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Can You Improve Phonological Awareness with Skill Boxes
through a Five-Minute Daily Routine?

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Abstract

Phonological awareness is a necessary component in order to learn how to read. These skills have to be taught to children. Children who have deficits in phonological awareness are at risk for a learning disability such as dyslexia. This is why explicit instruction in phonological awareness is crucial for development. Due to this, it is important to start assessing children on these skills in preschool and start interventions if they are needed. The purpose of this action research was to shed light on how crucial phonological awareness skills are for development and how if a child is deficient in this area there is a concern for interventions.

Can you improve phonological awareness with skill boxes through a five-minute daily routine?

Many studies have been conducted on the importance of phonemic awareness in early childhood education. It is important that children make steady progress with phonemic awareness skills. If children are not making continued progress, interventions need to be made. Learning disabilities such as dyslexia are linked to phonological awareness and early intervention is key to making proper progress in phonological awareness. Children need a solid foundation in phonological awareness in order to become successful readers. If children are given more support in phonological awareness in early childhood, interventions and therapies can be started sooner if needed.

The goal in preschool is to minimize the number of children who develop a reading problem by giving them adequate phonological skills to assist them with formal reading instruction when they move on to kindergarten. “Most children who have difficulties learning to read have a core deficit in phonological awareness and related processing skills” (Phillips, 2008, p. 3). It is important to understand what phonological awareness, phonemic awareness, and phonics are. Phonological awareness is the capability to identify and manipulate the sound structure of words independent of their connotation. Phonological awareness skills are categorized by having the ability of being able to manipulate and detect different sizes of sound. Phonics is the process of reading instruction that emphasize the relationship between letter sounds and printed letters along with groups of letters. Having strong phonological awareness skills is a benefit from phonics instruction.

Phonemic awareness is not phonics. Phonemic awareness explicitly refers to the capability to manipulate and detect the smallest sound pieces in words, which are phonemes. To

know that the sounds /b/ /a/ /t/ make the word bat and that bat has three sounds which is a subgroup of phonological awareness (Phillips, 2008). Neither of these are naturally developing. Therefore, they require thoughtful teaching and practice opportunities.

Literature Review

According to the academic journal written by Wesseling and Reitsma (2001), titled *Preschool Phonological Representations and Development of Reading Skills* “Preschool children generally have no awareness of the phonemic nature of spoken language, and their first contact with formal reading instruction acts as a powerful trigger for development of phonemic awareness” (p. 204). Children who have letter sound knowledge and visual word recognition, have better phonemic awareness than those who do not. Characteristically, reading skills can be predicted through the phonemic awareness abilities a preschooler displays. During this study, the researchers looked at test results from kindergarten and first grade students. They conducted three studies with 133 children. They were making the conclusion that students with a good knowledge of phonemic awareness performed better on the tests than those without. They did this by testing children and making two groups: those with good phonemic awareness and those without. They followed those two groups through first grade. Phonemic awareness through phoneme segmentation and phoneme blending were measured throughout the school year. Wesseling and Reitsma (2001) concluded that the understanding of letter sounds correlated considerably with the ability to be able to decode.

According to the research conducted by Jones, Clark, and Reutzel (2012) in the article *Enhancing Alphabet Knowledge Instruction: Research Implications and Practical Strategies for Early Childhood Educators*. “Knowledge of the names, sounds, and symbols of the letters of the

alphabet or alphabetic knowledge is essential for learning to read and write. Alphabet knowledge is consistently recognized as the strongest, most durable predictor of later achievement in literacy including decoding, comprehension, and spelling” (Jones, Clark, & Reutzel, 2012, p. 81). They developed a plan to increase alphabet knowledge in students through three steps: Firstly being able to identify names and sounds of upper and lowercase letters, secondly recognizing letters in text, and thirdly being able to produce letters in writing. This method is for daily use and kept brief to maximize exposure. The results indicated that children would benefit from EAK (Enhancing Alphabet Knowledge) instruction more so than teaching one letter per week. During the use of the EAK method students are only learning letter names, sounds, and the written form. (Jones, Clark, & Reutzel, 2012).

In the article *Successful Phonological Awareness Instruction with Preschool Children* by Phillips (2008), the author discusses the differences between phonological awareness and phonemic awareness and the importance of both. “Phonological awareness is the ability to detect and manipulate the sound structure of words independent of their meaning. It is an increasingly sophisticated capability that is highly predictive of, and causally related to, children’s later ability to read” (p. 3). Phonological awareness has to be taught because it is not something all kids learn on their own. Phillips (2008) believes that preschool children need to be taught phonological awareness, strong alphabet knowledge skills, and vocabulary because all three facilitate their achievement in decoding. “Like phonological awareness, strong letter knowledge skills facilitate the acquisition of decoding ability and can be taught effectively with preschool children. Children benefit from systematic opportunities to hear the letter names and sounds modeled, to practice discriminating between different letters, and to practice both receptive and

expressive identification of letters” (Phillips, 2008, p. 12). The main point of this article is to encourage teachers to use it as a resource while providing their students with an effective, meaningful, and vigorous developmentally appropriate education while closing the education gap as those students move on to kindergarten (Phillips, 2008).

Letter knowledge is a necessary component of learning, but how important is it? According to Turnbull (2010) who is the author of the article, *Theoretical Expectations for Preschooler’s Lowercase Alphabet Knowledge*, “Alphabet knowledge is one of the strongest unique predictors of children’s later reading skills” (p. 1757). During this research the researchers carried out a study on 461 preschool aged children who were sixteen times more likely to know the lowercase letter if they already knew the uppercase component of that letter. “The relation between alphabet knowledge and later reading skills is based on the premise that children who can already associate phonemes (smallest unit of spoken language) with graphemes (smallest units of written language that represent phonemes and combinations of phonemes) use this knowledge of service of decoding unfamiliar words” (p. 1758).

The authors Anthony, Williams, McDonald, and Francis (2007) of the article *Phonological Processing and Emergent Literacy in Younger and Older Preschool Children* did a study containing 389 children between the ages of 3 to 5 years old. This particular study carefully examined preschool children’s underlying phonological processing abilities and the relationships of these phonological abilities with emergent literacy. They wanted to know if the phonological processing ability correlated with a child’s general cognitive ability or if it was developed separately. They did this by testing in the following areas: phonological awareness (initial sound matching, omissions of sounds, and blending), phonological memory, phonological

access (rapid naming), letter knowledge, text discrimination, word reading, and general cognitive ability.

The researchers determined that a child's phonological processing ability does not correlate with their cognitive ability. "Children's general cognitive ability did not directly predict their emergent literacy skills. Children's early literacy skills will be better predicted by assessments of their phonological processing abilities than by assessments of their general cognitive ability" (Anthony, Williams, McDonald, & Francis, 2007, p. 134-135). Phonological awareness plays a special role in early literacy development, which includes the decoding skills of preschoolers. This association highlights the significance of containing measures of phonological processing in early literacy screening and progress monitoring (Anthony, Williams, McDonald, & Francis, 2007).

According to the article, *Early Identification and Interventions for Dyslexia: A Contemporary View*, by Snowling (2015) "The predominant cognitive explanation of dyslexia is that it arises from a phonological deficit affecting the processing of speech sounds. Early manifestations are difficulties with the development of phonological awareness and perhaps more so, problems of phonological learning. These in turn affect the acquisition of letter knowledge, one of the first signs that a child is at risk of reading problems" (Snowling, 2015, p. 2). This article looked at different screening tools that can be used to identify and provide intervention for children who are having a harder time learning different phonological awareness skills. However, Snowling (2015) concluded that the most important aspect is not which screening tool is used, but how it is used. Interventions need to be systematic, well-structured and multi-sensory. It is essential to incorporate direct instruction while allowing time for

consolidation, with ongoing modification when needed. Effective interventions include teaching letter sounds and phoneme awareness. While also connecting letters as well as phonemes through writing and reading from texts at the appropriate level in order to strengthen developing skills (Snowling, 2015).

Goswami (2002), author of the article, *Phonology, Reading Development, and Dyslexia: A Cross-linguistic Perspective* “There is a causal connection between a child’s phonological awareness and his or her reading and spelling development” (p. 141). This article sheds light on the typical time frame children develop phonological awareness skills. Children typically develop syllable awareness around age three and onset and rime awareness around age four to five. As literacy is taught, the alphabet is learned and phonemes are represented. “Dyslexic children have a deficit, probably neural in origin, in representing phonology. One important aspect of this deficit appears to be a problem in perceiving aspects of the supra-syllabic information in speech. This deficit interferes with the development of phonological awareness at the syllable, onset, and rime levels prior to literacy acquisition, and it also interferes with the representation on phonemic information once literacy is taught” (Goswami, 2002, p. 160).

According to the article, *Early Identification and Interventions For Children At Risk For Learning Disabilities* authors Lange and Thompson 2006 stated, “Direct intervention for young children at risk for learning disabilities or other poor reading outcomes from pre-school through first grade is considered a promising approach to catch them before they fail” (p. 114). This article discusses the importance of identifying children who are at risk for a learning disability in the preschool years with a screener to start interventions if needed. Screeners should include parent demographic and reading observation questions along with sample tasks administered to

children, which include rhyme detection, segmenting words into phonemes, blending phonemes, letter and sound naming, and rapid categorical naming. Children who are at risk include those with low birth weight, genetic liability, and delayed development of early language skills can predispose children to learning disabilities. Learning disabilities are undeniably predominant, and as many as 17 percent of the population may possibly have a learning disability (Lange & Thompson, 2006).

Methods

Participants

This action research project was conducted in the researcher's classroom which is an inclusive preschool classroom. All nineteen children in the researcher's classroom were selected for the experimental group who were assessed on week one, week three, and week six by the researcher. The other nineteen students were picked at random between two other inclusive preschool classrooms within the same school district as the controlled class and were assessed on week one, week three, and week six by a neutral person who had been properly trained on giving the assessment. The ages of the students ranged from 3-5 years old. The student's demographics ranged between low to high socio-economics and a wide range of race. Of the nineteen students in the experimental class, two received special education services.

Data Collection

The focus of this research was the importance of phonological awareness because it can increase a student's ability to read words. One of the utmost captivating and well-established discoveries in the research on beginning reading is the significant correlation between phonemic

awareness and reading acquisition (Kame'enui, 1997). The question that the researcher would like to propose in regards to phonological awareness is; can you improve phonological awareness through a five-minute daily routine? The variables that the researcher will be analyzing are age and prior knowledge of alphabet knowledge, sounds, syllables, and onsets/rimes. The researcher-analyzed students when they first started school to see what they knew and then monitored their process while using a daily routine that included phonological boxes. The researcher then gathered data from a random group of students to compare growth in phonological awareness skills.

The experimental group will be exposed to explicit teaching of skill boxes during a whole group activity. The skill boxes were adapted for use in preschool by the researcher and the Emergent Literacy Team at Grant Wood AEA after attending a Plain Talk conference on reading routines presented by Dahlgren (New Orleans, 2016). This will happen every school day, as a whole group during circle time using a SmartBoard. The control group will not have any exposure to the skill boxes during this research. A photo of the phonological awareness skill boxes is shown in table one and a completed example in table two. The phonological awareness skill boxes consists of five boxes. The first box is titled letter names and consists of six smaller boxes. The second box is titled letter sounds and consists of four smaller boxes. The researcher inserted random letters into both boxes once to twice a week. The third box is titled word parts. The researcher alternated what was in this box depending on the needs and knowledge of the students. These skills included compound words, syllables, and onset/rime. The fourth box is titled rhyming words and the fifth box is titled first sounds. In the last three boxes the researcher used pictures when applicable, this is so the students can read the picture.

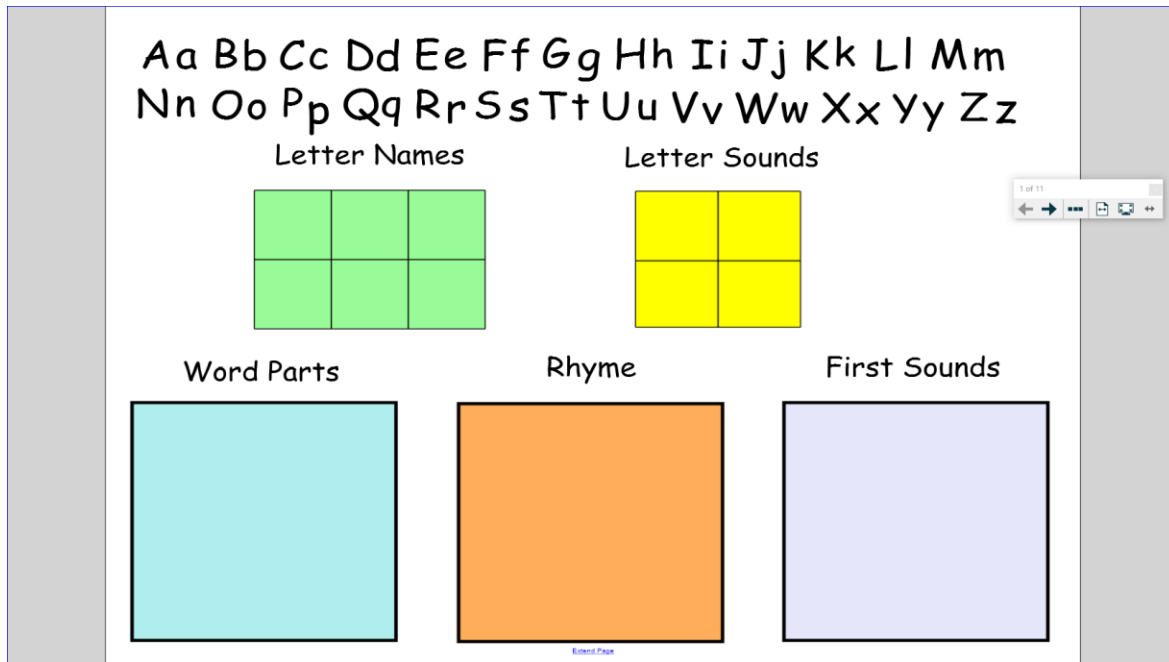


Figure 1. Phonological Awareness Skill Boxes

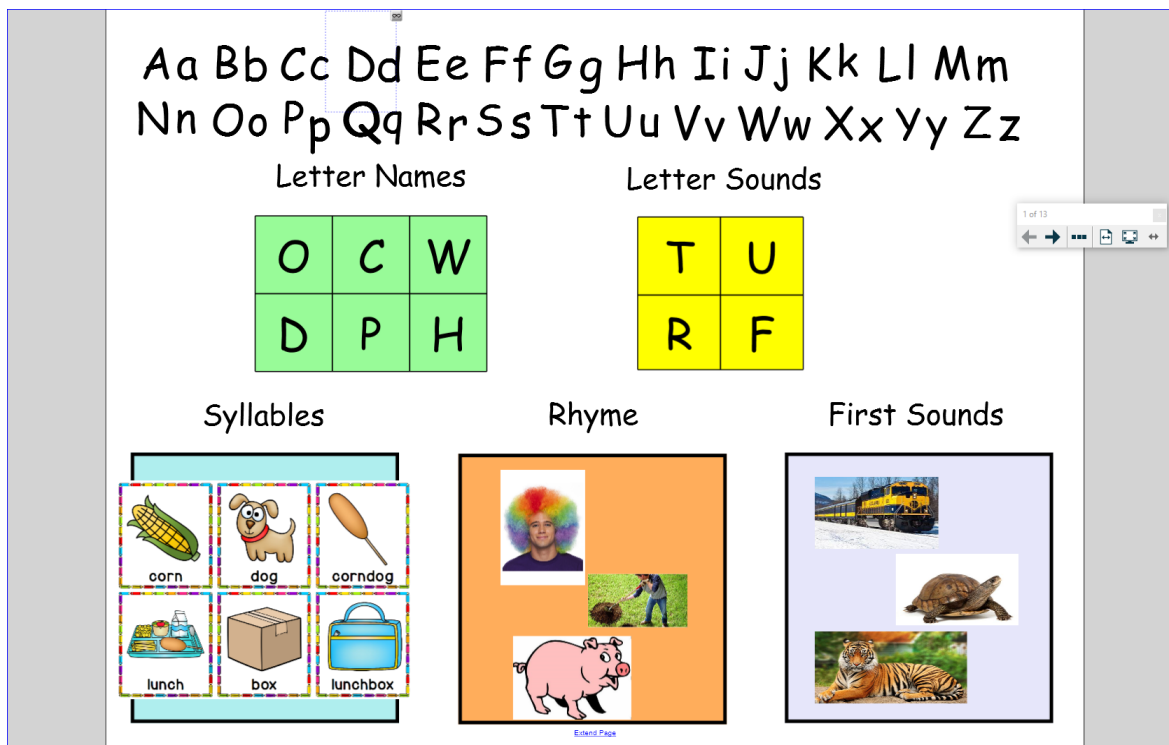


Figure 2. Phonological Awareness Skill Boxes

Data Analysis

To test the hypothesis the researcher will use a combination of data collection tools including Get Set for School and GOLD Assessments. The Get Set for School Assessment is for children who are four years of age when they start preschool. The assessment looks at test scores and observations of behaviors by observing pencil grip, hand preference, and control over the writing utensil. GOLD Assessments are primarily observations taken by the teacher to see if the child can do a certain task or behavior. These are compared by the age of the child and the developmental milestone, which is age appropriate. Both assessments are given to students three times a year during fall, winter, and spring. The researcher will also use both qualitative and quantitative methods. The observations and anecdotal notes the researcher will take through the GOLD Assessments are qualitative, but the way the researcher inputs the data and gives it a number makes it somewhat quantitative. The Get Set for School Assessment is also a mixture of both, but the other way around with mainly being quantitative because they either know it or they do not. Throughout this process, the researcher will document attendance, attention, and behaviors towards the tasks.

Table 1

Data Collection

Variable	Data	Quantitative or Qualitative	Measurement Instrument	Data Collection
Alphabet Knowledge	Test scores, observations of behaviors	Quantitative	Get Set For School Assessment	The students will be asked the upper and lower case letters of the alphabet at random (based off the sheet provided by Get Set For School which has the random letters in the same order each

				time) which will make their answers both valid and the results reliable.
Onset-Rime Blending	Test scores	Quantitative	Get Set For School Assessment	The students will be given two sounds at random and asked what word it makes ex-/p/ /ig/ pig (these are given at random based on Get Set For School Assessment) which will make their answers both valid and the results reliable.
Syllable Segmentation	Test scores, observations of behaviors	Qualitative and Quantitative	Record Data in GOLD Assessment Get Set for School Assessment	The students will be asked to clap out the syllables for multiple random words which will make their answers both valid and the results reliable.
Phoneme and First Sound Knowledge	Test scores	Qualitative	Record Data in GOLD Assessment	The students will be asked the sounds that the letters of the alphabet make at random. Along with being able to identify words that began with the same sound Big/Boy, which will make their answers both valid and the results reliable.

A lot of information can be learned through data analysis. When doing action research the researcher implemented many different strategies throughout the course of a few months in such a manner to see if the influence of explicit instruction helps to gain student growth in phonological awareness. The data below is from the first page of the Get Set for School Assessment. The first number was collected at the beginning of the school year, second number was taken at three weeks, and third number was taken at six weeks.

Table 2

Experimental Group Results

Student Name	Capital Letters (26 pts)	Lower Case Letters (26 pts)	Letter Sounds (26 pts)	Rhyming (9 pts)	Syllables (6 pts)	Onset Rime (3 pts)	Total (96 pts)	Gains in percentage	% of growth from first to last data point
1	23, 26, 26	16, 20, 26	20, 20, 26	1, 2, 4	0, 6, 6	0, 0, 3	60, 74, 91	63, 77, 95	32
2	6, 14, 22	5, 7, 16	0, 10, 21	3, 5, 9	3, 3, 6	0, 0, 2	17, 39, 76	18, 41, 79	61
3	26, 26, 26	17, 23, 26	20, 23, 26	9, 9, 9	6, 6, 6	3, 3, 3	81, 90, 96	84, 94, 100	16
4	26, 26, 26	24, 26, 26	20, 26, 26	3, 3, 9	6, 6, 6	0, 0, 3	79, 87, 96	82, 91, 100	18
5	3, 3, 4	1, 1, 2	0, 1, 2	0, 0, 0	0, 6, 6	0, 0, 0	4, 11, 14	4, 11, 15	6
6	0, 12, 21	0, 7, 14	0, 5, 17	9, 8, 8	0, 6, 6	0, 0, 3	9, 38, 69	9, 40, 72	63
7	3, 12, 21	2, 5, 13	0, 10, 18	4, 6, 8	0, 0, 6	0, 0, 1	12, 36, 67	13, 38, 70	57
8	6, 13, 15	2, 5, 11	3, 15, 22	9, 9, 9	0, 6, 6	0, 3, 3	20, 51, 66	21, 53, 69	48
9	1, 14, 22	0, 5, 20	0, 12, 23	3, 6, 8	3, 6, 6	0, 2, 3	7, 31, 81	7, 32, 84	77
10	24, 26, 26	20, 23, 26	15, 21, 26	9, 9, 9	6, 6, 6	0, 3, 3	59, 88, 96	61, 92, 100	39
11	26, 26, 26	22, 26, 26	18, 20, 26	4, 9, 9	0, 6, 6	0, 3, 3	73, 90, 96	76, 94, 100	24
12	26, 26, 26	21, 26, 26	20, 26, 26	9, 9, 9	6, 6, 6	3, 3, 3	85, 96, 96	89, 100, 100	11
13	26, 26, 26	26, 26, 26	12, 18, 26	4, 4, 6	0, 3, 6	0, 0, 2	68, 77, 91	71, 80, 95	24
14	9, 10, 18	7, 9, 12	0, 6, 14	3, 5, 8	3, 6, 6	0, 0, 1	22, 36, 60	23, 38, 62	39
15	11, 20, 25	10, 14, 25	6, 11, 26	9, 9, 9	6, 6, 6	0, 1, 3	42, 61, 94	44, 64, 98	54
16	9, 21, 24	6, 18, 20	3, 14, 22	5, 8, 9	3, 6, 6	0, 0, 3	26, 67, 83	27, 70, 86	59
17	4, 14, 21	2, 9, 13	1, 16, 18	7, 9, 9	6, 6, 6	0, 3, 3	13, 57, 70	14, 59, 73	59
18	20, 26, 26	21, 26, 26	20, 26, 26	3, 8, 9	0, 6, 6	0, 0, 1	64, 92, 94	67, 96, 98	31
19	0, 5, 9	0, 3, 8	0, 3, 8	0, 0, 3	0, 0, 6	0, 0, 0	0, 11, 34	0, 11, 35	35

Table 3

Control Group Results

Student Name	Capital Letters (26 pts)	Lo27r Case Letters (26 pts)	Letter Sounds (26 pts)	Rhyming (9 pts)	Syllables (6 pts)	Onset/rime (3 pts)	Total (96 pts)	Gains in %	% of growth from 1st-last data point
1	5, 8, 8	6, 7, 7	0, 0, 0	0, 0, 0	0, 1, 1	0, 0, 0	12, 17, 17	13, 18, 18	5
2	9, 11, 15	4, 5, 6	1, 3, 7	8, 8, 9	5, 6, 6	0, 1, 1	22, 34, 44	23, 35, 46	23
3	5, 10, 20	0, 3, 7	0, 1, 1	0, 8, 8	0, 1, 5	0, 0, 0	5, 23, 41	5, 24, 43	38
4	21, 23, 24	11, 16, 20	5, 5, 8	2, 6, 8	6, 6, 6	3, 3, 3	48, 59, 69	50, 61, 72	22
5	4, 4, 5	2, 2, 4	0, 0, 0	0, 0, 4	0, 2, 6	0, 0, 0	6, 8, 19	6, 8, 20	14
6	9, 25, 26	7, 8, 11	0, 2, 2	0, 7, 7	0, 4, 4	0, 0, 0	16, 46, 50	17, 48, 52	35
7	0, 17, 17	0, 3, 3	0, 0, 0	0, 7, 7	0, 1, 1	0, 0, 0	0, 28, 28	0, 29, 29	29
8	8, 8, 8	4, 4, 4	0, 0, 0	0, 2, 5	0, 2, 2	0, 0, 0	12, 16, 19	13, 17, 20	7
9	26, 26, 26	24, 24, 24	20, 25, 25	0, 6, 8	0, 5, 5	0, 1, 1	70, 87, 89	73, 91, 93	20
10	22, 24, 24	8, 12, 12	1, 2, 2	7, 9, 9	6, 6, 6	1, 1, 1	45, 54, 54	47, 56, 56	9
11	0, 6, 10	0, 2, 3	0, 0, 0	0, 3, 7	2, 3, 6	0, 0, 2	2, 14, 28	2, 15, 29	27
12	24, 25, 25	14, 18, 18	14, 17, 18	0, 0, 4	6, 6, 6	1, 2, 2	59, 68, 73	67, 71, 76	9
13	26, 26, 26	21, 24, 24	23, 23, 23	0, 1, 1	6, 6, 6	1, 2, 2	77, 82, 82	80, 85, 85	5
14	2, 3, 3	1, 3, 3	0, 1, 2	9, 9, 9	0, 5, 5	0, 0, 0	12, 21, 22	13, 22, 23	10
15	26, 26, 26	20, 22, 23	19, 23, 25	7, 9, 9	5, 5, 6	0, 1, 2	77, 86, 91	80, 89, 95	15
16	2, 2, 2	2, 2, 2	0, 0, 0	0, 2, 5	1, 4, 5	0, 0, 0	5, 10, 14	5, 10, 15	10
17	26, 26, 26	26, 26, 26	23, 25, 25	9, 9, 9	6, 6, 6	3, 3, 3	93, 95, 95	97, 99, 99	2
18	0, 0, 0	0, 0, 0	0, 0, 0	0, 0, 0	0, 4, 4	0, 0, 0	0, 4, 4	0, 4, 4	4
19	21, 24, 25	11, 17, 18	12, 15, 17	9, 9, 9	6, 6, 6	3, 3, 3	62, 74, 78	65, 77, 81	16

Findings

The experimental group of students who were getting five minutes a day working specifically with phonological awareness skill boxes as a whole class performed better overall than those who did not. The highest scores in the control group were from those students who came in already having phonological awareness skills. However, the overall gain in each area is not as great as the overall gain students in the experimental group had. The mean scores for the initial data point were 39/96 points for the experimental group with the median being 26 and 33/96 points for the controlled group with the median being 16. The mean scores taken at three weeks were 59/96 points for the experimental group with the median being 61 and 43/96 points for the controlled group with the median being 34. The mean scores taken at six weeks were 77/96 points for the experimental group with the median being 83 and 48/96 points for the controlled group with the median being 44.

This resulted in the mean number of points gained during the six week observational period being 38 points for the experimental group and 16 points for the controlled group. The students in the experimental group had a mean growth of 39.6% in six weeks. Whereas the control group had a mean growth of 15.8% between the first and last data points. The experimental group had twice the amount of growth as the control group. Outliers that may have skewed the data would include selecting students at random in two additional classes within the same school district for the controlled group. Since those students were selected at random their background is unknown. While the experimental group was the researchers entire class.

Discussion

It is known that a student's skill in phonological awareness is a good predictor of later reading success or difficulty. Therefore, teaching phonological awareness skills are crucial to a student's development. Assessments are just as crucial to track ongoing growth and determine if a child needs interventions. It should be noted if a child is not making consistent growth with phonological awareness skills and direct interventions should be started. Early intervention is the key to future success. The foremost problem with dyslexia includes complications with the ability to process phonologically. This includes: phoneme segmentation which is the ability to break words down into individual sounds, syllables, associate letters with their sounds, recognizing words that rhyme and whether words start with the same sound (Siegel, 2006). This is why early intervention is so crucial. "It is important to recognize that behavioral difficulties in school may be a sign of dyslexia. Any sign of problems in learning to read, even very early in a child's school career, should be taken seriously and investigated. The common assumption that the child will grow out of the problem is not valid in most cases" (Siegel, 2006, p. 585).

Limitations of the Study

There may be different limitations in this study of the importance of explicit teaching and phonological awareness development. Issues and factors that could influence the research would be age as the researcher could have students on an IEP that are three years old and general education students that are four turning five years old. This could potentially be a very wide age range, ELL, lack of exposure with a result of no knowledge of letters or students coming in knowing every letter and sound. This could be related to socio-economics. Sometimes the

caseloads within the researcher's classroom are so demanding that it makes it hard to take consistent data among students.

Further Study

The researcher would like to continue to follow both groups of students experimental and controlled throughout the remainder of the school year to assess their process through phonological awareness including: onset and rimes, sound manipulation including phoneme deletion, first sound fluency, invented spelling and the ability to read cvc words. The researcher recognizes the progression of skills within the researcher's classroom and the amount of progress students are making, but would be interested in comparing these skills with the controlled group.

Conclusion

In conclusion, the question the researcher asked remains true. Can you improve phonological awareness with skill boxes through a five-minute daily routine? Yes, through all of the research, both qualitative and quantitative data, and considering limitations, preschool students' phonemic awareness skills continue to build through daily exposure of skill boxes. If children are not making continued progress, interventions need to happen. Learning disabilities such as dyslexia are linked to phonological awareness and early intervention is key in order to make proper progress in phonological awareness. Children need a solid foundation in phonological awareness in order to become successful readers. Awareness of the importance of phonological awareness instruction in early childhood allows for interventions and therapies to be started sooner, if needed.

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