Mastery* (Klein, 2015) and *Words Their Way* (Bear, Johnston, & Invernizzi, 2006), increase kindergarten students ability to segment and build three letter consonant-vowel-consonant (CVC) words, known as the *Pink Boxes*, to 80% accuracy using the Moveable Alphabet? Based on the data collected, there was a measureable skill increase among the number of intervention group students who were able to complete the aKSI with 80% accuracy during post-testing and would, therefore, be able to begin working with the Montessori *Pink Boxes*. The data would also indicate that the increase was due to the explicit teaching of the PA skills of alliteration, rhyme (see Table 2) and the skills of blending and segmenting during small group instruction. However, the increase in the PA skills only tells part of the story as demonstrated by the students who improved in the above mention PA skills but were unable to score 80% or complete the aKSI. These six students indicate that although the PA skills are critical, the phonic skill of beginning letter-sound identification and recognizing the upper and lowercase alphabet letters also



need to be mastered before they can achieve the 80% target score on the aKSI and, therefore, begin the *Pink Box* series.

### **Action Plan**

This action research demonstrated the importance of using explicit instructions during small homogenous group lessons to expand students' phonological awareness (PA) knowledge and ultimately support their ability to segment three-letter short vowel words. To achieve this small group instructional model, I read academic research to gain an understanding of what PA skills were and the sequence in which these competencies needed to be taught. I used this knowledge to organize a research-based developmentally appropriate PA sequence on my classroom language shelves by revisiting my American Montessori Society (AMS) Language Manuals and adding supplementary materials from *Early Reading Mastery* (Klein, 2015) and *Words Their Way* (Bear et al., 2006) that paralleled the Montessori language materials. I made adjustments to where I taught different PA skills after this project was completed. I also created explicit PA skill instruction scripts by culling wording from Pufpaff (2009), Keeseey, et al., (2015), and Schuele and Boudreau (2008). Finally, I learned how to use information from the *Words Their Way* (Bear et al., 2006) assessment tools to establish small homogenous groups. This project has taught me that using research to adjust one's teaching practice can have a positive impact on student achievement.

By learning the progression of the PA skills and revisiting my AMS Language Manual, I have been able to add lessons and materials based on my Montessori training to increase my students' ability to acquire PA skills. These additions have ensured that I can successfully teach rhyme, alliteration (initial and ending sound sorts), blending and

segmenting to my students. The sequence of supplementary materials and lessons parallel the Montessori ones and give my students the needed repetition required to learn the PA skills. Montessori (1967) understood, "...repetition is the secret to perfection" (p.9). Having access to traditional and supplementary materials and lessons has strengthened my ability to instruct PA skills, increased the number of items children can select to practice these skills, and thus improved the students' ability to learn these essential language skills.

Through the selection of the *Early Reading Mastery* (Klein, 2015) materials I have witnessed the importance of intentional redundancy in learning various PA skills. I was unaware of the impact that this remarkable repetition had on a child's ability to establish new skills before starting this project. Phillips et al. (2008) state, "Planned redundancy... helps preschool-age [or in my case kindergarten] children gain mastery of newly acquired skills" (p. 9). Within the *Early Reading Mastery* (Klein, 2015) program planned redundancy is established through the use of the same pictures (words) throughout the materials. Although there is a framework to teach the acquisition of PA skills with the Montessori language sequence, I would encourage teachers to review their materials to ensure they have the added element of redundancy.

Through my understanding of the progression of PA skills, I have adjusted my practice in three ways. First, I have found that students need to demonstrate an understanding of beginning sound alliteration before being introduced to the printed letter symbol. Anthony and Francis (2005) state, "...phonological awareness training, especially when combined with instruction in letter knowledge, leads to longstanding improvements in phoneme awareness, reading and spelling" (p.258). Before this research,

I taught the Sandpaper Letters, a Montessori material that teaches letter sounds, in isolation without a picture or object for the children to which the children can match the sound. Now I include objects or pictures that begin with the sound of the Sandpaper Letter that I want the children to learn. Changing my instruction by adding images or objects to the Sandpaper Letter helps students learn the letter-sound by using their “...phonemic awareness to understand, identify, learn and remember letter-sounds” (Klein, 2016, p.1). In my estimation, this practice increases the students’ ability to attach the correct sound to a letter. Further study is needed to determine whether this change in methodology is more efficient than teaching letter sound knowledge using the Sandpaper Letters in isolation.

The second adjustment was to re-evaluate where I included the Montessori *I Spy* game. Previously, I was taught to use the *I Spy* game to teach beginning, middle and ending sound isolation. My new methodology is to teach beginning and ending sound isolation using the Montessori object sound boxes and the alphabet clusters from *Early Reading Mastery* (Klein, 2015) before the *I Spy* game. I made this modification because I feel the *I Spy* is an excellent way to reinforce the understanding of these PA skills. Using the *I Spy* game in this way, helps me to review or assess student understanding of the PA skills of beginning and end sound isolation.

Finally, the research process allowed me to discover the importance of teaching students the skills of blending and segmenting orally before they segment words using printed letters. Schuele and Boudreau (2008) highlighted segmenting as “critical to early literacy success” (p.6). During my small group instruction, I observed that students benefited from listening to me orally segment the sounds of a three-letter word to create

that word by blending it themselves before they learned to segment independently. Teaching the skill of orally blending and segmenting has established a progressive environment for children to understand how to segment a word into its single letter sounds. After children can associate a printed letter with its sound and orally segment a word, they can practice these skills using the *3 Letter Word Pockets* and the *3 Letter Word Puzzles* (Klein, 2015) prior to using the *Pink Box* series. I will continue to incorporate these materials and lessons into my language sequence as they have created a scaffolded path on which my students learn the PA skills needed to enter the *Pink Box* series successfully.

Small group instruction is a cornerstone of a Montessori education as it provides an avenue to ensure that all students receive lessons tailored to their individual needs. Using the *Words Their Way* Phonological Awareness Emergent Assessments helped me to establish small homogenous groups and target the PA skills my students needed to learn. With the assessment information, I was able to customize lessons with interesting learning materials, engage students during instruction, and encourage them to repeat the lessons for independent practice on their own. I will continue to use these assessment tools to verify that students have established a solid understanding of the PA concepts and to create groups of students who need to learn similar PA skills.

Although I feel this is just the beginning of my ability to fully appreciate the importance of developing PA skills at the kindergarten level, this research has enabled me to fill the gaps and adjust my instruction. Using my research, I was able to incorporate lessons and materials in a developmentally sequential manner to increase my students' PA skills. The use of explicit instruction scripts selected from Pufpaff (2009),

Keeseey, et al., (2015), and Schuele and Boudreau (2008) provided me with a tool to isolate the difficulty within the PA skill through their scripted lessons dialogue. Using these scripts ensured my student learned these skills during lessons. Including instruction in large, whole class settings, as well as in small homogenous groups for rhyme, alliteration, blending, segmenting, isolating beginning letter sounds, and letter-sound association has benefited all the students in my Montessori classroom. The addition of supplementary lessons and materials from *Early Reading Mastery* (Klein, 2015) and *Words Their Way* (Bear et al., 2006) which complement the traditional Montessori language materials has increased student ability to work independently on PA skills, student engagement with all the language activities and introduced helpful redundancy for students to acquire PA skills. Thus, I feel I have solidified my instruction and can give my students the foundational skills necessary to start the *Pink Box* work and more confidently begin their journey towards becoming a good reader.

As I continue to use this framework of instruction, I am hopeful that it will reduce the number of students within my class who have future reading problems. Shapiro and Solity (2008) suggested that, "...focused phonological and phonics training can have a significant impact on the reading development of children with poor phonological skills, and thus reduce the proportion of children experiencing reading difficulties" (p. 617). Therefore, I feel the inclusion of this structure phonological awareness and phonic teaching model should positively impact all my students' reading abilities.

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**Appendix A**

Here is an example of my *Pink Box* work with objects, corresponding cards and Moveable Alphabet.



**Appendix B**

*Words Their Way* Phonological Awareness Emergent Assessments (Bear, Johnston, & Invernizzi, 2006).

**Emergent Assessment Summary Sheet**

Name \_\_\_\_\_ Date \_\_\_\_\_ Teacher \_\_\_\_\_

**Alphabet Tracking Observations**

**Alphabet Recognition: Capitals**

M P S O X N A F G K L T U C Y

B I V D J E Q R Z H W      Number Correct \_\_\_\_

**Alphabet Recognition: Lowercase**

m p s o x n a f g k l t u c y

b i v d j e q r z h w      Number Correct \_\_\_\_

**Rhyme Identification** \_\_\_\_/9

**Beginning Sounds: Alliteration** \_\_\_\_/8

**Beginning Letter-Sounds Identification** \_\_\_\_/8 \_\_\_\_/8 Total \_\_\_\_/16

Kindergarten Spelling Inventory	Number of Beginning Phonemes	Number of Middle Phonemes	Number of Ending Phonemes	Total Phonetically Acceptable
	/5	/5	/5	/15

**Concept of Word:**

Pointing Score Average: \_\_\_\_\_

Word Identification in Context: \_\_\_\_\_ of \_\_\_\_\_

Word List Identification: \_\_\_\_\_ of \_\_\_\_\_

Observations:

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Alphabet Recognition: Uppercase

M P S O X

N A F G K

L T U C Y

B I V D J

E Q R Z H

W

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Alphabet Recognition: Lowercase

m p s o x

n a f g k

l t u c y

b i v d j

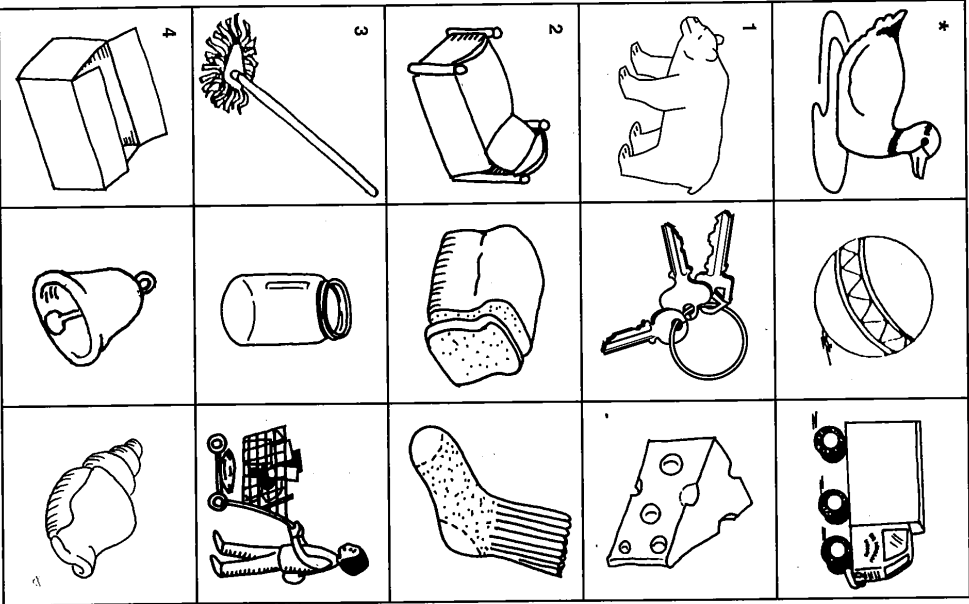
e q r z h

w

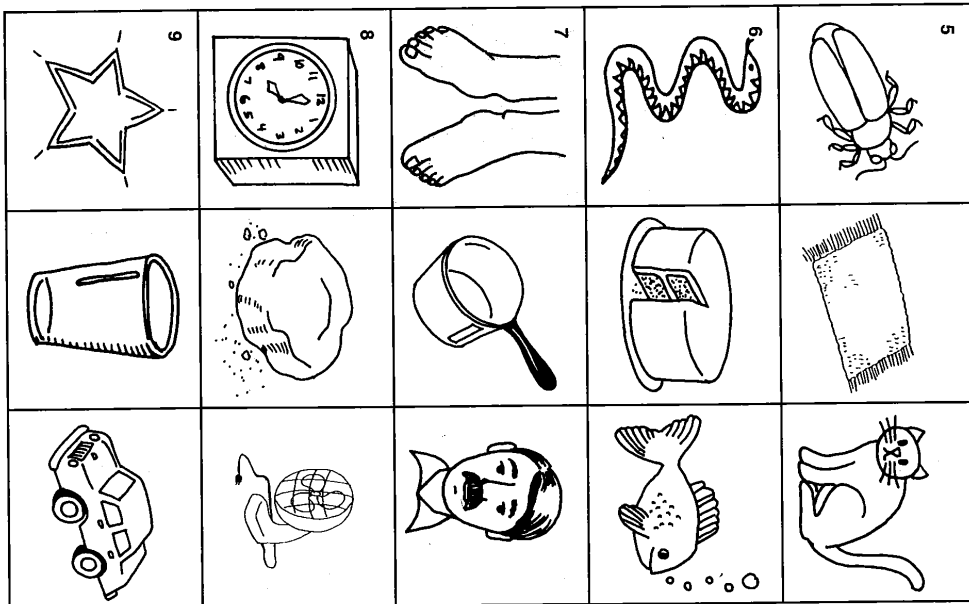
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Name \_\_\_\_\_

Date \_\_\_\_\_



\*Practice

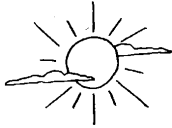





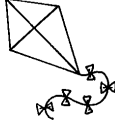


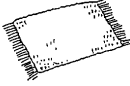




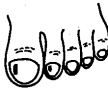





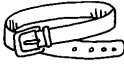





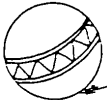



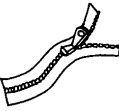







Assessment for Rhyme  
 Instructions: Circle the two pictures that rhyme.

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### Beginning Sounds

**Instructions:** "Put your finger on the sun. Say the word *sun*. What picture sounds like *sun* at the beginning; *book, soap, jet*. Circle the picture that sounds like the first picture." Name the pictures for students to be sure they use the right labels and guide them in the completion of this assessment.

*				
1				
2				
3				
4				
5				
6				
7				
8				




























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Beginning Consonant Sounds and Letters

Name \_\_\_\_\_

Date \_\_\_\_\_

# Correct \_\_\_\_\_

0	Mm			
1	Pp			
2	Ss			
3	Nn			
4	Ff			
5	Gg			
6	Kk			
7	Ll			
8	Ww			

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**Appendix C**

Adapted from the instructions in *Words Their Way* (Bear, Johnston & Invernizzi, 2006, p. 11).

Teacher “We are going to spell some words using the Moveable Alphabet. I am going to go first. This is a mat. (show object) I am going to begin by saying the word slowly. MMM-AAA-TTT. Now I’m going to think about each sound I hear. Listen MMM. I hear an /m/ sound so I will get the letter /m/ from the Moveable Alphabet and put it next to the mat. (get the letter /m/ from the Moveable Alphabet and place it next to the mat) After the /m/ sound, I hear an /ah/ so I will get the letter /a/ from the Moveable Alphabet. (get the letter /a/ from the Moveable Alphabet and place it next to the /m/) MMM-AAA-TTT. At the end of the word, I hear a /t/ sound, so I will get the letter /t/ from the moveable alphabet. (get the letter /a/ from the Moveable Alphabet and place it next to the /m/)

Now, I want you to spell some words. Get each letter sound you hear from the moveable alphabet. First what sounds do you hear in map? (point to the map) “ Then tell the student the next words by pointing to the object and saying the word. (kid, log, jet, gum) Remember to say the word and point to the object before the student tries to spell the word with the Moveable Alphabet.

Student Name: \_\_\_\_\_

Circle one: Pre-test OR Post-test                      Date: \_\_\_\_\_

Picture Card/Object	Beginning	Middle	Ending
1. map	m	A	P
		E	B
2. kid	k	I	D
	c or g	E	T
3. log	l	O	G
		A	K
4. jet	j	E	T
	g	A	D
5. gum	g	U	M
	k or c	O	

Spelling Feature Analysis	Number of Beginning Phonemes	Number of Middle Phonemes	Number of Ending Phonemes	Total Phonetically Acceptable
	/5	/5	/5	/15

**BENCHMARKS**

A score of 13 out of 15 is the benchmark for the end of kindergarten.

Adapted from *Words Their Way* (Bear, Johnston & Invernizzi, 2006, p. 22)



**Appendix D**

Tally Sheet – one tally for each student working with Language materials at the time indicated.

Monday	Tuesday	Wednesday	Thursday	Friday
Work Time 1	Work Time 1	Work Time 1	Work Time 1	Work Time 1
11:30	11:15	9:30	11:45	9:30
11:45	11:30	9:45	Work Time 2 1:20	9:45
Work Time 2 1:30	11:45	Work Time 2 1:20	1:35	Work Time 2 1:20
1:45	Work Time 2 1:20	1:35	1:50	1:35
2:00	1:35	1:50	2:05	1:50
1:50	2:15	2:05	2:20	2:05
	2:05	2:20		2:20

**Appendix E**  
Observational Data

Day: PA Skills Focus:	Date Group:
Explicit Instructions Used/Notes	Relevant Observational Data

**Appendix F**  
Table of Assessment and Intervention Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
<p><b>ASSESSMENT WEEK</b> Pre-test- rhyme (Jan. 4- 8) Observation Data – Tally Sheet tracking number students selecting Language work during work time</p>	<p>Pre-test – letter knowledge Observation Data – Tally Sheet tracking number students selecting Language work during work time</p>	<p>Pre-test – Beginning sounds match (alliteration) and beginning letter and sounds match Observation Data – Tally Sheet tracking number students selecting Language work during work time</p>	<p>Pre-test Beginning sounds match (alliteration) and beginning letter and sounds match Kindergarten Spelling Inventory with Moveable Alphabet Observation Data – Tally Sheet tracking number students selecting Language work during work time</p>	<p>Pre-test Kindergarten Spelling Inventory with Moveable Alphabet Observation Data – Tally Sheet tracking number students selecting Language work during work time</p>
<p><b>WEEK 1 (intervention)</b> Lesson 1 - Groups 1-3 (Jan. 11-15) Observational Data.</p>	<p>Lesson 1 – group 4 Lesson 2- groups 1-3 Observational Data</p>	<p>Teacher sick</p>	<p>Teacher sick</p>	<p>In-service day</p>
<p><b>WEEK 2 (intervention)</b> Lesson 3- Groups 1-3 (Jan. 18-22) Observational Data.</p>	<p>Lesson 2- Group 4 Lesson 4- Groups 1-2 Observational Data</p>	<p>Lesson 3- Group 4 Lesson 4- Group 3 Observational Data.</p>	<p>Lesson 5- Group 1-2 Observational Data</p>	<p>Lesson 4 - Group 4 Lesson 5 – Group 3 Observational Data.</p>
<p><b>WEEK 3 (intervention)</b> Lesson 6 – Groups 1-3 (Jan. 25-29) Observational</p>	<p>Lesson 5 – Group 4 Lesson 7- Groups 1-2 Observational Data</p>	<p>Lesson 6- Group 4 Lesson 8 – Group 2 Lesson 8- Group 3</p>	<p>Lesson 7 – Group 4 Lesson 9- Group 3 Observational Data –</p>	<p>Lesson 8- Group 1 Observational Data</p>

Data		Observational Data.		
WEEK 4 (intervention) Lesson 9 – Group 1-3 Observational Data.  (Feb. 1-5)	Lesson 8- Group 4 Lesson 10 – Group 1-3 Observational Data	Lesson 9- Group 4 Lesson 11- Group 1 Observational Data	Lesson 11- Groups 2-3 Observational Data	Lesson 10 – Group 4 Observational Data.
WEEK 5 (intervention) FAMILY DAY (Feb. 8-12)	Lesson 12 – Group 1-2 Lesson 11- Group 4 Observational Data	Lesson 12 – Group 4 Lesson 12 – Group 3 Observational Data	Make up lesson for student who was sick. Observational Data –	Make up lesson for student who was sick. Observational Data –
ASSESSMENT Post-test- letter knowledge  Observation Data – Tally Sheet tracking number students selecting Language work during work time	ASSESSMENT Post-test- Beginning sounds match (alliteration) and beginning letter and sounds match Observation Data – Tally Sheet tracking number students selecting Language work during work time	ASSESSMENT Post-test- Beginning sounds match (alliteration) and beginning letter and sounds match  Kindergarten Spelling Inventory with Moveable Alphabet  Observation Data – Tally Sheet tracking number students selecting Language work during work time	ASSESSMENT Post-test Rhyme  Observation Data – Tally Sheet tracking number students selecting Language work during work time	Professional Development Day No Students in Session

**Table A1**

*Number of Language Choice at 15-minute Intervals*

Monday		Tuesday		Wednesday		Thursday	
PRE	POST	PRE	POST	PRE	POST	PRE	POST
1	2	0	8	0	2	2	5
1	0	1	7	2	4	2	7
4	4	2	4	3	4	4	8
0	6	0	4	1	4	4	3
0	6			0	5	2	1
						0	0
Total # of Language Choices:							
8	18	3	23	6	19	14	24
Students Present:							
17	21	14	21	16	21	18	21