Improving Phonemic Awareness in First Graders

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Abstract

The purpose of this study was to determine whether using Elkonin boxes would result in improving first grade students' phonemic awareness. *Dynamic Indicators of Basic Early Literacy Skills: Nonsense Word Fluency* (DIBELS NWF**)** assessment scores from the middle of the school year were used as baseline data and were not statistically different between the groups. End of year scores were compared to determine whether the control group's NWF scores after receiving their regular reading instruction and the experimental group's NWF scores after receiving the same instruction supplemented with the use of Elkonin boxes differed significantly. The control group's mean NWF score was slightly higher than that of the experimental group at the beginning and end of the intervention, but the treatment group demonstrated a larger mean gain than the control group, of 5.54 versus 3.88 points on the NWF assessment. However, the significance values obtained indicated that the groups' mean NWF scores did not differ statistically significantly before ($p < .44$) or after ($p < .68$) the Elkonin box intervention was used with the treatment group. Therefore, the null hypothesis that the two groups' NWF scores would be the same after the intervention was retained. Since results indicated that students had progressed in skill acquisition, further study appears warranted to determine whether and how Elkonin boxes can be used to promote phonemic awareness.

CHAPTER I

INTRODUCTION

Overview

The early development of literacy skills is crucial to future academic success and early childhood educators are faced with the challenging, but essential, task of preparing children for literacy and academic success. It is also important for teachers in primary grade levels to recognize the significance of their role in teaching young learners how to become fluent readers. Phonemic awareness plays a foundational role in enabling students to ultimately read fluently. It has been noted that among predictors of reading skills, skill in phonemic awareness is key. Phonemic awareness abilities have a greater relationship to learning to read than do IQ factors, reading readiness, and listening comprehension. Other researchers have stated that phonemic awareness skills should be explicitly taught to primary grade level students to ensure they have a solid foundation to become fluent readers. (Kardaleska & Karovska-Ristovska, 2018).

Every school year, teachers have in their classrooms children who come from a variety of backgrounds and levels of socioeconomic status that could impact reading readiness. According to Reading Rockets, "low SES [socioeconomic status] could potentially carry risk for reading difficulty for an individual child and for entire groups of children. With poverty, disparities in the development of language processing are arguably among the most consistently found – with decreases in vocabulary, phonological awareness, and syntax at many different developmental stages" (Perkins, Finegood, & Swain, 2013, p.1). While many factors affect students' ability to acquire phonemic awareness skills; as so many children come from households affected by

poverty, teachers must have a variety of strategies to provide them all with high-quality reading instruction to make up for the negative impact on reading skills that it has been shown to have.

As a first grade teacher, this researcher was interested in exploring ways to improve her students' phonemic awareness and build a strong basis for later reading fluency. She noted a significant gap between the achievement of her students who were working on or above grade level and those who were working below grade level. Since research, such as that reported by the National Assessment of Educational Progress in 2011, indicates that children who do not make progress within the pertinent developmental timeframe are more likely to suffer academically for a major portion of their academic careers, the researcher hoped to identify and implement interventions to address deficits in her students' phonemic awareness to improve their reading development.

It has been well-documented that many students who are considered poor readers entered first grade with limited phonemic awareness. Highlighting this, reported that by the end of fourth grade, many struggling readers still had inferior decoding skills compared to those of the good readers at the beginning of second grade (Keesey, Konrad, & Joseph, 2015). Students who are reading below grade level in the primary grades will continue to read below grade level and struggle to grasp concepts that become increasingly challenging as the years pass without interventions to help them catch up. In our culture and schools where literacy has a strong correlation to success in many areas, it is important for all children to have access to a quality education which provides them with the tools to be successful at every grade level.

There are many research-based instructional strategies related to explicit instruction of

phonemic awareness, but this researcher felt it was imperative to find an intervention that was effective and engaging for all of her first grade students, whether they were working above or below grade level. According to Keesey et al. (2015) student engagement appears to be a key factor in students' academic success, especially in reading. These researchers conducted a study that included use of "Elkonin boxes" as an intervention, as use of this strategy appeared to have research support for improving phonemic awareness.

Elkonin boxes, also known as "sound boxes," are defined by Reading Rockets as tools to "build phonological awareness skills by segmenting words into individual sounds, or phonemes" (p. 1). Elkonin boxes are boxes that contain an area for the letters within a word to be written down with phoneme boxes positioned below the written word. The students' use a manipulative, such as a token or counter to represent each phoneme they hear in a word within the box. Elkonin boxes also can be used orally when the teacher says a word aloud and students place counters in the phoneme boxes based on the sounds they hear. The boxes serve as manipulatives and are used by the children to "move" or "push" phonemes they hear in words. This strategy is useful as it allows students to segment and blend sounds in words based on their component phonemes rather than just the individual letters a word contains. Elkonin boxes can be used in a small group setting or with individual students.

Statement of Problem

Will the use of Elkonin boxes improve the phonemic awareness of a sample of first grade students?

Statement of Research Hypothesis

The null hypothesis tested for this study follows:

ho: NWF (Nonsense Word Fluency) scores of students who used Elkonin boxes = NWF scores of students who did not use Elkonin boxes.

Operational Definitions

Elkonin boxes: An instructional strategy that uses boxes with manipulatives and with which learners use a counter to indicate phonemes within a word. Learners physically segment words into individual phonemes using the counters and boxes.

Fluency: The ability to read accurately, quickly, and with expression.

Phonemic Awareness: The overall ability to hear, identify, and manipulate individual sounds in spoken words.

***Dynamic Indicators of Basic Early Literacy Skills: Nonsense Word Fluency (DIBELS NWF*)**: DIBELS is a series of short tests that assess early childhood literacy. The DIBELS comprise a developmental sequence of one-minute measures such as recognizing initial sounds (phonemic awareness) and naming the letters of the alphabet (alphabetic principle). The NWF portion of the assessment assesses alphabetic principle skills, or the ability to associate sounds with letters and use those sounds to form words.

CHAPTER II

REVIEW OF THE LITERATURE

First grade is a crucial time for children to acquire pertinent reading and language skills to become fluent readers. One of these important abilities is developing phonemic awareness. There has been much debate in recent years regarding whether phonemic awareness should be taught directly or if it is simply a reading skill that children will acquire when they are developmentally ready. For students who struggle when learning to read, there is growing consensus that phonemic awareness is a skill that needs to be taught directly before these students fall further behind in their development of reading proficiency (Kardaleska & Karovska-Ristovska, 2018).

The first section of this literature review defines phonemic awareness and how it relates to phonological awareness and learning to read. The second section discusses the role that phonemic awareness plays in the development of early reading skills. The third section describes some instructional strategies that can reinforce students' phonemic awareness skills. The final section explains how strengthening phonemic awareness skills can lead to additional positive outcomes for students.

Defining Phonemic Awareness

To understand phonemic awareness, it is important to consider the definition of phonological awareness as well. Phonological awareness is "the set of skills that enables the thinking about language as separate and distinct from word meaning" (Keesey et al., 2015). Some of these skills include dividing words into syllables, rhyming, and alliteration. These are

skills that are expected to be attained by students through their preschool and kindergarten experiences. Children who become proficient with these skills then will begin to attain phonemic awareness, "the ability to identify and manipulate individual sounds in spoken words" (p. 1). Children who have attained phonemic awareness have an understanding of phonemes (sounds in words) and are able to isolate, blend, and segment phonemes.

Children who come from "typical" backgrounds most likely will attain these skills during their kindergarten year. Children with typical backgrounds refers to those children who have grown up in a household hearing language modeled for them at an early age, as well as households with access to literature. Children coming from these types of families have an advantage over children who have grown up in households with little communication modeled by adults and who have had little to no access to literature (Saunders & Gierke, 1999). Regardless of family background, there are many students who enter first grade without acquiring phonemic awareness skills and these students likely will struggle with reading throughout their elementary school career (Keesey et al., 2015). These considerations suggest how attaining phonemic awareness is imperative to becoming a successful reader.

Phonemic Awareness and Early Literacy Skills

As stated above, phonemic awareness is a skill that is needed for children to become fluent readers. For example, children who have developed phonemic awareness skills will learn how to break apart longer words to sound them out when reading and writing (Kardaleska & Karovska-Ristovska, 2018). Developing skill with phonemic awareness is a step in the direction of learning how to decode, or having the ability to apply knowledge of letter-sound relationships

as well as letter patterns to correctly pronounce written words. When students develop decoding skills, they are able to discern the pronunciation of new words more rapidly than when they needed to segment each sound. Students are able to remember the different sounds that letters make in various contexts and apply this knowledge to new words that they encounter.

An example of how students use phonemic and phonic skills when reading follows. Students have encountered the word “phone” while reading. Students who are able to decode will remember that “p” and “h” work together to make the /f/ sound, the “o” is a long vowel because of the silent “e” at the end, and the “n” makes the /n/ sound. Even though the students never may have encountered the word “phone” in the past, they quickly are able to break the word down and understand its pronunciation and meaning because of their phonemic awareness and decoding skills. A student who lacks phonemic awareness will struggle to read the word correctly and most likely sound it out as /p/ /h/ /o/ /n/ /e/.

When a student has attained phonemic awareness, a window of opportunity becomes available for them to acquire other important reading skills. Decoding, along with application of the alphabetic principle, reading fluency, comprehension, and critical thinking skills are essential skills that are necessary for becoming a proficient reader (Santi, Menchetti, & Edwards, 2004). Phonemic awareness is essentially the bridge that leads children from early literacy to becoming successful in learning to read. It then becomes the responsibility of the teacher to provide necessary interventions and instructional strategies to help all students attain phonemic awareness as a foundation for success in reading.

Instructional Strategies That Reinforce Phonemic Awareness

Teachers in primary grade levels have the difficult task of helping their students gain the skills to become proficient readers, no matter their reading level when they enter the classroom. Previously, it was assumed that phonemic awareness was a skill that children would attain on their own at an appropriate developmental level. However, research such as that reported by Santi et al., (2004) concludes that readers who are considered at risk or instructionally naïve have difficulty distinguishing sounds on their own and require explicit instruction in these skills. As so many children fall behind in attaining reading skills, findings regarding the essential role phonemic awareness plays in early reading development suggest that it is important for teachers to provide direct instruction for developing students' phonemic awareness skills.

There are many different instructional strategies that are useful in helping students acquire skill with phonemic awareness. Among these strategies are scaffolding, use of sound boxes, small group instruction, and tier two interventions.

When using a scaffolding strategy, a teacher will ask a question and then determine what type and amount of support may be needed for each child to respond correctly to the task and to internalize skills needed for subsequent independent performance (McGee & Ukrainetz, 2009). Teachers use scaffolding on a daily basis in all areas of instruction, and it is especially helpful when helping children become independent readers through teaching phonemes. There are three levels of scaffolding – intense scaffolding, moderate scaffolding, and minimum scaffolding. In intense scaffolding for direct phonemic awareness instruction, the teacher isolates and emphasizes the beginning phoneme and then says the word with the phoneme exaggerated.

Intense scaffolding also requires the teacher to point out the shape of the student's mouth when the sound is being made orally. Moderate scaffolding happens when the teacher notices that less support is needed. At this level, the teacher isolates and emphasizes the first phoneme by pronouncing and elongating the sound in isolation and within the word. At level three, in minimum scaffolding, teachers emphasize only the first phoneme while saying a word.

Sound boxes are another instructional strategy that can be utilized in direct instruction of phonemic awareness skills. Sound boxes, also known as Elkonin boxes, teach the student how to hear the phonemes in words in sequence by connecting the slow verbal stretching of a word's sounds to the simultaneous pushing of tokens into boxes, one for each sound, as it is heard (McCarthy, 2008). A sample Elkonin box can be found in Appendix A. Similar to scaffolding procedures, there are three levels of difficulty in using sound boxes. Level one words, such as "red" have three phonemes and a continuous initial sound. These phonemes are learned most easily in part because students can "stretch them out" using one continuous breath. Level two words are more difficult to stretch and have three phonemes with an initial stop consonant, such as "pass." Level three words are the most difficult to segment into phonemes and typically begin or end with blends, such as "shut". Using sound boxes as a kinesthetic aspect to this auditory process scaffolds students' learning so that they may become more adept at manipulating the phonemes in words.

Small-group instruction is another important strategy that helps struggling students receive direct instruction in phonemic awareness (Menzies, Mahdavi, & Lewis, 2008). Working with students in small group settings enables teachers to provide their students with increased

individualized instruction based on their level of need. During small group instruction, tier two interventions can be utilized if deemed necessary. Tier two interventions occur when teachers identify students who are not making adequate progress in reading and receive instruction that is "high-quality and short term that is carried out into small groups by teachers, reading specialists, speech-language pathologists, or other educators" (Koutsoftas, Harmon, & Gray, 2009, p. 1). Teachers can design mini-lessons that target students' specific literacy skills, including phonemic awareness skills that they will need to attain to become a proficient reader. Direct, explicit instruction has been shown to be an effective way to help at-risk students attain reading skills (Pirzadi, Ghobari-Bonab, Shokoohi-Yekta, Yaryari, Hasanzadeh, & Sharifi, 2012).

Connections between Phonemic Awareness and Other Positive Outcomes

It is evident that phonemic awareness is an important skill that children must attain to become fluent readers. Direct instruction of phonemic awareness should occur in the classroom on a daily basis in a variety of ways to respond to students' learning (McCarthy, 2008). Preschool through second grade is a crucial time for children to learn and understand these skills so that they are successful in and beyond upper-elementary level reading classes. Unfortunately, early in their school experience, students realize when they or their peers begin falling behind academically. Therefore, in addition to building a foundation for academic success, ensuring that students develop phonemic awareness will help build their self-confidence and assist them to gain competence in reading and enjoy reading.

Summary

Attaining phonemic awareness within the primary grade levels is crucial to a student's

academic success in becoming a fluent reader. Without developing phonemic awareness skills, students likely will struggle to become efficient readers. Although there are reading skills that children will acquire when they are developmentally ready, phonemic awareness is a skill that should be addressed in the classroom through both whole and small group direct instruction. There are several strategies that teachers can use to assist students in attaining phonemic awareness skills. These strategies include, but are not limited to use of scaffolding, sound boxes, small group instruction, and tier two interventions.

CHAPTER III

METHODS

Design

This study was designed to learn whether utilizing Elkonin boxes in daily small group reading instruction was associated with gains in first graders *Dynamic Indicators of Basic Early Literacy Skills: Nonsense Word Fluency (DIBELS NWF*) scores in the second half of the school year. The study used a quasi-experimental pre-test post-test design to compare growth in NWF scores for students in the treatment group, who utilized the Elkonin boxes intervention during their reading groups and students in the control group who received the usual reading instruction but did not use the Elkonin boxes. After the intervention, changes in NWF scores were compared for each group.

Participants

Twenty first grade students who attended a Title I elementary school in Maryland with a high percentage of students who qualify for free and reduced meals participated in the study. The sample was diverse in terms of race, socioeconomic status, and academic ability and included eight females and 12 males. Participants included two students of Hispanic descent, five African American students, and 13 Caucasian students. Of those 20 students, one had an individualized education plan (IEP) for speech purposes. According to the mid-year DIBELs assessment for reading, 55% of the 20 students scored “core” (on or above grade level), 10% scored “strategic” (slightly below grade level), and 35% scored “intensive” (significantly below grade level) overall.

Instrument

The instrument utilized in this study was the grade 1 DIBELs Next assessment. This is the benchmark assessment that is used by the entire school system throughout multiple grade levels to assess student growth in reading. More specifically, the data from the Nonsense Word Fluency (NWF) portion of the assessment were utilized to test whether or not the intervention (Elkonin boxes) improved the students' phonemic awareness. This test (NWF) required students to read as many simple nonsense words as they could within one minute. Students were awarded points for the number of whole words read correctly as well as the number of correct phonemes said aloud during the NWF test.

The Mental Measurement Yearbook states that the DIBELs assessment "is an individually administered battery of early literacy tests that measure phonemic awareness in K-1" (p. 1). Students are given one minute to complete each section to the best of their ability. The NWF portion of the assessment is used to assess students' phonological and phonemic awareness as it requires them to look at an unfamiliar word and consider how to pronounce it based on the word's phonemes. According to the Mental Measurement Yearbook, DIBELs does a "fine job of evaluating letter name knowledge, phonemic awareness, and oral reading fluency" (p. 1). The problematic parts within the DIBELs assessment was noted by reviewers to be its "lack of adequate measurement of reading comprehension and vocabulary knowledge" (Good, Kaminski, Moats, Laimon, Smith, & Dill, 2002). This issue does not pertain to this particular study, as the main focus was assessing for progress with phonemic awareness and only NWF scores were used which assess this skill directly.

Procedure

The students who participated in the study recently had been regrouped based on their January DIBELs assessment scores. The baseline data for this study was each students' NWF score from the mid-year DIBELs assessment. Students then received explicit phonemic awareness instruction within their reading groups. The control group received the same instruction as they had experienced since the beginning of the school year and the experimental group began to use Elkonin boxes in addition to their regular reading instruction. Each reading group that was part of the experimental group used a different set of words to practice segmenting phonemes with the Elkonin boxes. The words were selected based on students' reading levels.

The experimental and control groups were matched in order to be comparable in terms of NWF skill and growth by placing students in groups with others who had similar scores. As a result, there were two "above level" groups, two "on level" groups, and two "below level" groups. One of each of the leveled groups was assigned to the control condition and the others were assigned to the experimental condition.

The intervention began during the first week of March 2019 and continued until the end of April 2019, when the final administration of the DIBELs assessment took place. The same set of nonsense words was given for the pre- and post-tests to assess which phonemes participants knew or did not know. The NWF scores from the January 2019 administration then were compared to those from the May assessment to determine whether explicit instruction using Elkonin boxes in small groups improved the phonemic awareness in first grade students of varied fluency levels.

CHAPTER IV

RESULTS

This study was conducted to test whether the use of Elkonin boxes would improve the phonemic awareness of a sample of first grade students. The null hypothesis was that the Nonsense Word Fluency (NWF) scores of students using Elkonin boxes in addition to their regular reading instruction would equal the NWF scores of students who did not use Elkonin boxes as part of their reading instruction. The results of the statistical analyses follow.

Descriptive Statistics

Descriptive statistics summarizing the treatment and comparison groups' pre- and post-intervention NWF scores follow in Table 1. These indicated that the control group, which did not use the Elkonin boxes, outscored the treatment group on average on both tests, but both groups' means increased over the treatment interval and this increase was slightly larger for the treatment group. (NWF scores increased 5.54 points, from 10.15 to 15.69, for the treatment group and 3.88 points, from 15.00 to 18.88, for the control group). The descriptive statistics also suggest that the ranges of the groups' scores were similar. The statistics also suggest that the scores were fairly large for the pre- and post- NWF tests and that the control group participants had somewhat more variation in their scores, from 43 to 42 points out of 50 possible on the pre- and post-test, respectively, compared to ranges of 34 and 48 points out of 50 possible on the pre- and post-test, respectively for the treatment group.

Table 1

Descriptive statistics summarizing NWF scores before and after treatment (disaggregated by group)

NWF Score		n	Mean	Standard Deviation	Range
Pre-intervention	Treatment	13	10.154	10.302	0-34
	Control	8	15.000	17.841	0-43
Post-Intervention	Treatment	13	15.692	14.608	1-49
	Control	8	18.875	19.723	1-43

Comparison of Mean Pre- and Post-Intervention NWF Scores

T-tests for independent samples then were computed to determine whether the treatment and comparison groups' mean pre-and post-intervention NWF scores differed significantly at the beginning of the study and after the Elkonin box intervention was provided to the treatment group. Those results follow in Table 2. The significance values obtained indicated that the groups' mean NWF scores did not differ statistically significantly before ($p < .44$) or after ($p < .68$) the Elkonin box intervention was used with the treatment group. Therefore, the null hypothesis was retained.

Table 2

Results of t-tests for Independent Samples comparing the Treatment and Control Groups' Mean Pre- and Post-Intervention NWF Scores

(Equal variances assumed)

NWF Score	Mean Difference	t	df	Sig. (2-tailed) (p)	Std. Error of Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Pre-intervention	-4.846	-.794	19	.44	6.100	-17.614	7.922
Post-Intervention	-3.183	-.425	19	.68	7.493	-18.867	12.501

CHAPTER V

DISCUSSION

This study was conducted to test whether the use of Elkonin boxes would improve the phonemic awareness of a sample of first grade students. The null hypothesis was that the Nonsense Word Fluency (NWF) scores of students using Elkonin boxes in addition to their regular reading instruction would equal the NWF scores of students who did not use Elkonin boxes as part of their reading instruction. Analyses indicated that the groups' mean NWF scores did not differ statistically significantly before or after the intervention, although both groups showed gains in scores over the intervention period. The treatment group's gains were slightly but not significantly larger than those of the comparison group (5.54 compared to 3.88 points), however, their mean NWF score on the post-test (15.692) was still lower than that of the comparison group (18.875). Therefore, the null hypothesis was retained.

Implications of Results

The results of the study suggest that the group who used Elkonin boxes did improve in terms of phonemic awareness. As noted, their mean NWF scores increased by 5.54 points compared to a mean increase of 3.88 for students in the control group. However, the treatment groups' mean NWF scores after the intervention were not statistically significantly higher than the control groups' mean scores. There could be several explanations for these results; however, the findings imply that the students in this sample improved in terms of their phonemic awareness by receiving daily reading instruction with and without the use of Elkonin boxes.

Theoretical Consequences

The results of this study suggest that on average, students in both groups made gains with their phonemic awareness skills. The treatment group made slightly, but not significantly higher gains (5.54 points compared to 3.88 points). Theoretically, these findings might indicate that Elkonin boxes were not helpful, but several possible threats to the validity of these findings could have obscured their beneficial impact and warrant consideration. If these threats are addressed in future research, the impact of supplementing reading instruction with Elkonin boxes on phonemic awareness might be more evident.

Threats to the Validity

Several possible threats to the validity of this research are discussed below. These threats include sampling methods and student's reading ability prior to the intervention, student attendance/participation, small group instruction, duration of the study, limitation of content taught, and students' enjoyment of the lesson.

Sampling/Reading Ability

One threat to the validity of this study's results is that the students in the sample used for this research were considered "on grade level" in reading by the point in the school year that the intervention was offered. This threatens the validity of the results as it restricted the range of reading proficiency of the sample. As most participants were very close to being proficient in reading, if not already proficient, the results do not indicate how beneficial using the Elkonin box intervention would be for students who were reading significantly below grade level.

Participation

Student attendance may have affected the validity of the intervention negatively. Not all of the children in both the intervention and control groups were present for every session. A longer intervention or make-up sessions may have minimized the impact of attendance on the results.

Small Group Instruction

Students previously had been placed into small groups by the classroom teacher as a result of testing that took place prior to the intervention. For the purpose of the research, student groups were put into either the "control" or "intervention" group, and the control group continued to receive the differentiated instruction they had been receiving throughout the school year while the intervention group received that same instruction supplemented with the Elkonin boxes. The small group setting allowed students in both groups to receive more one-on-one and individualized attention. Since students in both groups received individualized instruction during this intervention period, it is unknown whether or not the results would have differed if the intervention had taken place in a whole group or even a one-on-one setting.

Duration of Study

The length of the study was short, ranging only from the first week of March 2019 until the first week of May 2019. There were times in March when inclement weather affected how many days per week the students received the intervention. The duration of this study threatens the validity of the results as it is unknown whether or not the students would have shown more or less growth had the study been conducted over a longer period of time.

Limits of Content Taught

The students' reading group level determined how many phonemes were in the words with which they worked. For example, students who were placed in the group which focused on letter patterns primarily worked with Consonant/Vowel/Consonant (CVC) words such as "tan", "rat", "mop", etc. These students practiced sounding and blending words with three phonemes on the Elkonin boxes. In comparison, students who were placed in other groups, such as an R-controlled vowels group, worked with a different list of words that pertained to their needs for differentiation and group level. It is unknown whether or not the results would have differed if students had worked on the same list of words, regardless of their reading group level.

Enjoyment of the Lesson

Students who used Elkonin boxes as part of their differentiation lesson during the study appeared to be more engaged with their lessons than the students in the control group. The students using Elkonin boxes appeared to enjoy using the manipulatives and to be excited when it was time to use the Elkonin boxes. Students in the control group did not show as much excitement when was time to complete their differentiation lessons. The amount of enjoyment that the students experienced may have threatened the validity of this study. Had students in the control group enjoyed their lessons more, or had students in the intervention group enjoyed theirs less, the results of the study may have differed.

Connections to Previous Studies/Existing Literature

The results of this study are similar to that of Childs (2017) which compared results of utilizing different phonics instruction strategies with small groups. They found that the students

in their sample showed an increase in performance on first sound fluency, letter name fluency, phoneme segmentation fluency, and nonsense word fluency after their intervention. However, their study took place with a sample of kindergartners from a Title I school as opposed to first graders who comprised the sample for this action research. Their study aimed to determine whether or not daily intervention through learning in small groups, one-on-one intervention, daily flash cards, and smart board technology affected kindergarteners' ability to acquire and retain phonics skills. This study heightened the researcher's interest in determining whether other interventions could be used with small groups to improve the phonemic awareness of first grade students.

The findings of Keesey et al., (2015) also informed the development of this action research project. This particular study examined how word boxes could improve phonemic awareness as well as phonological, reading and spelling skills of three kindergarten students. The results indicated that utilizing word boxes was associated with increases in all three students' segmenting skills, letter-sound correspondence, as well improvement in their spelling and reading. Results of this study supported the concept that word boxes (Elkonin boxes) could be used as an intervention with children who are learning how to read. Use of word boxes might enhance pertinent skills, such as phonemic awareness, that students need to become fluent readers. Thus, the researcher decided to apply the intervention with her first grade students.

Implications for Future Research

Future studies might yield more conclusive results if the samples were comprised of students who were beginning their kindergarten year. This might enhance the validity of the

study because it is more likely that beginning of the year kindergartners would have less experience with Elkonin boxes than middle/end of the year first graders and would have less prior instruction in phonemic awareness. This type of sample would more likely reflect the impact of maturation on use of the intervention. In addition, future samples could include more students who are struggling to learn how to read in order to help determine if Elkonin boxes are an equally effective tool for students with varied skill levels

The manipulatives used in this study appealed to the interest of the students in the intervention group, which made the activities engaging for them. The researcher used a "chip" that had a magnet in it and provided students with a magnetic wand to move the chips. The students were instructed to move each chip into phoneme boxes corresponding to each sound they heard in the word. Then when it was time to say the whole word, the students waved their magnetic wands over the chips as they said the entire word aloud. The students enjoyed doing this, which made the activity more exciting for them and they were eager to participate. Therefore, utilizing manipulatives and making reading instruction fun might benefit engagement in future trials of both Elkonin boxes and other reading interventions.

Finally, the impact of using Elkonin boxes may be more evident if future studies are conducted over a longer period of time. This action research took place over the course of about two months. Results could differ if the study could be completed over a longer span of time. In addition to the duration of the study, students who receive Elkonin boxes as an intervention all should be achieving at the same reading level so that the same words can be used in each group and comparisons of students' progress can be interpreted more accurately given the similarity in their initial achievement level.

Conclusions/Summary

The results of this study were not conclusive but did not eliminate the concept that Elkonin boxes may be useful for improving students' phonemic awareness. Students who used them appeared to enjoy the intervention and did make gains in their NWF test scores. Future research appears warranted to determine when and how to best implement methods like Elkonin boxes to build phonemic awareness. It would be interesting to study the impact of using Elkonin boxes for children of varied reading skills and ages and in concert with a variety of reading interventions to determine which applications result in the most growth.

REFERENCES

Childs, A. G. (2017). *Which Techniques can be Used to Help Struggling Kindergarten Students Retain Phonics in a Title I School?* Goucher College.

Elkonin Boxes Classroom Strategy. (2018) Retrieved from: http://www.readingrockets.org/strategies/elkonin_boxes

Good, R. H., III, Kaminski, R. A., Moats, L. C., Laimon, D., Smith, S., & Dill, S. (2002). DIBELS: Dynamic Indicators of Basic Early Literacy Skills, Sixth Edition. Retrieved from https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=mmt&AN=test.2631&site=ehost-live&scope=site

Kardaleska.A, L., & Karovska-Ristovska, A. (2018). Revisiting the View of Phonological and Phonemic Awareness as Early Predictors in Reading Difficulties. *Vizione*, (29), 23–30. Retrieved from: https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=128329338&site=ehost-live&scope=site

Keesey, S., Konrad, M., & Joseph, L. M. (2015). Word boxes improve phonemic awareness, letter–sound correspondences, and spelling skills of at-risk kindergartners. *Remedial & Special Education*, 36(3), 167–180. https://doi-org.goucher.idm.oclc.org/10.1177/0741932514543927

Koutsoftas, A. D., Harmon, M. T., & Gray, S. (2009). The effect of tier 2 intervention for phonemic awareness in a response-to-intervention model in low-income preschool classrooms. *Language, Speech & Hearing Services in Schools*, 40(2), 116–130. https://doi-org.goucher.idm.oclc.org/10.1044/0161-1461(2008/07-0101)

McCarthy, P. A. (2008). Using sound boxes systematically to develop phonemic awareness. *Reading Teacher*, 62(4), 346–349. Retrieved from https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=trh&AN=35534027&login.asp&site=ehost-live&scope=site

McGee, L. M., & Ukrainetz, T. A. (2009). Using scaffolding to teach phonemic awareness in preschool and kindergarten. *Reading Teacher*, 62(7), 599–603. Retrieved from: https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=trh&AN=37294832&login.asp&site=ehost-live&scope=site

Menzies, H. M., Mahdavi, J. N., & Lewis, J. L. (2008). Early intervention in reading: From research to practice. *Remedial and Special Education*, 29(2), 67-77. doi:http://dx.doi.org.goucher.idm.oclc.org/10.1177/0741932508315844

Perkins, S. C., Finegood, E. D., & Swain, J. E. (2013). Poverty and language development: Roles of parenting and stress. *Innovations in Clinical Neuroscience*, 10(4), 10-9. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3659033/

Pirzadi, H., Ghobari-Bonab, B., Shokoohi-Yekta, M., Yaryari, F., Hasanzadeh, S., & Sharifi, A. (2012). The impact of teaching phonemic awareness by means of direct instruction on reading achievement of students with reading disorder. *Audiology*, 21(1), 83–93. Retrieved from: https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=79184305&site=ehost-live&scope=site

Santi, K. L., Menchetti, B. M., & Edwards, B. J. (2004). A comparison of eight kindergarten phonemic awareness programs based on empirically validated instructional principles. *Remedial and Special Education*, 25(3), 189-196. doi:http://dx.doi.org.goucher.idm.oclc.org/10.1177/07419325040250030601

Saunders, D., & Gierke, T. (1999). Increasing phonemic awareness among primary students to improve reading skills. Retrieved from: https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED433502&login.asp&site=ehost-live&scope=site

Appendix A

Sample Elkonin Box

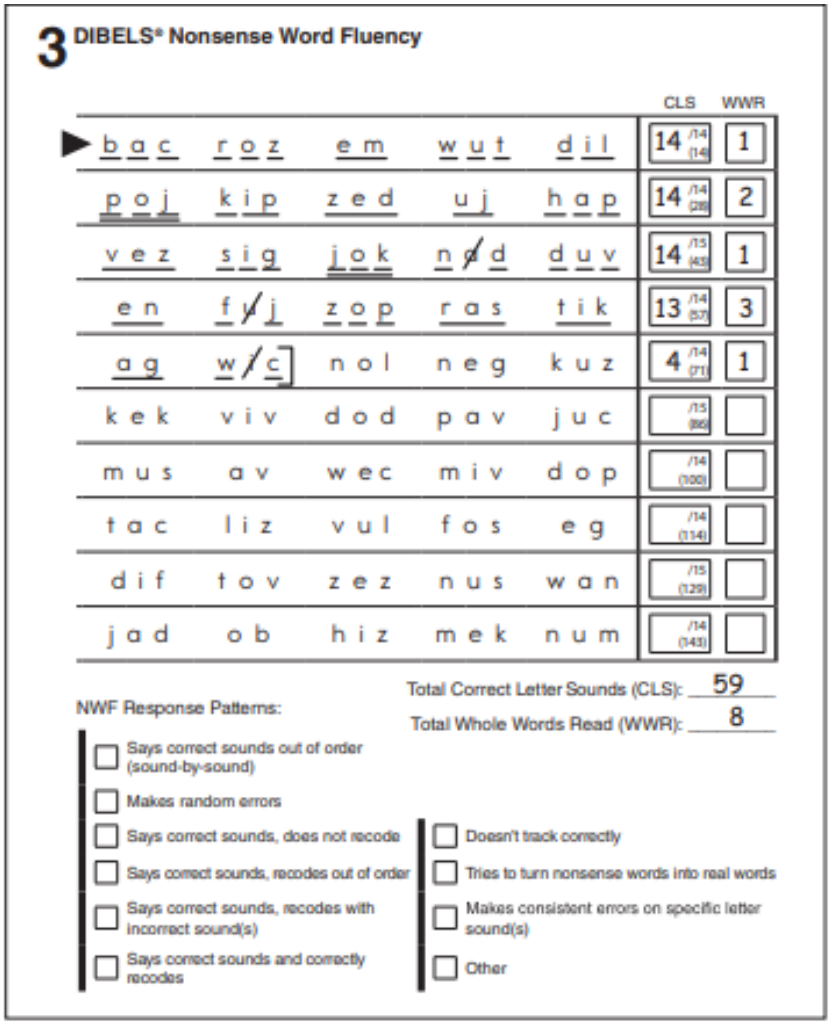
Appendix B

Sample NWF Task

▶ sab	hej	ut	zos	nin
bav	nol	vem	iv	lup
viz	lek	zaf	hok	huv
oc	naj	wid	res	mup
uk	wip	lal	mos	kev
los	vij	mus	pej	yas
fop	uj	ves	bij	tal
kib	mav	yoc	kuf	en
med	lij	vav	bot	vub
yub	ig	saj	kof	tep

Appendix C

Sample NWF Scoring Sheet



3 DIBELS® Nonsense Word Fluency

					CLS	WWR
▶ bac	roz	em	wut	dil	14 /14 (14)	1
poj	kip	zed	uj	hap	14 /14 (28)	2
vez	sig	jok	nɒd	duv	14 /15 (43)	1
en	f/j	zop	ras	tik	13 /14 (57)	3
ag	w/c	nol	neg	kuz	4 /14 (71)	1
kek	viv	dod	pav	juc	/15 (86)	
mus	av	wec	miv	dop	/14 (100)	
tac	liz	vul	fos	eg	/14 (114)	
dif	tov	zez	nus	wan	/15 (129)	
jad	ob	hiz	mek	num	/14 (143)	

Total Correct Letter Sounds (CLS): 59

Total Whole Words Read (WWR): 8

NWF Response Patterns:

- ☐ Says correct sounds out of order (sound-by-sound)
- ☐ Makes random errors
- ☐ Says correct sounds, does not recode
- ☐ Says correct sounds, recodes out of order
- ☐ Says correct sounds, recodes with incorrect sound(s)
- ☐ Says correct sounds and correctly recodes
- ☐ Doesn't track correctly
- ☐ Tries to turn nonsense words into real words
- ☐ Makes consistent errors on specific letter sound(s)
- ☐ Other