

VOCABULARY DEVELOPMENT IN THE ELEMENTARY SCHOOL YEARS FOR
STUDENTS WITH SPECIFIC LEARNING DISABILITIES

by

Katie E. Rowe

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Thesis Committee:

Dr. Monica Wallace, Chair

Debbie Bauder, M.Ed., CCC/SLP

Dr. James Rust

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ABSTRACT

Vocabulary development is critical to increase a student's ability to read fluently, as well as to enhance reading comprehension. This study focused on adding a vocabulary component to the S.P.I.R.E. program, which is a multisensory-based reading program modeled after the Orton-Gillingham approach. The study took place at a local elementary school in Middle Tennessee. The researcher designed the vocabulary component, which incorporated elements such as storybook readings, imagery, and semantic mapping. The lessons also addressed the multiple meanings of vocabulary words, when applicable. Student performance was assessed using the Comprehensive Receptive and Expressive Vocabulary Test-Third Edition (CREVT-3). The results did not show significant growth in the students' vocabularies.

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CHAPTER I

Introduction

Overview

Reading fluently requires the ability to read quickly, and the ability to comprehend the material that is being read. Vocabulary development is an integral component of fluent reading. An expansive vocabulary allows children to gain a deeper understanding of the texts that they encounter. Reading and vocabulary share a mutually beneficial relationship. As children's vocabularies expand, they are able to become more skilled readers, and as children become more skilled readers, they tend to read more; thus, further expanding their vocabularies (Cohen & Johnson, 2011).

Children learn vocabulary through two basic avenues: indirect vocabulary learning and direct vocabulary learning (National Reading Panel, 2000; Pullen, Tuckwiller, Konold, Maynard, & Coyne, 2010; Steele & Mills, 2011). Children learn indirectly when exposed to words they hear and see in their daily lives without being explicitly taught their meanings. These exposures typically occur when listening to adults speak, having someone read to them, and through reading on their own. Children learn directly when specifically taught the meanings of words. This type of instruction is especially important for words that represent complex ideas, words that have multiple meanings, and words children are unlikely exposed to on a regular basis in their daily lives. Effective direct vocabulary instruction needs to embody three key attributes: contextual and definitional information, thorough meanings, and multiple exposures to the word (National Reading Panel, 2000; Steele & Mills, 2011). Children need to be taught vocabulary in a way that

has them actively interacting with the words and allows them to be repeatedly exposed to the words across several contexts (Graves, 2006; National Reading Panel, 2000). By being repeatedly exposed to words across a variety of contexts, children deepen their knowledge by accumulating supplementary details about the words and eradicating false details previously believed to be true (Steele & Mills, 2011). According to the International Reading Association, it is also important that students learn how to use context when they encounter vocabulary words they do not know, as this is often necessary to succeed on the many assessments students are given in school (Overturf, 2013).

According to the research, there are five core methods for providing vocabulary instruction: explicit instruction, implicit instruction, multimedia methods, capacity methods, and association methods. Explicit instruction and implicit instruction, also known as direct instruction and indirect instruction, are described above. “Multimedia methods” means that vocabulary instruction extends beyond simply using text, and instead includes other forms of media including hypertext, graphic representations, or American Sign Language. “Capacity methods” refers to emphasizing practice in order to gain automaticity in reading. “Association methods” refers to encouraging learners to make connections amid prior knowledge and unknown vocabulary words. It is important that vocabulary instruction be taught using a variety of the methods mentioned above. Relying on a single method is less effective than incorporating an array of methods. Effective vocabulary instruction also increases students’ comprehension (National Reading Panel, 2000).

Historically, vocabulary has not been explicitly taught to children in the early elementary school years. This is doing a disservice as many children enter school with a notable deficit in their vocabulary knowledge (Pullen et al., 2010). Children enter school with such varying vocabularies due to differences in their exposure to both written and oral language during their first few years of life. This vocabulary gap is reported to widen the most in the years prior to second grade. Hence, it is vital that students be explicitly taught vocabulary beginning in the critical years of the early elementary grades (Loftus, Coyne, McCoach, Zipoli, & Pullen, 2010).

There is currently a limited amount of research in regards to vocabulary intervention for children specifically in the early elementary school years, as vocabulary is often not taught during these early years (Coyne, McCoach, & Kapp, 2007). Furthermore, there is a limited amount of research in regards to providing an appropriate vocabulary intervention to children who are language impaired (Steele & Mills, 2011). In addition, more studies need to be conducted that occur in the natural educational environment with real teachers rather than in tightly controlled research settings (National Reading Panel, 2000).

Importance of Context

It is vital that students learn to understand the importance of using context when considering what a word means. Many words have multiple meanings, and students must develop an awareness of this, and learn strategies to address this issue. Lovell conducted a study in 1941 to investigate the commonality of words having multiple meanings. Lovell used the list of common words compiled by Seashore and Eckerson. They created

this list using the unabridged dictionary by Funk and Wagnalls. The words were divided into three classifications: common, rare, and derivatives. Lovell found that of these common words, 43% had multiple meanings, ranging from as few as two meanings per word to as many as 41 meanings per word. The mean number of meanings per word was 5.28 (Lovell, 1941). Thus, a large percentage of words have multiple meanings, which can be a source of confusion for students. This is especially true for students who are English Language Learners and students who are struggling with reading. It is important for these students to learn how to use context clues to determine the meaning of a word in a particular instance (Bromley, 2007). For example, the word *bat* can refer to the animal, or to the wooden stick used in baseball. Thus, students must use context clues to determine the meaning of the word in a particular text.

A study by Nelson and Stage (2007) focused on providing third and fifth grade students with a vocabulary intervention that focused on the multiple meanings of words. Eight 3rd grade classes and eight 5th grade classes participated in the study. These classes were assigned randomly to receive either the experimental instruction or the typical core instruction. The experimental instruction provided students with multiple meanings, contextually based vocabulary instruction on Level I words (for third grade) and Level II words (for fifth grade) across a four-month time span. Teachers chose the 36 target words that they felt were most pertinent to their students. These target words also had three “related words” that went along with each meaning. This instruction was embedded within the typical core instruction. The following points detail the steps of the intervention. On the first day, the teachers introduced the target word, its multiple

meanings, and the three related words. This was done to activate the students' prior knowledge related to the target word. Afterwards, the students would use the related words to construct their own sentences. On the second day, the teacher began by providing students with the target word's "word history". Again, the students then applied the word meanings by writing sentences. The students then completed a graphic organizer activity in which they matched target words with their related meanings. The next activity required the students to complete definitions for the multiple meanings of the target words. Next, students engaged in an activity in which they read a short passage and decided whether the use of the target word was "not expected" or "expected". The final activity required the students to write their own short stories using the various meanings of the word.

For the control classes that received the typical core instruction, (i.e., the Scot Foresman Basal Reading program), the teachers were not allowed to engage students in any extra vocabulary or comprehension activities (Nelson & Stage, 2007).

Results showed that third and fifth grade students whose initial vocabulary and comprehension achievement were low, who also received the experimental instruction, displayed vocabulary skills improvements following the intervention. However, the students whose initial vocabulary and comprehension achievement were high did not show notable growth in their vocabularies compared to the students in the control group. However, the main effect for change for all students considered together was statistically significant ($F(1, 285) = 34.07, p < .001$). This means that overall from pre- to post-test, students made improvements in their vocabulary skills. The change by level interaction

also was statistically significant ($F(1, 285) = 20.35, p < .001$). The researchers then conducted Newman-Kuels post hoc tests. The results showed that it was the students in the low achieving group who were most likely to make gains in their vocabulary, rather than those in the average to high achieving group. For third grade, the corresponding effect sizes were .28 for the low achieving group and -.07 for the average to high achieving group. For fifth grade, the corresponding effect sizes were .14 for the low achieving group and -.07 for the average to high achieving group. For the overall sample, the corresponding effect sizes were .18 for the low achieving group and -.06 for the average to high achieving group. Statistical significance also was found when Newman-Kuels post hoc tests were conducted on change by grade interaction ($F(1, 285) = 6.10, p < .05$). This revealed that third grade students were more likely to make vocabulary gains than fifth grade students when looking at the low initial vocabulary and achievement groups (Nelson & Stage, 2007).

The researchers also included the impact the intervention had on students' reading comprehension. They found that the students who received the intervention made moderate to large gains in their reading comprehension when compared to the students in the control condition. The main effect for change was statistically significant ($F(1, 285) = 34.07, p < .001$). Thus, from pre- to post-test, the students generally showed reading comprehension improvements. The change by condition interaction also was statistically significant ($F(1, 285) = 10.68, p < .01$), meaning that the students who received the intervention were more likely than the students in the control condition to show improvements in their reading comprehension. The exception to this was fifth grade

students who were already average to high achieving. The effect size for third grade students with low initial vocabulary and comprehension achievement was .67. The effect size for fifth grade students with low initial vocabulary and comprehension achievement was .57. For the high achievers, the effect size for third grade was .46 and for fifth grade it was -.08. The effect sizes for the overall sample of low achieving and average to high achieving students was .53 for the low achieving and .23 for the high achieving. Thus, multiple meaning vocabulary instruction appears to be beneficial to not only students' vocabulary knowledge but also to their subsequent reading comprehension, especially if the student's initial vocabulary and comprehension achievement were low (Nelson & Stage, 2007).

Instructional Approaches

There are several different vocabulary teaching approaches shown to have efficacy. Researchers have studied the differences in utilizing extended instruction, embedded instruction, and incidental exposure as methods to teach vocabulary. When directly teaching vocabulary to students, approaches such as semantic mapping, imagery, and storybook readings can be included (Cohen & Johnson, 2011; Nash & Snowling, 2006; Pullen et al., 2010).

Extended instruction, embedded instruction, and incidental exposure.

Two studies were conducted to investigate the effectiveness of some of the previously mentioned approaches. The first study contrasted extended instruction and incidental exposure during storybook readings. During the extended vocabulary instruction, the students were explicitly provided definitions of the three target vocabulary words while

the story was being read. The same sentence would then be reread, replacing the word with the definition that had just been provided. Afterwards, they were provided with multiple opportunities to interact with the words to gain additional contextual information. These opportunities included working with examples of the target word (e.g., sturdy). Students were provided with various examples and asked to say whether or not the example was something that would be considered “sturdy” or not (e.g., a house of cards). Students were instructed to create their own sentences using the target words. Afterwards, open-ended questions were asked to motivate the students to expand their responses. The incidental exposure group only saw the target words as they appeared in the story. The words were not directly taught or discussed. The results showed that students who were taught using extended instruction made greater expressive vocabulary gains than the students who only were taught through incidental exposure ($F(1,30) = 104.36, p < .001$). The same was true for vocabulary gains on the receptive definitions measure ($F(1,30) = 40.96, p < .001$) and on the receptive measure for word context ($F(1,30) = 29.45, p < .001$) (Coyne et al., 2007).

The second study contrasted extended instruction with embedded instruction. The extended instruction method was the same as in study one. The embedded instruction method provided children a definition of the word while reading the story, then children reread the sentence using the definition (as was done in the extended instruction). However, the words were not discussed after the story. The results showed that students who received the extended instruction made greater vocabulary gains than those who

received only the embedded instruction. Hence, overall the extended instruction proved to be the most effective form of vocabulary instruction (Coyne et al., 2007).

A similar study also investigated the benefits of embedded instruction versus extended instruction. They made the point that the two types of instruction accomplish different goals. The goal of embedded instruction is to expand students' breadth of knowledge by quickly and efficiently teaching new vocabulary words within storybook readings. The goal of extended instruction is to expand the depth of students' vocabulary knowledge through more time intensive instruction that includes multiple opportunities to respond to the target words after the story is over. The goal of their study was to aid instructors and researchers in determining the vocabulary instruction methods that would maximize efficiency in regards to effectiveness and time demands. Their study included 43 kindergarten students. The conditions included vocabulary words being taught with embedded instruction, vocabulary taught with extended instruction, and vocabulary taught incidentally. Using a within-subjects design, each student received all three types of instruction. The researchers chose a book and then selected nine target words that were considered to be low frequency, Tier II words. Three versions of the intervention were created and in each version three of the words were taught using each of the three aforementioned types of instruction. The difference between the versions was which specific words were taught using which type of instruction (i.e., in Version A "torrid" was taught using extended instruction, in Version B it was taught using incidental exposure, and in Version C it was taught using embedded instruction). Students were randomly assigned to an experimental version. The intervention groups were kept small,

with only three to four students per group. The intervention was implemented three times across a one-week time span, thus the students heard the story three times (Coyne, McCoach, Loftus, Zipoli, & Kapp, 2009).

For the words being taught with embedded instruction, students were presented with the three target words for that day and asked to repeat them after the examiner. The students received instructions to raise their hands when they heard the target word, and to tell the researcher which target word they had heard. The researcher would then repeat the sentence that included the target word, would provide a child-friendly definition, and then would once again repeat the sentence, this time using the definition. Next, the researcher pointed out the corresponding picture, and the students repeated the word together. This format was followed in each session for the words designated to be taught using embedded instruction. Thus, each of the target words was taught using embedded instruction three times (Coyne et al., 2009).

For the target words that were taught using extended instruction, the same format was followed as those words being taught with embedded instruction; however, in addition, the researchers engaged the students in various activities after the story was over. After the story was over, the researchers reviewed the target word using the corresponding picture and the story context. Next, examples of the word in different contexts were provided to the students by the researchers in an effort to extend their understanding beyond the specific example in the book. In sessions one and two, three activities took place after the story (one for each word). These included the following: asking students whether or not a picture represented the target word; asking open-ended

questions about the words; and asking yes or no questions about the word. In the question activities, the researchers provided students with feedback. In the third session, similar activities were used except two target words were included in the questions (Coyne et al., 2009).

For the target words taught incidentally, students simply were exposed to the words while the story was read aloud to them. Thus, they were exposed to these words once each time the story was read. These words were never directly mentioned or discussed before the story, or after it was over (Coyne et al., 2009).

The results of this study were similar to previous studies. One-way repeated-measures ANOVAs were used to determine which type of instruction yielded the fullest knowledge of the word. The researchers found significant differences (Wilks $\lambda = .683$, $p = .001$) for words taught among the three types of instruction. Furthermore, statistical significance was also found for the linear trend ($p < .001$). Thus, students scored highest on words taught using extended instruction. The next highest was embedded instruction, and finally incidental exposure. To relate back to the goals mentioned at the beginning of this study, the researchers determined that while students learned two of the three words for both extended and embedded instruction, the students gained a much deeper understanding of the words that were taught using the extended instruction. They displayed only a shallow level of knowledge for the words that were taught using embedded instruction. Thus, while embedded instruction is more time efficient, the students displayed only a partial knowledge of the target words, making extended instruction a more favorable choice for teaching words that are crucial to understanding

the story meaning, despite being more time intensive. However, the researchers stated that embedded instruction would still be useful for words that are higher frequency but not crucial for understanding the story (Coyne et al., 2009).

Semantic mapping. Semantic mapping is a form of visual organization that can take on a few different forms. Typically, the vocabulary word that is being studied is written in a box in the middle of the map with several lines leading to surrounding boxes. In one form of semantic mapping, these boxes have attributes of the target vocabulary word written in them. In another form of semantic mapping, these boxes have synonyms written in them (Nash & Snowling, 2006; Stahl, 1986). In another form, the boxes are designated to answer certain questions about the target word such as “what is it?”, “what is it like?”, and “what are some examples?” (Bursuck & Damer, 2011; Schwartz & Raphael, 1985). Any of these forms can be used to teach the target vocabulary word and improve reading comprehension (Nash & Snowling, 2006). The use of semantic maps allows students to visually see relationships between the new vocabulary words and concepts they already knew (Rupley & Nichols, 2005; Taylor, Mraz, Nichols, Rickelman, & Wood, 2009). Furthermore, semantic mapping can be used as a pre-teaching activity prior to reading, or it can be used as a post-reading activity to evaluate the students’ understanding of the word (Joseph, 2008). The National Reading Panel included semantic mapping in its report under “multimedia methods”, which was listed as one of the five main methods of vocabulary instruction (National Reading Panel, 2000).

Semantic mapping is a useful technique for teaching vocabulary because it activates students’ prior knowledge, which is important for increasing comprehension and

retention of the material (Graves, 2006; Little & Box, 2011). It can be especially useful for students who are considered to be “at-risk”, who often lack the prior knowledge that many of their peers maintain. Through the use of semantic mapping, these at-risk students are exposed to their peers’ prior knowledge in a quick, efficient manner, which can strengthen their comprehension of the text (Little & Box, 2011).

Researchers used a single-subject, multiple-baseline design to evaluate the effectiveness of using a concept model versus traditional definition instruction of vocabulary words. They described the concept model as including the target vocabulary word, its definition, examples, and non-examples. The concept diagram they are describing is very similar to semantic mapping, but laid out a bit differently. The participants in this study were six 7th grade students, each of whom was diagnosed with a learning disability. (Fore, Boon, & Lowrie, 2007).

The sessions occurred twice a week for 20 minutes, with five vocabulary words taught per session. In the baseline condition, the vocabulary word was written on the board and pronounced by the teacher. Students were then told to use the dictionary to look up the most common definition for the target vocabulary word and to write it down. Next, the teacher would discuss the definitions with the class, and together they would choose key words that basically summed up the word. The key words were then written on the board and students were told to write them on their papers as well. The students then wrote a sentence using the target word, and turned in their work to the teacher who provided feedback and answered their questions on the following day. In the intervention condition, the teacher provided students with a blank concept diagram, and used a

transparency copy for classroom instruction. Students were instructed to write down anything the teacher wrote down on her diagram. As before, she wrote the word and pronounced it for the students. She then provided students with the definition of the word and wrote it down as well. The class then engaged in discussion (and wrote down) about characteristics of the word that were always present, sometimes present, and things that were never characteristics of the word (e.g., if the word was “dog” an example of a characteristic that is always present is “animal”, sometimes present is “brown”, never a characteristic is “can fly”). They then engaged in dialogue about examples and non-examples of the word, linking these to the previously discussed characteristics of the word. The teacher then asked the students questions and answered their questions. Throughout this process, the teacher kept tally of which students she had called on to guarantee each student was called on an equal number of times. At the end of each week, students were tested using ten matching questions with the definitions of the target words. The results of this study supported the use of the concept model over traditional definitional instruction of vocabulary words. During the baseline condition (e.g., traditional definition instruction), the mean score for all of the students was 63.75% correct. During the intervention condition, the mean score for all of the students was 90.67% correct. Thus, the concept model was clearly more effective in teaching students novel vocabulary words (Fore et al., 2007).

Imagery. The National Reading Panel identified five main methods of vocabulary instruction, one of which is through association methods. In the panel’s report, the inclusion of imagery is mentioned as a useful association method (National Reading

Panel, 2000). Imagery aids in vocabulary development can be approached in various ways. One way is to present students with a pictorial representation of the word when it is introduced. Another way is to have children create their own visual representation of the word. A study was conducted that focused on contrasting the various uses of imagery in teaching vocabulary. They utilized a Word Only method, a Dual Coding method, and an Image Creation method. In the Word Only method, the students were shown the word written on a 4" x 6" flashcard. The researcher would then read the word and use it in a sentence. Finally, the researcher would provide the definition of the word and say the word again. In the Dual Coding method, the same procedure was followed as in the Word Only method, except the researcher showed the students a picture of the word rather than repeating it one last time at the end. In the Image Creation method, the procedure for the Dual Coding method was followed, except students were asked to draw a visual representation of the word on a piece of paper rather than being shown an image of the word. The results showed that the mean of the Dual Coding group was highest although the difference was not statistically significant. Furthermore, when the target words were science related, there was a significant difference between the Image Creation method and the Word Only method, with the Image Creation method being more effective. Small group discussions were held with the students to gain their insight on what they found to be most effective. The participants advocated that the Dual Coding method was useful to them. They also said the Image Creation method was helpful, but it was sometimes difficult to draw a visual representation of the word (Cohen & Johnson, 2011).

Another way to incorporate imagery is through the use of a concept wheel. A concept wheel is similar to a mix between semantic mapping and imagery. The concept wheel includes a section for the word, a section for the definition, a section for related words, and a section for a pictorial representation of the word. The picture should be used to aid the students in conceptualizing the word and helping them recall the definition (Rupley & Nichols, 2005).

The previously described study by Coyne et al. (2009) incorporated the use of imagery naturalistically through the use of storybook readings. While they did not directly study the impact of imagery by itself, it is relevant to note that it was included in both the extended and embedded instructional methods, both of which proved more effective in teaching vocabulary over incidental exposure. They also mentioned purposefully choosing target words that were near pictures that represented the words. Thus, including imagery was a deliberate decision.

Storybook readings. Another technique that can be useful in exposing children to new vocabulary is through reading stories aloud to them. This is an excellent way to expose children to rich vocabulary that they often would not happen upon through everyday conversation (Pullen et al., 2010). By reading stories aloud to children, they are able to learn many of the words simply through incidental exposure. In addition, storybook readings have been found to be even more effective if the more difficult words are directly taught using both definitional and contextual information. Storybook readings also provide children with wonderful opportunities to interact with the target vocabulary words (Loftus et al., 2010). Furthermore, the National Reading Panel report (National

Reading Panel, 2000) provides further advocacy for the use of storybook readings in developing children's vocabulary. It also supports the practice of pre-teaching vocabulary words prior to reading the story. By utilizing pre-teaching, students are better able to comprehend the story while it is being read to them.

One study focused on including storybook readings as part of their vocabulary intervention with kindergarten students. In this study, students were assigned to either the Tier 1 group or the Tier 2 group using regression discontinuity design (RDD). The students in the Tier 1 condition received two class-wide lessons on vocabulary using a read aloud story. The teacher would begin the lesson by providing a very brief summary of the story and child-friendly definitions of the four "magic words" of the day. The students were told to raise their hand while the story was being read when they heard a "magic word". While the teacher was reading the story aloud to the class, she would pause on the target words to provide extra instruction (e.g., provided a brief, child-friendly definition). After the story was over, the class would participate in additional vocabulary activities. On day one, this was a picture activity. The students were shown three pictures, two of which related to the target word. The students were asked to respond to each picture, telling whether or not the picture depicted the target word. On day two, the additional vocabulary activity was a sentence activity. During this activity, the teacher would read sentences containing the target words, and the students had to respond as to whether or not the sentence accurately depicted the target word. The students in the Tier 2 condition received the Tier 1 instruction, as well as additional small group instruction. In this condition, the interventionist reminded the students about the

story they had read in Tier 1 instruction; however, the interventionist did not reread the story to the students. Next, the interventionist would provide further vocabulary instruction using either verbal-visual methods or verbal-manipulative methods. The verbal-visual methods included activities similar to the Tier 1 activities (e.g., asking students to respond to the sentence read aloud as to whether or not the target word was used appropriately, and using pictures that either portrayed examples or non-examples of the target word). The verbal-manipulative method including activities such as: the interventionist using puppets and props to model the definition of the target word. Afterwards, the students were given the opportunity to interact with the puppets themselves to act out the meanings of the words. While there was not a significant difference between the Tier 1 and Tier 2 groups as to growth of vocabulary, this was speculated by the researchers as being due to the fact that the Tier 1 instruction was already so rich that potentially the additional Tier 2 instruction was not necessary (Tuckwiller, Pullen, & Coyne, 2010).

In a similar study, (as cited in Coyne, Simmons, Kame'enui, and Stoolmiller, 2004), the researchers investigated the vocabulary gains of students through storybook readings with explicit instruction on target words. In this study, 96 children were randomly assigned among three groups. One group received the storybook intervention, the second group received a phonologic and alphabetic skills intervention, and the third group received a letters and sounds component of a reading program. The storybook intervention was composed of 108 lessons that lasted approximately 30 minutes each. Forty children's books were used throughout the intervention. From each storybook,

three target words were chosen to be taught directly. The researchers found on an experimenter-developed vocabulary measure, students in the vocabulary group scored significantly higher than either of the other two groups. They reported moderate to large effect sizes ($d = .73$ for the storybook v. code-based group; $d = .85$ for the storybook v. control group). Thus, the results of this study add further support to the value of including storybook readings (with explicit vocabulary instruction embedded) in vocabulary interventions.

Coyne et al. (2004) later ran secondary analyses on the data from the aforementioned study. Among other things, they were interested in determining if initial level of vocabulary made a difference in the effectiveness of the intervention. For the secondary analyses, they included only the storybook group and the control group. The researchers found that for the vocabulary words that were explicitly taught during storybook readings, students who received this intervention benefited more than students in the control group. However, for the vocabulary words that were not explicitly taught, there was not a significant difference between the control group and the storybook group. In the storybook group, there was not a significant difference in the amount of vocabulary gains made for students with lower initial vocabularies as compared to those with higher initial vocabularies.

Beck and McKeown (2007) expanded the research on teaching vocabulary to children through storybook readings by focusing their study on low-income children in two studies. In study 1, eight classes of students at a particular school were chosen to participate in this study. Four of the classes were kindergarten classes and four were 1st

grade classes. From each grade, two classes received the Text Talk intervention, and two were considered control classes, which received the typical reading curriculum. All of the students in this study were African American, and the majority (82%) qualified for free or reduced lunch. The students in the experimental classes received vocabulary instruction through part of a program called Text Talk, which focuses on read-aloud books. The stories that were chosen were considered to be challenging enough that students likely would be unable to read them on their own. Three vocabulary words were chosen from each book, and were considered to be Tier 2 level words. In this intervention, the storybook was first read to the students and the book was discussed. Afterwards, the students would receive the vocabulary instruction through various activities (i.e., the word was discussed within the context of the story; the definition was explained; students repeated the word back to the teacher; other contextual examples were provided by the teacher; students were asked to discriminate between examples and non-examples of the word; students were instructed to create an example of their own). Students in the control group participated in the typical reading curriculum, which included story read alouds; however, explicit vocabulary instruction was not provided. The results of this study found that students who received the Text Talk vocabulary intervention learned significantly more words than the students in the control condition. This was true at both the kindergarten ($F(1, 45) = 15.93, p = .000$) and first grade ($F(1, 51) = 7.25, p = .010$) levels. The effect size for kindergarten students receiving the intervention was $d = 1.17$. The effect size for 1st grade students receiving the intervention was $d = .744$. Thus, this study provides evidence that storybook readings are useful for

teaching challenging vocabulary words to young students; however, it differentiates that direct vocabulary instruction must also be provided afterwards in order for the storybook readings to be effective.

In study two by Beck and McKeown (2007), the researchers focused on the importance of providing instruction on the target words across several days, thus expanding the previous research conducted in study one. Study two was conducted at a different school in the same district as study one. Once again, all of the students were African American with the majority (81%) qualifying for free or reduced lunch. In this study, there were three kindergarten classes and three first grade classes that participated. There were two different conditions in this study: one condition received *Rich Instruction*, which was the same as the experimental instruction in study one. The second condition received *More Rich Instruction*, which was the same as *Rich Instruction* except teachers provided additional instruction on the vocabulary words across several days. These students were taught six words each week, and received *Rich Instruction* on all six. Three of those words were taught additionally using *More Rich Instruction*. The *More Rich Instruction* words were reviewed in two cycles during the intervention. The teachers focused on one book each week as follows: on day one the story was read and discussed; on days two and three, *Rich Instruction* was provided on three words each day; on days four and five, students were provided with *More Rich Instruction* on three of the target words. The researchers found significantly greater gains on the *More Rich Instruction* words than the *Rich Instruction* words for both kindergarten students ($F(1, 35) = 69.47, p < .001$) and for 1st grade students ($F(1, 39) = 64.10, p < .001$). Thus, not only are

storybook readings valuable in teaching students sophisticated vocabulary, but they yield even better results when paired with direct instruction over several days. This study added to the research base by proving the effectiveness of vocabulary instruction with students in the early elementary school grades, which is a reported gap in the literature (Beck & McKeown, 2007).

Application of Strategies

The following study incorporated several of the aforementioned strategies and techniques. This study used the program *Elements of Reading: Vocabulary* with third grade students at seven elementary schools, which were grouped into Site A and Site B for comparison. This program included five core components: (a) read-aloud stories, (b) Word Snapshot Photo Cards and Word Cards to provide contextual and definitional information, (c) oral discussion, (d) semantic activities with tasks such as graphic organizers and the Student Book, and (e) Word Watcher Chart, weekly assessments, and reviews for monitoring and assessment. The Early Reading Diagnostic Assessment (ERDA) was used to assess the students' oral and sight vocabulary. The Gates-MacGinitie Reading Test (GMRT), 4th edition Level 3 was used to assess the students' reading vocabulary and comprehension. Using repeated-measures ANOVAs, the researchers found positive, statistically significant effects on the students' oral vocabulary at Site A for time, $F(1, 114) = 12.95, p < .001$, and for Time x Condition, $F(1, 114) = 8.32, p < .01$. However, such positive results were not found for sight vocabulary at Site A. Furthermore, at Site B, there were no positive significant results for either oral or sight vocabulary (Apthorp, 2006).

The researchers then went on to investigate the impact the intervention had on students' reading achievement. A MANOVA was conducted on comprehension and reading vocabulary. At Site A, a significant condition effect, $F(2, 121) = 8.13, p < .001, ES = .073$, was found. Thus, follow-up ANOVAs were then conducted. For reading vocabulary, a significant effect of condition was found, $F(1, 122) = 9.123, p < .005, ES = 0.55$. However, a significant effect of condition was not found on reading comprehension, $F(1, 128) = -0.067, ES = -0.06$. However, similar results were not found at Site B. This is perhaps due to the Site B students being less significantly delayed than their peers at Site A; however, this is speculation. At Site A, more than 75% of the students were at risk for failing to meet the expectations for their grade-level; however, at Site B, more than 70% of the children were already at or above grade-level expectations. At Site A, 90% of the students were on free or reduced-price lunch; however, at Site B, only 24% to 35% were on free or reduced-price lunch (Apthorp, 2006).

Despite the inconsistency across settings, this study still lends some evidence to the value of incorporating imagery, storybook readings, and semantic activities to teach students vocabulary. It perhaps even lends support to the importance of using these methods with students who have low initial reading achievement. However, this is speculation as this was not a factor that was directly studied (Apthorp, 2006).

Purpose of Current Research

This study added to the research by providing a vocabulary intervention to students who have a Specific Learning Disability. The participants were students in the elementary school grades who were currently receiving the S.P.I.R.E. intervention.

S.P.I.R.E. stands for “Specialized Program Individualizing Reading Excellence” and it is currently in its third edition. It is a multisensory reading system that is comprehensive in nature and based on the Orton-Gillingham approach. It incorporates phonological awareness, phonics, spelling, handwriting, fluency, vocabulary, and comprehension into a structured program (Educators Publishing Service, <http://eps.schoolspecialty.com/downloads/povs/S-spire3.pdf>). Based on a review of the lesson plans and the scope and sequence of S.P.I.R.E. it appeared to be weak on explicit vocabulary instruction. I consulted with a specialist in the field, who concurred with this conclusion. This pilot study filled that gap by targeting ten children who were currently receiving instruction in S.P.I.R.E., and provided them with a supplemental vocabulary intervention designed by me that utilized techniques shown to be effective and efficient based on a review of the literature. The intervention included the use of storybook readings, imagery, semantic mapping, sentence generation, and addressed multiple meanings of words. Two groups received the vocabulary intervention. Each group was limited to only five students because research has shown that group size is a predictive indicator of intervention outcomes. Groups that include fewer than six children are ideal for providing such interventions (Loftus et al., 2010). Each vocabulary intervention group received identical instruction in vocabulary. The control group did not receive the additional vocabulary instruction. All of the students received the S.P.I.R.E. instruction. The students were assessed using the Comprehensive Receptive and Expressive Vocabulary Test, Third Edition (CREVT-3) as the pre- and post-test measure.

Hypotheses

Hypothesis I. Students who receive the vocabulary intervention will make statistically significant gains in their vocabulary knowledge from pre- to post-test as measured by the CREVT-3.

Hypothesis II. Students who receive the vocabulary intervention will make statistically significantly greater gains than the control group.

CHAPTER II

Method

Participants

The Tennessee Center for the Study and Treatment of Dyslexia located at Middle Tennessee State University in Murfreesboro, Tennessee was coordinating intervention services through a Tennessee Department of Education grant. The grant provided the Specialized Program Individualizing Reading Excellence (S.P.I.R.E.) intervention to students enrolled in Special Education in three elementary schools in middle Tennessee. The current study focused on the students who were a part of the grant at Eastside Elementary in Bedford County.

Twelve students began receiving the S.P.I.R.E. tutoring in October of 2012. To be eligible to receive the S.P.I.R.E. tutoring, students had to be enrolled in Special Education under the category of “Specific Learning Disability” and have reading goals on their IEPs. The two special education teachers at Eastside Elementary identified the 12 students who they felt would benefit most from the intervention. These were students who struggled with basic reading skills and were making very little progress. These students were pretested by the Tennessee Center for the Study and Treatment of Dyslexia using six different measures: Test of Word Reading Efficiency (TOWRE), ADEPT, Test of Silent Word Reading Fluency (TOSWRF), Test of Written Spelling, 4th Edition (TWS-4), a grade level reading fluency passage, and an attitude towards reading survey. The ADEPT is a measure that was designed by the Tennessee Center for the Study and Treatment of Dyslexia. It assesses a student’s phonological manipulation skills. These

measures were not used for the identification of students, but rather as pretest measures to establish a baseline for later measurement of the effects of the intervention provided by The Tennessee Center for the Study and Treatment of Dyslexia. Thus, the students' scores did not have to meet certain cut off criteria. In February 2013, 8 more students were added. Thus, a total of 21 students were identified to be provided with the S.P.I.R.E. tutoring. Over the course of the school year, 3 students either moved or discontinued tutoring. Therefore, a total of 18 students were receiving the S.P.I.R.E. tutoring. They received tutoring three days per week for one hour per session.

Description of S.P.I.R.E.

S.P.I.R.E. is intended to strengthen students' decoding abilities. Each lesson follows the following 10 step sequence: phonogram cards, phonological awareness, word building, decoding and sentence reading, prereading, reading, sound dictation, prespelling, spelling, and sentence dictation. The students at Eastside Elementary began at Level 1 of the S.P.I.R.E. program. Level 1 focuses on learning the following spelling patterns: short vowels, *sh*, *ch*, *th*, *wh*, *ang*, *ing*, *ong*, *ung*, *ank*, *ink*, *onk*, and *unk*. Prior to the start of the summer intervention, these students were either finishing up Level 1 or beginning Level 2 of S.P.I.R.E. Level 2 addresses the following spelling patterns: *ff*, *ll*, *ss*, *al*, *wa*, *qu*, *ck*, *tch*, *a-e*, *i-e*, *o-e*, *u-e*, *e-e*, and *Vse*.

To be eligible to participate in the vocabulary intervention study, the students who were participating in the grant had to return a signed parental permission form to continue receiving services into the summer. The special education teachers nominated 15 students they felt would most benefit from the vocabulary intervention. Those 15 students were

then randomly assigned among three groups (two vocabulary intervention groups and one control group). The two vocabulary groups received identical interventions. Each vocabulary group was composed of five students. The control group (originally composed of five students) was composed of three students by the end of the study due to two students not attending on the post-test date. The 13 students who fully participated in the study ranged from second grade through fifth grade. In the control group, there was one student each from third, fourth, and fifth grades. Intervention group 1 was composed of two third grade students and three fourth grade students. Intervention group 2 was composed of one second grade student, one third grade student, one fourth grade student, and two fifth grade students. Across the two intervention groups, nine of the ten students were Mexican. These students ranged in age from 8 years 6 months to 11 years 9 months at the time of pre-testing.

Materials and Apparatus

Normative assessment. *Comprehensive Expressive and Receptive Vocabulary Test- Third Edition (CREVT-3)*. The CREVT-3 is an individually administered test of an individual's expressive and receptive oral vocabulary. Form A was used to pre-test the participants and Form B was used to post-test the participants (with the exception of two students who received Form B for pre-test and Form A for post-test).

Review of the CREVT-3. The third edition of the Comprehensive Receptive and Expressive Vocabulary Test (CREVT-3, 2013) was first designed in 1994 by Gerald Wallace and Donald D. Hammill to provide a standardized measure of an individual's receptive and expressive oral vocabulary. The third edition is based upon normative data

collected in 2010-2011, and the sample demographics were in concordance with 2011 U.S. Census Bureau data. Changes included: updating outdated photographs; adding new words to the upper age levels for both subtests; and providing a pronunciation guide for both subtests. Studies are reported in the manual that further corroborate the reliability and validity of the CREVT-3. Two of the techniques used to affirm validity included *binary classification analysis* and *receiver operating characteristic/area under the curve (ROC/AUC) analysis* (Wallace & Hammill, 2013).

The authors of the CREVT-3 state that it has four primary uses: identification of individuals who are significantly lacking in their vocabulary knowledge relative to their same age peers; identification of a discrepancy in an individual's expressive and receptive oral vocabulary; to record an individual's vocabulary gains, particularly in response to intervention; and to be used in research studies as a measure of oral vocabulary (Wallace & Hammill, 2013).

The CREVT-3 is an individually administered, norm-referenced test that measures receptive and expressive oral vocabulary. The test includes two equivalent forms, Form A and Form B, and it may be administered to individuals ranging in age from 5 years 0 months to 89 years 11 months. The normative data were based on 1,535 individuals from 29 states and the District of Columbia. Males composed 51% of the normative sample and females composed 49%. The geographic region composition was as follows: 18% were from the Northeast, 37% were from the South, 20% were from the Midwest, and 25% were from the West. The racial distribution of the normative sample was as follows: 80% were White, 14% were Black/African American, <1% were American

Indian/Eskimo/Aleut, 4% were Asian/Pacific Islander, and 2% were two or more races. In regards to Hispanic Status, 15% replied “yes”, 85% replied “no”. In regards to Exceptionality Status, 5% had a Learning Disability, 5% had an Articulation Disorder, 5% were Language Impaired, 4% had Attention-Deficit Disorder, 3% were Gifted and Talented, and 6% were Other. In regards to Household Income: 12% were under \$15,000; 10% were \$15,000 to \$24,999; 10% were \$25,000 to \$34,999; 15% were \$35,000 to \$49,999; 19% were \$50,000 to \$74,999; and 34% were \$75,000 and over. In regards to Educational Attainment of Parents or Adults: 72% had less than a Bachelor’s degree, 18% had a Bachelor’s degree, and 10% had a Graduate degree. All of these statistics correspond closely with the U.S. Census Bureau demographic information (Wallace & Hammill, 2013).

The CREVT-3 kit is comprised of three components: the Examiner’s Manual, the Examiner Record Booklets, and the Picture Book. The Examiner’s Manual contains the following information: general test information, directions for administration and scoring, and the tables to convert raw scores to normative scores. The Examiner Record Booklets have spaces to record the examinee’s identifying information and is used to record the examinee’s test responses. The Picture Book includes 10 plates that are used in the administration of both Form A and Form B. Each plate relates to a specific category and is divided into six boxes with a picture in each box that portrays different examples of that category (Wallace & Hammill, 2013).

The CREVT-3 is composed of two subtests. Verbatim directions are provided for each subtest. On the first subtest, Receptive Vocabulary, the examiner says a stimulus

word and the examinee chooses the best representation of the word from the six pictures on the picture plate. Ten plates are used in the administration of this subtest. The examinee may either point to the picture they are choosing, or verbally tell the examiner the identifying letter of the picture. The second subtest, Expressive Vocabulary, requires the examinee to orally provide the definition of a given word. The examinee may choose to simply state a synonym, or he/she may provide lengthier definitions. This subtest includes words from the same categories (e.g., animals, occupations, foods, etc.) that are used in the Receptive Vocabulary subtest. The composite score is General Vocabulary and it represents the examinee's overall oral vocabulary skills. The CREVT-3 is not timed; however, according to the manual it takes approximately 20 to 30 minutes to administer both subtests (Wallace & Hammill, 2013).

The CREVT-3 provides four kinds of scores: subtest indexes, composite index, age equivalents, and percentile ranks. The index scores for the subtests and composite have a mean of 100 with a standard deviation of 15. Age equivalent scores are provided reluctantly and should be interpreted with caution (Wallace & Hammill, 2013).

The authors of the CREVT-3 calculated five different reliability coefficients: coefficient alpha, alternate forms (immediate administration), alternate forms (delayed administration), test-retest, and interscorer reliability. Reliability coefficients of .90 or higher were obtained in receptive vocabulary, expressive vocabulary, and general vocabulary for both the coefficient alphas and the test-retest reliabilities of Forms A and B. The alternate forms (immediate administration) had reliability coefficients of .84 or higher in each of the three areas. The reliability coefficients for the alternate forms

(delayed administration) were .89 or higher in each of the three areas. The interscorer reliability coefficients were .99 for both forms in all three areas (Wallace & Hammill, 2013).

Content-description, criterion prediction, and construct-identification are three types of validity that are addressed in the test manual. There were 55 tests for spoken language vocabulary that were reviewed in order to determine the most appropriate format for the CREVT-3. Hence, the format chosen is consistent with those of other popular vocabulary tests, which supports the CREVT-3's content-description validity. Conventional item analysis and differential item functioning analysis were performed in order to ensure the appropriateness of the test items. The item discriminating power was set at .30 as the minimum level to be allowed for an item to be included on the CREVT-3. This is considered to be a conservative value, but necessary in order to protect the test's reliability. Furthermore, each item's difficulty was assessed to make sure they fell appropriately within the 15-85% range, and then ordered accordingly. Any items outside of this range were not included on the final version. Differential item functioning was performed to ensure that no outstanding bias existed. Only 3 of the 48 items were found to be potentially biased: one against males and two against females. As this accounts for less than 2% of the items, it is safe to consider the CREVT-3 as unbiased in regards to race, gender, or ethnicity (Wallace & Hammill, 2013).

The CREVT-3 was compared to six other tests of vocabulary, and the composite score of the CREVT-3 showed very high correlation for both Forms A and B with these six other tests. When the means of the CREVT-3 and other measures of vocabulary were

compared, differences were considered to be small or trivial, and nonsignificant. The ROC/AUC analysis was used and is defined as “a measure of the overall performance of a diagnostic test and is interpreted as the average value of sensitivity for all possible values of specificity” (as cited in Park, Goo, & Jo, 2004, p.13). The values range from 0 to 1, and .75 was chosen as an acceptable level of sensitivity and specificity for this test. The values found by the ROC/AUC analysis met these standards (Wallace & Hammill, 2013).

Six testable hypotheses were developed by the test authors. Due to the correlation between vocabulary and age, an individual’s performance should correlate significantly with their age. However, this relationship is stronger in younger children as opposed to adults. As a vocabulary measure, the CREVT-3 results should highlight differences between groups of individuals known to have average or below average vocabulary knowledge. As both the Receptive Vocabulary and Expressive Vocabulary subtests are measures of an individual’s oral vocabulary, they should have a high correlation. As an oral vocabulary test, the CREVT-3 should have a high correlation with other oral language tests. Vocabulary knowledge is considered to be a significant part of intelligence and thus the CREVT-3 should have a strong correlation with general intelligence measures. The questions in each subtest measure similar attributes, thus the questions should contribute accordingly to the subtest total score. The CREVT-3 test manual indicates that all of the above hypotheses were confirmed, providing evidence for the construct-identification validity of the CREVT-3 (Wallace & Hammill, 2013).

Intervention materials. I designed the intervention and created the materials. Each student was provided with a binder to keep his/her work in that was completed during each session. These binders were kept by me after each session and were available for outside review at any time until the end of the intervention when the binders were returned to each student for their permanent keeping. The following materials were utilized in this study: short storybooks, student-generated pictures, and semantic map outlines. The storybooks were the decodeable readers that were included in the S.P.I.R.E. program. Level 1 and Level 2 books were chosen in order to align the vocabulary intervention more closely with the S.P.I.R.E. intervention the students were receiving at that time.

Procedure

Pretesting. Before the intervention began, the students were pretested in May using the CREVT-3 Form A. Students were tested individually. I followed the procedural guidelines outlined in the Examiner's Manual of the CREVT-3. After the pretesting occurred, students were randomly assigned among the two vocabulary groups and the control group.

Intervention logistics. The intervention was conducted across a three-week span and sessions were held three times per week, resulting in nine sessions total. The intervention began June 10th and ended June 27th. The sessions were held on Monday, Tuesday, and Wednesday of each week. Each session lasted approximately one hour. During the final 2 sessions, no vocabulary instruction was provided. Those sessions consisted of post-testing the students to evaluate progress.

Intervention steps. The intervention was composed of presentation of the target words, storybook readings, imagery, semantic mapping, and sentence generation. At the beginning of the first session, I began with an opening statement that provided the students with a brief introduction to the intervention, as well as provided an opportunity to establish rapport with the students. The following format was followed for each intervention session. I began by presenting five target vocabulary words per session. Students were provided with “user-friendly” definitions of the words, and were instructed to listen for the words during the ensuing storybook reading. Students were instructed to raise their hands or call out the answer when they heard the “words of the day” during the storybook reading. When the students raised their hands or indicated they knew the answer, I paused reading the story and gave the students opportunities to respond to the target words. The students were asked to provide the definitions of the words. After the story was over, I briefly reviewed the target words and the students were provided with a sheet of white paper with one of the target words written at the top of the sheet. The students were instructed to draw their own visual representation of the word on the sheet of paper. After the students finished their drawings, they were provided with sheets of paper with semantic map outlines. Through dialogue, I assisted the students in completing a semantic map for the target word. Once the semantic maps were finished, students were told to turn their papers over and write a sentence appropriately using the target word on the back. Students were then asked to share their sentences with the group, and I either affirmed their sentences, or aided them in creating a new sentence if the word was used inappropriately. This format was repeated until each of the target words had

been addressed. This format was followed for each intervention session. Furthermore, with the exception of the first session, each subsequent session began with a brief review of the target words from the previous session. This review lasted no more than 3 minutes, and then the aforementioned format was followed. After the three-week intervention ended, the students were post-tested using the CREVT-3 Form B during the 2 last sessions.

Two forms of fidelity checklists were developed by myself and were completed after each intervention session. The first fidelity checklist was an adult version that was completed by myself. See Appendix A to view this fidelity checklist. Twice (once for each vocabulary intervention group), the special education teacher also completed the fidelity checklist to produce interrater reliability data. The second fidelity checklist was a child-friendly version that each student completed at the end of each session. See Appendix B to view this fidelity checklist. Each checklist broke down the steps of the intervention procedure for the session. Each checklist also had questions addressing the students' general level of participation and motivation during the session. Further documentation of fidelity came from the permanent products that each student generated during the sessions.

CHAPTER III

Results

The collected pre- and post-test data was first entered into an excel spreadsheet and then the data was input into the IBM-SPSS software to be analyzed. See Table 1 below for receptive vocabulary scores, Table 2 for expressive vocabulary scores, and Table 3 for the general vocabulary scores.

Table 1.

CREVT-3 Receptive Vocabulary Scores from Pre- to Post-Test.

Child ID	Group	Pre-Test	Post-Test	Pre-Test Form	Post-Test Form
1	1	77	78	A	B
2	1	85	72	A	B
3	1	75	70	A	B
4	1	79	67	A	B
5	1	83	78	A	B
6	2	78	67	A	B
7	2	60	70	B	A
8	2	77	78	A	B
9	2	73	74	A	B
10	2	89	84	A	B
11	3	83	87	B	A
12	3	80	81	A	B
13	3	66	66	A	B

Note. Standard Scores: $M = 100$, $SD = 15$

Group 1 = vocabulary intervention; Group 2 = vocabulary intervention; Group 3 = control group

Table 2.

CREVT-3 Expressive Vocabulary Scores from Pre- to Post-Test.

Child ID	Group	Pre-Test	Post-Test	Pre-Test Form	Post-Test Form
1	1	76	68	A	B
2	1	62	64	A	B
3	1	86	78	A	B
4	1	67	69	A	B
5	1	85	86	A	B
6	2	83	85	A	B
7	2	57	91	B	A
8	2	86	66	A	B
9	2	81	76	A	B
10	2	66	73	A	B
11	3	66	86	B	A
12	3	87	60	A	B
13	3	70	65	A	B

Note. Standard Scores: $M = 100$, $SD = 15$

Group 1 = vocabulary intervention; Group 2 = vocabulary intervention; Group 3 = control group

Table 3.

CREVT-3 General Vocabulary Scores from Pre- to Post-Test.

Child ID	Group	Pre-Test	Post-Test	Pre-Test Form	Post-Test Form
1	1	75	72	A	B
2	1	73	68	A	B
3	1	79	73	A	B
4	1	72	68	A	B
5	1	83	81	A	B
6	2	79	75	A	B
7	2	60	79	B	A
8	2	80	71	A	B
9	2	76	74	A	B
10	2	76	77	A	B
11	3	73	85	B	A
12	3	82	70	A	B
13	3	68	66	A	B

Note. Standard Scores: $M = 100$, $SD = 15$

Group 1 = vocabulary intervention; Group 2 = vocabulary intervention; Group 3 = control group

To address Hypothesis I, paired samples t tests were used to analyze the pre- and post-test data to determine whether or not the intervention group made statistically significant gains in their vocabularies. There were a total of nine paired samples t tests run. Paired samples t tests were run for the pre- and post-test receptive vocabulary, expressive vocabulary, and general vocabulary scores for each group (intervention group 1, intervention group 2, and the control group). The students that participated in this study were at the same level in S.P.I.R.E. and the groups were randomly assigned. Thus, the groups were similar in ability level.

For intervention group 1, there was not a significant difference between the mean pre-test receptive vocabulary score ($M = 79.80$, $SD = 4.147$) and the mean post-test

receptive vocabulary score ($M = 73.00$, $SD = 4.899$); $t(4) = 2.639$, $p = .058$. There was also not a significant difference between the mean pre-test expressive vocabulary score ($M = 75.20$, $SD = 10.663$) and the mean post-test expressive vocabulary score ($M = 73.00$, $SD = 8.888$); $t(4) = .926$, $p = .407$. There was a significant difference between the mean pre-test general vocabulary score ($M = 76.40$, $SD = 4.561$) and the mean post-test general vocabulary score ($M = 72.40$, $SD = 5.320$); $t(4) = 5.657$, $p = .005$. However, these scores indicate that the students' vocabularies got worse, not better.

For intervention group 2, there was not a significant difference between the mean pre-test receptive vocabulary score ($M = 75.40$, $SD = 10.455$) and the mean post-test receptive vocabulary score ($M = 74.60$, $SD = 6.693$); $t(4) = .229$, $p = .830$. There was also not a significant difference between the mean pre-test expressive vocabulary score ($M = 74.60$, $SD = 12.502$) and the mean post-test expressive vocabulary score ($M = 78.20$, $SD = 9.884$); $t(4) = -.406$, $p = .705$. There was not a significant difference between the mean pre-test general vocabulary score ($M = 74.20$, $SD = 8.136$) and the mean post-test general vocabulary score ($M = 75.20$, $SD = 3.033$); $t(4) = -.209$, $p = .845$.

For the control group, there was not a significant difference between the mean pre-test receptive vocabulary score ($M = 76.33$, $SD = 9.074$) and the mean post-test receptive vocabulary score ($M = 78.00$, $SD = 10.817$); $t(2) = -1.387$, $p = .300$. There was also not a significant difference between the mean pre-test expressive vocabulary score ($M = 74.33$, $SD = 11.150$) and the mean post-test expressive vocabulary score ($M = 70.33$, $SD = 13.796$); $t(2) = .295$, $p = .796$. There was not a significant difference between the mean

pre-test general vocabulary score ($M = 74.33$, $SD = 7.095$) and the mean post-test general vocabulary score ($M = 73.67$, $SD = 10.017$); $t(2) = .096$, $p = .932$.

To address Hypothesis II, the intention was to use independent samples t tests to analyze the data to determine whether or not the intervention group made statistically significantly greater gains than the control group. However, since none of the paired samples t tests yielded statistically significant gains in vocabularies, these independent samples t tests were not conducted. Thus, Hypothesis II did not need to be addressed as it was already proven to be false.

Fidelity data was also collected to determine the level of integrity with which the intervention was implemented. There were three types of fidelity data collected: self-ratings by the interventionist, ratings conducted by the special education teacher, and the ratings conducted by the 10 students in the two intervention groups. The self-ratings completed by the examiner after each intervention session yielded 100% adherence to the intervention steps. The ratings conducted by the special education teacher after observing two intervention sessions yielded 88.8% full adherence to the intervention steps. Of the two steps that were not rated as “always” adhered to, these two steps were rated as “sometimes” adhered to rather than “never”. The overall fidelity ratings completed by the 10 students across the seven sessions yielded 99.6% adherence by the researcher to the intervention steps.

The students’ overall level of group motivation for that session was recorded each time. High motivation was coded as a three, average motivation was coded as a two, and low motivation was coded as a one. The mean overall level of motivation across the

seven sessions was calculated. For intervention group 1, the mean overall level of motivation across the seven sessions was 2.57. Thus, overall this group of students displayed average to high average motivation throughout the intervention. For intervention group 2, the mean overall level of motivation across the seven sessions was 2.00. Thus, overall this group of students displayed average motivation throughout the intervention.

The students were also asked to rate whether or not they wanted to participate in the activities that day (a) yes, (b) sometimes, (c) no. Yes was coded as a three, sometimes was coded as a two, and no was coded as a one. The average reported participation interest score across the 10 students and the seven sessions was 2.75. Thus, the students generally enjoyed participating in the intervention sessions, which lends social validity to the intervention. It also suggests that a lack of motivation was not the cause of the lack of progress.

CHAPTER IV

Discussion

Research shows that vocabulary development is an important target for instruction in order for students to be able to read fluently and comprehend the material they read (Cohen & Johnson, 2011). Research shows several different strategies are effective to use for vocabulary instruction. These strategies include: semantic mapping, storybook readings, and imagery (Cohen & Johnson, 2011; National Reading Panel, 2000; Pullen et al., 2010). Research also supports the need for direct, explicit vocabulary instruction in the early elementary school years (National Reading Panel, 2000). This study helps to fill the gap by targeting students with specific learning disabilities who were presently in their elementary school years to receive direct, explicit vocabulary instruction in addition to the S.P.I.R.E. intervention they were already receiving. Paired samples *t* tests were used to determine if the students' scores improved on the CREVT-3 from pre- to post-test. The results of the study reveal that the intervention did not lead to statistically significant gains in the students' vocabulary knowledge.

While analyzing the data, I noticed a puzzling trend. From pre- to post-test, there was an overall decreasing trend in the students' scores. This was true for the control group as well as the intervention groups. However, upon closer inspection, I noticed this trend was not true for the two students who were pre-tested using Form B of the CREVT-3 and post-tested using Form A. Those students displayed positive trends. This data, coupled with my own observations that Form B appeared to be more difficult, along with similar observations from a professional in the field, yield reasonable speculation that the

two forms of the CREVT-3 vary in difficulty. It appears that Form B is more challenging than Form A. This might explain the troubling decreasing trend that was noticed, since 11 of the 13 students were pre-tested using Form A and post-tested using Form B.

Even though the statistical results of the study proved to be insignificant, there is some qualitative data that lends evidence to the usefulness of the intervention. For example, one of the S.P.I.R.E. intervention teachers reported when one of the target words came up in her class, a student reported he learned the word in my class. This leads me to believe the students did appear to increase their familiarity with the target words. Also, the students appeared to enjoy the sessions and typically remained highly engaged throughout the intervention. Furthermore, during the brief review at the beginning of each session, the students typically were able to accurately provide the definitions of the target words from the previous session. Thus, they did appear to increase their vocabulary knowledge due to the intervention.

There were several limitations to this study. One limitation was the short duration of the intervention. Due to summer scheduling, I only had access to work with the students for the previously described three-week time span. During that time span, post-testing also had to take place, thus the intervention was shortened to only 7 sessions in which the students were taught vocabulary. Other vocabulary intervention studies cited in the literature lasted significantly longer. In one study, the students received the intervention instruction for four months (Nelson & Stage, 2007). Another study provided the intervention instruction across an entire school year (Apthorp, 2006). Thus, lengthening the study likely would have yielded more positive results.

Another limitation was the measure used to assess growth. While the CREVT-3 is a psychometrically strong measure (as previously described), the short time span did not allow for the vocabulary growth to generalize, which was necessary for the students to display growth using the CREVT-3. None of the target words taught during the intervention study were included in the words assessed using the CREVT-3. In the future, I recommend using a researcher-generated measure of the target vocabulary words in addition to the CREVT-3 to assess progress. Doing so would allow the researcher to measure growth on the specific vocabulary words taught during the intervention, in addition to the students' abilities to generalize these skills to other vocabulary words. The National Reading Panel (2000) reported standardized measures do not appear to be adequately sensitive to changes in student vocabulary, and thus experimenter-developed measures should be used. The study by Coyne et al. (2007), which showed a growth in vocabulary, utilized three measures they designed to assess the students' vocabulary gains.

I have several recommendations if the study were to be replicated in the future. First, I recommend the intervention groups be smaller, with no more than two to three students per group. Smaller groups allow for more intensive intervention to take place, and five students per group was pushing the limits due to somewhat varied skill levels among the students. I also recommend that only three vocabulary words be taught per session. This would allow for more in-depth discussion for each vocabulary word, which allows deeper processing of the target word. Furthermore, I recommend using storybooks with richer content. The S.P.I.R.E. decodeable readers are rather brief, and did not engage

the students' imaginations as much as I would have liked. As previously mentioned, it would be beneficial for future researchers to develop their own pre/post-test measure, in addition to the CREVT-3, that would specifically address the students' knowledge of the vocabulary words taught during the intervention. This would more accurately measure the students' increase in vocabulary knowledge due to the intervention. If possible, it would be beneficial to conduct this intervention over a longer time span, in order for the knowledge and skills to generalize.

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APPENDICES

APPENDIX A

Fidelity Checklist: Adult Version

Based on your observations please circle the appropriate response to each question:

1. Did the researcher introduce the session/review the previous session?

Yes	No
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2. Did the researcher provide definitions of the target words before reading the story?

Yes	No
-----	----

3. Did the researcher pause during the story to allow the students to appropriately interact with the target words?

Always	Sometimes	Never
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4. Did the researcher briefly review the target words after the story was over?

Yes	No
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5. Did the researcher provide students with paper and have them draw visual representations of each of the target words?

Always	Sometimes	Never
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6. Did the students complete semantic maps for each target word?

Always	Sometimes	Never
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7. Did the researcher prompt the students to write a sentence for each target word?

Always	Sometimes	Never
--------	-----------	-------

8. Did the researcher provide the students with opportunities to share their sentences with the group?

Always	Sometimes	Never
--------	-----------	-------

9. Did the researcher provide corrective feedback when needed?

Always

Sometimes

Never

10. Did the students participate in the group and follow instructions?

Yes

No

11. What was the students' general level of motivation today?

High Motivation

Average for Age

Low Motivation

Signature

Date

APPENDIX B

Fidelity Checklist: Student Version

Please circle your answer for each question:

1. Did your teacher review the words from your last class?

Yes

No

2. Did your teachers tell you the definitions of the words before reading the story?

Yes

No

3. Did your teacher let you say what the words meant during the story?

Yes

No

4. Did your teacher talk about the words again after she finished reading the story?

Yes

No

5. Did your teacher give you paper to draw pictures of the words?

Yes

No

6. Did you make a semantic map for each word?

Yes

No

7. Did your teacher have you write a sentence using each word?

Yes

No

8. Did your teacher let you share your sentences with the group?

Yes

No

9. Did your teacher help you fix your sentence if you needed help?

Yes

No

10. Did you listen and follow instructions today?

Yes

Sometimes

No

11. Did you want to do the activities today?

Yes

Sometimes

No

APPENDIX C

IRB Approval



January 10, 2013

Name

College of Behavioral and Health Sciences, Dept. of Psychology
James.Herman@mtsu.edu Dr. James Herman

Protocol Title: After School Remedial Reading Program for Students with Learning Disabilities

Protocol Number: **13-167**

Dear Investigator(s),

The MTSU Institutional Review Board, or a representative of the IRB, has reviewed the research proposal identified above. The MTSU IRB or its representative has determined that the study poses minimal risk to participants and qualifies for an expedited review under 45 CFR 46.110 Category 7.

Approval is granted for one (1) year from the date of this letter for 100 participants pending you receive approval from the participating school districts and school principals.

According to MTSU Policy, a researcher is defined as anyone who works with data or has contact with participants. Anyone meeting this definition needs to be listed on the protocol and needs to provide a certificate of training to the Office of Compliance. **If you add researchers to an approved project, please forward an updated list of researchers and their certificates of training to the Office of Compliance (c/o Andrew, Box 134) before they begin to work on the project.** Any change to the protocol must be submitted to the IRB before implementing this change.

Please note that any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918.

You will need to submit an end-of-project form to the Office of Compliance upon completion of your research located on the IRB website. Complete research means that you have finished collecting and analyzing data. **Should you not finish your research within the one (1) year period, you must submit a Progress Report and request a continuation prior to the expiration date.** Please allow time for review and requested revisions. Your study expires **January 10, 2014.**

Also, all research materials must be retained by the PI or faculty advisor (if the PI is a student) for at least three (3) years after study completion. Should you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

Shelley C. Moore
IRB Committee Member

APPENDIX D

IRB Extension Documentation

From: Shelley Moore <Shelley.Moore@mtsu.edu>
Subject: RE: IRB Approval
Date: May 10, 2013 12:01:50 PM CDT
To: Katie Rowe <krowe1@harding.edu>
Cc: Research Compliance Office <compliance@mtsu.edu>, Shelley Moore
<Shelley.Moore@mtsu.edu>

Katie:

No that is fine - just wanted to make sure you went through your advisor as well as IRB. Sometimes people forget to cover that base.

You are good to go - thanks!

Shelley Moore

