REVISUALIZING VOCABULARY INSTRUCTION FOR STRUGGLING THIRD GRADE READERS

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A Thesis
Submitted to the Graduate College of Bowling Green State University in partial fulfillment of the requirements for the degree of

MASTER OF EDUCATION

May 2012

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Vocabulary knowledge has been identified as one of the leading indicators of a student’s ability to comprehend a text. With this in mind, it is imperative that educators, in every content area, search for best practices in vocabulary instruction that will ultimately benefit students when encountering texts. This study attempted to identify best practices of word study by implementing three vocabulary lessons with twenty-one students over the course of one week. These lessons utilized dual coding, visualization, and imagery techniques to maximize student learning. Three measures of pre and post assessments were used to test students’ vocabulary knowledge. After engaging in the three vocabulary lessons, students showed significant gains in vocabulary knowledge from pre to post testing.
To my daughter, Violet Skye--

Thank you for helping me do my homework by pretending to do yours—I love you.

To all of my teachers who took the time to instill in me a love of reading, writing, and words--

Thank you.
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CHAPTER I. INTRODUCTION

Learning to read, write, and use language effectively are complex processes that are unmistakably intertwined. From the early environments of infants, toddlers, and preschool aged children, to a student’s initial formal instruction of literacy in school, every experience, whether structured or unstructured, may enhance or hinder the development of these critical life skills (Gunning, 2010). As children are exposed to text in the home, in school, and in the outside world, reading can range from becoming an overwhelming challenge to an extraordinary triumph. Regardless of a student’s performance as a reader, every student requires the support and resources of his/her school, family, and community.

Inside the walls of the school, much of this support comes from the ingenuity and drive of the classroom teachers and staff. Inherently, every teacher must be a teacher of reading, as every subject requires reading as a prominent task. For students to be academically successful, teachers must provide students with the tools needed to readily engage with texts.

Most thriving readers have had balanced reading and writing instruction integrated into daily classroom routines (Graves, 2006). Quality reading instruction generally focuses on six key components: word recognition, fluency, vocabulary, comprehension, affect/motivation, and writing (Gunning, 2010). Each of these mechanisms are infallibly linked to one another, and success or failure in any one area can greatly impact a student’s success in the other areas.

While the ultimate goal of reading a text is to comprehend, gain knowledge, and put this knowledge to future use, whether for academics or for pleasure, it is impossible
to reach this end goal without using a multitude of reading skills. Comprehension is
directly correlated with a student’s success in each reading cornerstone. According to
Baumann and Kame’enui (2004), “To understand a text, one must understand the words
that represent the ideas or concepts. Studies confirm the high correlation (.06 to .08)
between vocabulary knowledge and reading comprehension” (p. 111).

With this in mind, it is essential to immerse students in continuous vocabulary
instruction that broadens the breadth and depth of their vocabularies. By implementing
vocabulary-building activities into integrated lessons, teachers can maximize the
vocabulary acquisitions of their students, so that new vocabulary words become an
integral part of a student’s speaking, writing, and reading vocabulary (Graves, 2006).
Inevitably, a student’s strengthened vocabulary range will result in greater ease of
reading and increased comprehension.

Statement of the Problem

As students progress through early elementary classes and on into the third and
fourth grades, a concerning dynamic takes place. The enormous number of new words
students encounter as they head into the third, fourth, and fifth grades can be problematic
encounters nearly 10,000 unfamiliar words over the course of a fifth-grade year alone”
(p. 322). Poor vocabulary knowledge is a leading indicator of comprehension problems
as students move through these grades. In addition, students who lack extensive
vocabularies tend to struggle with reading texts, which can also affect their motivation
and willingness to approach reading tasks confidently. Low vocabulary knowledge and
self-efficacy can contribute to the “Fourth Grade Slump” as well as the “Matthew
Effect.” When students have difficulty making the transition from “learning to read” to “reading to learn,” this is often referred to as “The Fourth Grade Slump” (Chall & Jacobs, 2003, p. 13). “The Matthew Effect,” where strong readers get stronger and weak readers get weaker (Stanovich, 2008), “can be attributed, at least in part, to a less developed store of conceptual knowledge and vocabulary” (Dalton & Grisham, 2011, p. 307). These two phenomena are affecting the abilities of many students because of the students’ lack of vocabulary tools and understanding.

Even between the early primary grades of kindergarten through the third grade, there is a discrepancy of learned vocabulary and vocabulary ability, as Jerry Zutell (1996) reports, “By the end of second grade, at risk students know 1/3 fewer vocabulary words” (p. 107). These students, in particular, need vocabulary intervention that will allow the students to be successful readers and learners all throughout school and life. Students need to widen vocabulary skills as they advance through each grade to be successful learners while reading and participating in and out of school. By building vocabulary, students will become better readers, writers, and communicators. If vocabulary skills are not developed, students are at risk for falling behind in reading and may lack the ability to understand text at a deeper and more critical level (Graves, 2006).

Research Questions

To facilitate learning environments for all students that will allow the students to maximize their vocabulary, it is vital to develop engaging and integrated vocabulary activities that keep students longing to learn more words, learn how to use them, and learn when to use them. By encouraging students to get excited about words, and how words can be used, teachers can strengthen the reading, writing, speaking, and listening
vocabularies of students. To do this, multiple modes of learning must be utilized as students learn cohesively in the classroom. This study answered the following questions:

1. Do vocabulary strategies utilizing visuals, imagery, and dual-coding theory effect the vocabulary knowledge of struggling third grade students?

2. What dual-coding vocabulary instruction, of the three strategies implemented, appear to be the most engaging and effective for the students?

Through identifying and applying various vocabulary building strategies in the classroom, students will be encouraged to take ownership in developing new meanings and understandings of vocabulary during and after the word learning activities. By engaging students in integrated reading and writing activities that allow them to build vocabulary, read, write, perform, and utilize technology, teachers can broaden the range of vocabulary students recognize when they come across words in their own reading, which will likely increase the comprehension of the student when reading on his/her own. This study provided teachers with engaging vocabulary activities using visuals, imagery, and dual-coding theory to help students build their vocabulary, write descriptively, and augment other literacy skills. Young readers’ vocabulary and reading skills may be enriched by the findings of this research-based vocabulary building implementation and analysis.

Rationale

Vocabulary skills can be developed in a variety of ways; yet, the methods used in this study focused on integrating visual clues, word gradients, illustrations, imagery,
discussion, student-interaction, writing, context, and the use of technology. Blachowicz and Fisher (2002) advocate that using new words repeatedly in discussion, writing, independent projects, and other wordplay activities can help students develop real ownership and move new words in to students’ personal vocabularies. Stahl and Kapinus (2001) suggest students that participate in meaningful word study:

…will become powerful language users…when they understand how words function in communication, the subtle connotations of words, and even their origins. Students will become powerful language users who can pick the best words to convey ideas, inspire action, express feelings, evoke emotions, heal wounds and connect with others. (p. 33)

Through activities that challenge students’ thinking, help them relate words to one another, and represent these words in dual codes, students can build word knowledge that will lead them to further success in education and on into societal roles. Stahl and Kapinus also state that, “Teachers from kindergarten on up have a key role to play in arming students with word power for the rest of their lives,” and by doing so teachers will facilitate “the continued presence of a citizenry that understands and participates in the social and political processes that maintain civilization and culture. If the pen is indeed mightier than the sword, words are the power behind that might” (p. 36). By assessing the value of the vocabulary strategies used in this study, it will be possible to provide teachers with engaging ways to build vocabulary, while instilling the value and the power of words to students.

In addition, the visual/imagery and technology component of this study prepares students for additional learning opportunities, as “visual representations are viable
instructional techniques for teaching vocabulary” (Harmon, Wood, & Hedrick, 2005, p. 272). The National Reading Panel (NICHHD, 2000) also supports the use of technology and word development in the classroom as it declares, “Learning in rich contexts, incidental learning, and the use of computer technology all enhance the acquisition of vocabulary” (p. 13). Helping students gain a respect for vocabulary acquisition in a way that ensures they will actively pursue knowledge of new words is a prominent goal of an educator. Graves (2006) writes, “Kindling students’ interest and engagement with words is a vital part of helping all students, but especially less advantaged students, to develop rich and powerful vocabularies” (p. 120). Once the stage is set for student driven vocabulary acquisition, students will become more successful as learners and thinkers.

The need for extensive vocabulary instruction is apparent, as it is directly linked to comprehension. According to Spencer and Guillaume (2006), “Researchers have described the powerful, positive relationship between vocabulary and comprehension” (p. 206). With exciting and influential vocabulary instruction in place, students will transfer the new found knowledge into other areas of reading, school, and other literacies. Furthermore, it is essential that, “teachers[s] expand their traditional focus on individual word knowledge to address increased concern for development of ‘word consciousness’—a fascination with new words that prompts ongoing student inquiry and exploration” (Graves, 2006, p. 7). Students need to continue to extend their vocabulary base outside the realms of school, and it is up educators to provide opportunities and activities that will prolong word-study interest.
Definition of Terms

Dual Coding Theory: “Dual coding theory assumes that information stored in two codes [i.e. verbal and nonverbal] is better comprehended and remembered than that which is stored in one code” (Cohen & Johnson, 2011, p. 358).

Expressive Vocabulary: Words students are able to use in speaking and writing (Bintz, 2011).

Language Experience Approach: “Involves students dictating a story based on an experience they have had. The dictated story is written down by a teacher or aide and used to instruct the students in reading. Shared writing and interactive writing are language-experience activities” (Gunning, p. 494).

Linear Array: Visually representing the relationships of words by arranging them on a line or continuum (Nagy, 1988).

Normed-Referenced Assessments: Tests in which “students are compared with a representative sample of others who are the same age or in the same grade” (Gunning, 2010, p. 83).

Receptive Vocabulary: Words students are able to understand when listening (Bintz, 2011).

Shades of Meaning: A continuum of semantic gradients “based on a words’ strength or intensity” (Gunning, p. 270).

Limitations

A limitation in this study was a limited sample size of participants and an under representation of minority groups. In addition, no control group could be formed, as the study took place within the classroom during regular instruction time. Another limiting
factor to consider, which is out of the control of the researcher, included the possibility of additional vocabulary instruction that might have taken place in other content areas within the timeframe of the study.
CHAPTER II. REVIEW OF LITERATURE

Vocabulary development and knowledge is an integral part of learning how to read, as well as a necessary skill when reading to learn. While research on best practices of vocabulary instruction is extensive, common practices of actively involving students in vocabulary building through wide reading, context, repeated exposure to words, and visual aids appear throughout the literature. This study answered the following questions:

1. Do vocabulary strategies utilizing visuals, imagery, and dual-coding theory effect the vocabulary knowledge of struggling third grade students?

2. What dual-coding vocabulary instruction, of the three strategies implemented, appear to be the most engaging and effective for the students?

This chapter will explore the theories, history, and research central to vocabulary building, while focusing on how dual coding theory and visualization/imagery techniques can expand the vocabularies of readers. Through exploring research based strategies and the integration of diverse vocabulary building skills, several ways to improve the vocabularies of young readers through various media are discussed.

Theoretical Orientation

Constructivism and Language Acquisition Theory

Theories on how children construct knowledge involve multiple elements and attributes that are dependent upon home environments, social interactions, structured learning, and biological milestones that accompany physical growth (Santrock, 2008). Inside the borders of an educational setting, the theories that drive educator beliefs can be
seen when observing the interactions of the students and teachers within a classroom. In a student-centered classroom, where children are active participants in thinking and learning, it is probable that constructivist ideals are part of the routine foundation of daily lessons (Santrock, 2008). Collaboration in a classroom-community of dynamic, child-centered learning, is characteristic of Lev Vygotsky’s (1934) constructivism theory.

Fundamentals of constructivist classrooms are the notions of the zone of proximal development and scaffolding (Vygotsky, 1934). The zone of proximal development involves what a child can do on his/her own and what a child could learn and accomplish with the appropriate amount of selective adult guidance, or scaffolding. In Berk’s and Winsler’s (1995) book devoted to the work of Vygotsky, the authors state, “According to Vygotsky, the role of education is to provide experiences that are in the child’s zone of proximal development—activities challenging for the child but achievable with sensitive adult guidance” (p. 25). Scaffolding, defined as when an “adult supports children’s autonomy by providing sensitive and contingent assistance, facilitating their representational and strategic thinking, and prompting them to take more responsibility for the task as their skill increases,” is commonplace in a constructivist classroom (Berk & Winsler, p. 31).

In addition, language acquisition plays a vital role as children grow and develop literacy skills. Vygotsky believed that, “The connection between thought and word, however, is neither preformed nor constant. It emerges in the course of development, and itself evolves” (as cited in Berk & Winsler, 1995, p. 255). As vocabulary and word learning are ongoing processes that are continuously built upon and revised to include broader word bases, the ways in which students gather word banks differ depending upon
environment and education. Language acquisition, prior to formal schooling, is highly
dependent on the communication experiences children have had. Children learn new
words as they interact with others, recognize symbol/image and word relationships, and
construct new meanings for words by playing and listening to words being used in
different contexts. This continues into the elementary school and in the classroom
environment. Berk and Winsler believe this socially constructed language acquisition
theory is founded on the notion that:

Cognition is a profoundly social phenomenon. Social experience shapes the ways
of thinking and interpreting the world available to individuals. And language
plays a crucial role in a socially formed mind because it is our primary avenue of
communication and mental contact with others, serves as the major means by
which social experience is represented psychologically, and is an indispensable
tool for thought. (p. 12)

Interacting and building word knowledge with teachers and peers allows students to
construct meaningful representations of words that students can use in both their
receptive and expressive vocabularies.

Gunning (2010) describes this engaging and student driven learning theory when
he states, “Thoughts and ideas of others are an essential element in constructing
knowledge. Students learn through expert guidance from more knowledgeable others.
Social interaction, the zone of proximal development, and scaffolding are key elements in
learning” (p. 11). Educators who trust in this theory of learning believe that, “in a
constructivist, meaning-making approach to teaching and learning, educators continue to
search for effective strategies that will involve students in their own learning and improve
classroom instruction” (Douville, 2004, p. 38). Teachers of reading and of vocabulary in any content area can capitalize on the active and deeper processes involved in learning when supporting the constructivist theoretical framework.

**Schema Theory**

Undisputable to any learning theory is the concept that knowledge is built upon and stored in some form in a student’s brain. Originally used by Jean Piaget in 1926 and expanded upon by R.C. Anderson in 1977, schema theory states that students build upon prior knowledge, or schemas, when acquiring information. This learning theory “views organized knowledge as an elaborate network of abstract mental structures which represent one's understanding of the world” (Little & Box, 1998, p. 24). In the classroom, teachers build on students’ schemas as they introduce new information and reinforce previous concepts. According to Mezynski (1983), “It is within this larger framework, or schema, that probing semantic interrelationships should help students create bridges among words, and acquire a broader understanding of each word’s meaning” (p. 267). Connecting students’ prior knowledge to new information enables students to store information in a way that is easily retrievable and facilitates deeper and more meaningful word learning.

**Interactive Reading Theory**

To foster literacy programs that are balanced and practical, an interactive model of reading “involves processing text and using one’s background knowledge and language ability” (Gunning, 2010, p. 8). Both systematic and holistic styles of teaching reading are combined to create an atmosphere of learning that “borrows practices from both ends of the continuum [top-down and bottom up]” (Gunning, p. 8). This model
relies on compensatory methods individual to each reader to support weaknesses in either learning-style routines. Balanced instruction, such as the interactive theorists suggest, ensures that skill learning and contextual experiences are both utilized in reading education. Stahl and Fairbanks (1986) support a mixed method interactive approach to vocabulary instruction, in particular, as the authors found, “The methods that did appear to produce the highest effects on comprehension and vocabulary measures were methods that included both definitional and contextual information about each to-be-learned word (or ‘mixed’ methods)” (p. 101). Combining these vocabulary-learning styles enhances deeper understanding of a word and is more likely to be locked into a student’s vocabulary bank of knowledge.

**Motivation Theory**

When students are motivated during the learning process, students are engaged, more information is retained, and richer understanding of materials is able to take place (Graves, Juel, Graves, and Dewitz, 2011). Gunning (2010) states that an “important component of a planned vocabulary program is motivation” (p. 284). By creating instruction for students that motivates them to want to learn and participate, teachers can facilitate increases in student success. Instruction that includes active participation, cooperative learning activities, and variety is more likely to motivate students to become engaged and successful during lessons (Graves et al., 2011). Graves et al. suggests that, “In motivating and engaging classrooms, teachers employ myriad approaches to motivating students—including but not limited to ensuring student success, fostering higher-order thinking skills, employing meaningful tasks, and making connections to students’ cultures and lives outside of school” (p. 73). Vocabulary instruction that
embraces these findings is key to keep students interested and motivated in word study and learning new words. Students who are kept engaged and motivated inside of school will experience greater success in all areas of literacy, both in and outside the walls of a classroom.

Vocabulary Instruction

A History

The transformation of how vocabulary instruction has been valued as well as how vocabulary has been taught has a long and rich history. Bintz (2011) reports that, “In the early 20th century, John Dewey (1910) stated that vocabulary is critically important because a word is an instrument for thinking about the meanings which it expresses” (p. 44). Berne and Blachowicz (2008) discuss that the interest in vocabulary has ebbed and flowed throughout the years, at times it has been a hot-topic of research and debate, and at other times, it has merely stood as an onlooker in the background of literacy instruction. Even though periods have passed when vocabulary was not looked upon as a crucial figure in the literacy world, it surely has remained present as an integral part of learning to read and write. Throughout history, various educators have focused their thoughts and research into different areas of vocabulary teaching and learning.

Types of Vocabulary learning

Graves established “a number of different word learning tasks by classifying them in terms of the learner’s knowledge of the words and concepts being learned” (Graves & Prenn, 1986, p. 597). These tasks fall under three categories:

- Learning to read words which are in their [the students’] oral vocabularies,
- learning to read words which are in neither their oral nor their reading
vocabularies but for which they have an available concept, or learning to read
words for which they do not even have an available concept. (p. 597)
The first task mentioned, learning to read words already a part of a student’s vocabulary,
is an essential mission of the beginning reader. Graves and Prenn point out that:
Proficient readers have largely mastered this task by fourth grade or so; they can
read virtually all the words in their oral vocabularies. Unfortunately, less
proficient readers may continue to have oral vocabularies larger than their reading
vocabularies throughout their years in school, and so for them the task of learning
this sort of word continues. (p. 597)
For educators to teach students to read words from the students’ own oral
corporaries, the task is to “associate what is unknown (the written word) with what is
already known (the spoken word)” (Graves & Prenn, p. 599). Other venues for this type
of word learning can come in the form of, “indirect vocabulary building [which] pertains
to learning words primarily through exposure—through conversations with others, being
read to, or reading on one’s own (Beck, McKeown, & Kucan, 2002). Francis and
Simpson (2003) reiterate the value of oral communication as they proclaim, “engaging
students in a variety of meaningful oral expression activities, especially when they first
encounter the words, is one way of improving their vocabulary knowledge” (p. 73).

When students are learning to read words for which the students already have a
concept, other means of word learning are necessary for success. Strategies must go
beyond looking up dictionary definitions and move toward contextual relationships and
word associations (Graves & Prenn). Most difficult to teach students to read are the
words that students do not have previous concepts. These words must be taught through
a series of activities that may include “matching words with definitions, associating new words with a variety of contexts, creating contexts for words, comparing and contrasting words to discover relationships, and using words outside of class” (Graves & Prenn, p. 601). Activities such as these can be integrated through the use of organizers such as semantic maps, Frayer four-squares, and concept webs (Graves & Prenn). Most notably, “Webs lend themselves naturally to vocabulary exploration through the graphic depiction of associations and relationships among concepts, synonyms, and antonyms” (Laframboise, 2000, p. 542).

Types of Vocabulary Words

Stahl and Kapinus (2001) identify three different groups or tiers of vocabulary words:

1. Basic, high frequency words such as ‘cat,’ ‘house,’ and ‘green.’ Students may need some instruction on how to recognize these words when they read, but they will know the meanings.

2. Extremely low frequency words with very specific application, such as ‘legato,’ ‘nova,’ and ‘crustacean.’ The most efficient way of dealing with these words is probably as they are needed for a specific passage, lesson, or content area unit.

3. Sophisticated words frequently encountered and employed by mature, informed language users, such as ‘consistent,’ ‘representative,’ and ‘fluency’. (p. 13)

These authors recommend content teachers concentrate on the second group of words—the low frequency tier—as the words appear in the students’ learning materials and
subject areas. For teachers of language arts, Stahl and Kapinus advocate focusing on the more sophisticated words from tier three that require more exposure and practice for deeper understanding than the basic, high frequency words that would be found on tier one.

Beck, McKeown and Kucan (2002) described their own three-tier system of word learning originally identified by Beck and McKeown, and then expanded upon in the book, *Bringing Words to Life: Robust Vocabulary Instruction*. Similar categories are noticeable in these more widely recognized vocabulary tiers. The first tier, “consists of the most basic words—clock, baby, happy, walk, and so on. Words in this tier rarely require instructional attention to their meanings in school” (Beck, McKeown, & Kucan, p. 8).

The second tier, which have been identified as the most productive vocabulary words to teach, “contain words that are of high frequency for mature language users and are found across a variety of domains. Examples include coincidence, absurd, industrious, and fortunate” (Beck et al., p. 8). The tier two words are the most important to focus on in vocabulary instruction, as they are considered to be more challenging words that readers will come across on a regular basis.

The third tier refers to words that are less frequently used and are highly specific to content and subject areas (Beck et al., p.8). Examples of tier three words include “isotope, lathe, peninsula, and refinery” (Beck et al., p. 9). Vocabulary instruction with tier three words will most likely occur in a specialized classroom that is focused on a particular content area, such as geography or chemistry; hence, according to Beck et al.,
the focus of vocabulary instruction should be directed toward the words from tier two to make the greatest impact to students’ vocabularies.

*The Reading And Writing Vocabulary Connection*

Reading and writing are also inherently connected as reciprocal literacy skills. Often, better readers are better writers and better writers are better readers; therefore, vocabulary development plays a crucial role in the reading and writing connection as well. Rupley, Logan and Nichols (1998-1999) state, “Vocabulary is a shared component of writing and reading—it helps the author and the reader to interact and the reader to comprehend through the shared word meanings” (p. 337). For most educators, “The goal of a comprehensive vocabulary program is to expand both receptive and expressive vocabularies, and to continually move words from the receptive level to the expressive level” (Cohen & Byrnes, 2007, p. 285). Being able to use learned vocabulary when writing is an example of moving words to a student’s expressive vocabulary level. Gunning (2010) cites his own research from 2005 that “suggests that there are large numbers of students who can respond orally to higher-level questions but who have difficulty when asked to answer the same questions in writing” (p. 542). When students have low expressive vocabularies, their writing skills often suffer. Even students recognize the links between reading, vocabulary, and writing. Francis and Simpson (2003) report, “Several students told us that they know they understand a word when they can use it in their own writing tasks” (p. 68). In summary, “Teaching vocabulary in a balanced reading program should be grounded in teacher-directed instruction, varied opportunities for students to practice and apply their word knowledge, and exposure to
wide reading and writing activities in both narrative and informational texts” (Rupley et al., p. 338).

Research Based Vocabulary Learning Strategies

In Mezynski’s (1983) study, she found that, “the amount of practice is a crucial variable in word acquisition; instructed words must become part of the students’ repertoire to be useful in reading” (p. 254). In her study, Mezynksi reviewed eight previous studies that attempted to make connections between vocabulary instruction and comprehension. Mezynski compared the methods and instructional differences across the studies to determine what qualities within the studies provided similar or differing results. Her research noted that, “If students are taught groups of words that are semantically unrelated, the students may learn definitions but fail to learn where the word fits in with their store of related knowledge” (Mezynski, p. 255). This research shows the value of teaching semantically related words, and how doing so can positively affect the vocabulary depth of knowledge that students may retain. She also advocates exposure to new words multiple times, as, “words can be compared along many different dimensions and used in innumerably different contexts; with each experience, richness of knowledge about the word increases” (Mezynski, p. 274).

In 1986, Stahl and Fairbanks carried out a vocabulary study meta-analysis during which they found that “some methods of vocabulary instruction may be more effective than others” (p. 73). During this study, Stahl and Fairbanks synthesized the results of previous vocabulary research to analyze the “effectiveness of various methods of direct vocabulary instruction and the relationship of such instruction to comprehension” (p. 73). The methods that the researchers chose to review in each study included definitional and
contextual information, depth of processing, exposures to words, mnemonic or keyword methods, and setting factors. Fifty-two studies were compared that used “one of two types of control groups and that provided statistical information needed to provide effect size” (Stahl & Fairbanks, p. 78). The highlight of their study concluded that, “The most effective vocabulary teaching methods included both definitional and contextual information in their programs, involved the students in deeper processing, and gave the students more than one or two exposure to the to-be-learned words” (Stahl & Fairbanks, p. 72). Stahl and Fairbanks found that vocabulary instructional methods that offer only definitions about words, or that even involve multiple repetitions of definitions of a targeted word, do not have dependable effects on reading comprehension. Nelson and Stage (2007) confirmed these findings in their study. They report:

The primary purpose of this study was to assess the effects of contextually-based multiple meaning vocabulary instruction on the vocabulary knowledge and reading comprehension of students…Third and fifth grade students with low initial vocabulary and comprehension achievement who received the contextually-based multiple meaning vocabulary instruction showed statistically significant gains in their vocabulary knowledge. (pp. 15-16)

Stahl and Fairbanks suggest that a “person who ‘knows’ a word has both definitional and contextual information about that word” (p. 74). In addition to these findings, Stahl and Fairbanks found that, “Vocabulary instruction also appears to have a slight but significant effect on comprehension of passages not necessarily containing taught words” (p. 100). These findings support integrated instruction methods of vocabulary to beginning readers, as well as across the content areas.
Beck, McKeown, and Kucan (2002) acknowledge the large variety of ways to teach vocabulary; yet, it is known that there is not one single best method (Blackowicz, Fisher, Ogle, and Watts-Taffe, 2006). As reported by Bintz (2011), “Strategies that focus on word recognition and word use in meaningful contexts are most likely to positively affect vocabulary growth” (p. 45). To provide these meaningful contexts, Rupley (1999) believes children should have numerous opportunities to utilize vocabulary words in their listening, reading, speaking, and writing activities. The ultimate goal is to get students invested in their own word learning. As Mountain (2002) explains, “My hope is that teachers will use these strategies to help students become verbophiles—people who enjoy word study and become language enthusiasts, lovers of words, appreciative readers, and word-conscious writers” (p. 62).

Echoing these sentiments, a study was conducted to focus on the thoughts and concerns of the teacher as the vocabulary instructor. Following the completion of the study, Berne and Blachowicz (2008) found:

Our informal conversations with classroom teachers suggest to us that they aren’t confident about best practice in vocabulary instruction, and at times they don’t know where to begin to form an instructional emphasis on word learning or to change one that they feel is ineffective. (p. 315)

This indicates the need for widespread sharing of research-based quality vocabulary instruction. The authors report:

The most common answer to the question about what practices are already working well was ‘working with word relationships/word parts.’ We folded
responses related to etymology, synonyms and antonyms, prefixes and suffixes, and root word study into this category. (p. 316)

Being able to combine the aforementioned responses depicts the intricate relationships and roles that word parts play with one another and how language is interconnected through sounds, word parts, and meanings.

The Common Threads of Effective Vocabulary Instruction

Throughout the examination of research of well-known literacy educators, common themes of effective vocabulary instruction appear repeatedly in research studies, texts, and educator practitioner journals. Stahl and Kapinus (2001) accurately sum up these threads as listed in the following four standards of valuable vocabulary instruction:

1. Good vocabulary instruction helps children gain ownership of words, instead of just learning them well enough to pass a test.

2. Good vocabulary instruction provides multiple exposures through rich and varied activities to meaningful information about the word.

3. Good vocabulary instruction includes both definitional and contextual information about each word’s meaning.

4. Good vocabulary instruction involves children more actively in word learning. (p. 14)

In addition, “People learn [vocabulary] words from a number of sources—from speech of parents and peers, from classroom lectures and discussion, from television, and of course from reading” (Nagy, 1988, p. 30). One of the most influential components of vocabulary acquisition is the amount of time and effort a child or student spends reading. Nagy points out, “After third grade, for those children who do read a reasonable amount,
reading may be the single largest source of vocabulary growth” (p. 30). Extensive daily reading can expose students to the four qualities listed above by Stahl and Kapinus. See if you can rework that sentence. Reading as a part of students’ daily routines will allow for repetition of words, definitional and contextual exposure to words, and deeper understandings of word meanings, all while the reader is actively engaged in the reading of a text.

**Vocabulary’s Relationship With Comprehension**

Comprehension is directly affected by a student’s knowledge of vocabulary. To put it simply, “Vocabulary instruction and reading comprehension are intertwined” (Cohen & Johnson, 2011, p. 357). The relationship that exists between the two can highlight differences in ability between students and in content areas. Beck, McKeown, and Kucan (2002) explicitly state:

> It is clear that a large and rich vocabulary is the hallmark of an educated individual. A large vocabulary repertoire facilitates becoming an educated person to the extent that vocabulary is strongly related to reading comprehension in particular and school achievement in general. (p. 1)

Knowing this, vocabulary knowledge and comprehension levels of students have had a rich history of research as to how the two correlate. Bloom (as cited in Biemiller & Boote, 2006) found that, “when a reading vocabulary-language test is correlated with a reading comprehension test, correlations are usually over .80” (p. 45). Such a high correlation shows the necessity of vocabulary development and instruction, in hopes to improve comprehension.
Beck, Perfetti, and McKeown (1982) investigated what processes affect comprehension and noted:

If the semantic processes involved in reading comprehension require accuracy (knowing word meanings), fluency (speed of lexical access), and richness (semantic network connections), then attempts to improve reading comprehension by improving vocabulary may be influencing one, two, or all three of these processing components. (p. 508)

Vocabulary instruction, then, has the potential to positively influence multiple reading cornerstones. Berne and Blachwicz (2008) concur that, “decoding skills, fluency skills, and comprehension skills all draw upon a known bank of words” (p. 315). This base of knowledge reinforces the need for vocabulary based learning both in and out of the classroom.

In addition, it has been found in several studies that, “those with restricted oral vocabularies comprehend at lower levels” (Biemiller & Boote, 2006, p. 44). Of even more concern, according to Chall, Jacobs, and Baldwin (as cited in Biemiller & Boote, p. 44), “Students with limited vocabularies by the 3rd grade have declining comprehension scores in later elementary grades.” This effect on comprehension can be explained by Rupley, Logan, and Nichols (1999), as they claim, “Vocabulary knowledge supports the reader’s text processing and interaction with the author, which in turn promotes the formation and validation of concepts and learning” (p. 336). Along with forming concepts and validating ideas comes an increased level of comprehension and understanding of a text. Additional support for the interrelationship of vocabulary and comprehension comes in the form of Mezynski’s (1983) knowledge hypothesis:
A position called the knowledge hypothesis emphasizes two points: First, knowing a word well implies that one knows a lot of words and ideas related to it. Second, it is this larger ‘chunk’ of knowledge that is crucial for understanding a given text. (p. 255)

Without a thorough understanding of vocabulary within a text, comprehension may become negatively affected. The reader may be left with a shallow or superficial understanding of what he/she has read, which may create frustration with reading and possible misinterpretation of subject matter (Mezynski, 1983). Students who are aware and cognizant of multiple-meaning words, the implications of affixes and root words, and the relationships among gradients of word meanings, have an advantage when deciphering the text being read, and will ultimately be more successful as readers, writers, and lifelong learners (Gunning, 2010).

In a study conducted by Beck, Perfetti, and Mckeown (1982), in which the researchers carried out a long-term vocabulary intervention with 4th grade children, “The results of the vocabulary training program included gains in all tasks, ranging from single-word semantic decision through text recall and even apparent transfer to standardized tests of vocabulary and comprehension” (p. 518). During this study, Beck et al. examined the “relationship between knowledge of word meanings and semantic processes by teaching 104 words to twenty-seven 4th grade students over a five-month period” (p. 506). The researchers implemented 12 five-day learning cycles in which 8-10 vocabulary words were taught during each five-day cycle, along with six 2-3 day review cycles of the focus vocabulary words (Beck et al.). The methods used in the study consisted of teacher-led whole-class instruction that “included detailed instructional plans
for the teacher, worksheets, visual aids, game materials, and an individual vocabulary
notebook for each child” (Beck et al., p. 509).

The goal of the study was to show that vocabulary instruction could have a
positive effect on comprehension, and, “in contradiction to some previous vocabulary
training studies,” Beck et al. showed, “that a vocabulary training program can lead to
gains in comprehension” (p. 520). Even with these findings, it is important to note that,
“Vocabulary instruction and complete knowledge of the vocabulary in a passage may not
be necessary, nor may it be sufficient for comprehension of that passage” (Mezynski, p.
264). While vocabulary instruction can play a key role in increasing comprehension, it is
not the only factor in fully understanding a piece of text.

Dual Coding Theory

The basis of the dual coding theory can play a significant role in instruction for
reading or other content area classrooms. The neurological and memory storing processes
of the brain are abstract occurrences that can be studied through research, observation,
and close analyzing of results. In a review of Paivio’s book, Imagery and Verbal
Processes, Runquist (1973) remarks that it is “assumed that incoming stimulus
information undergoes a series of transformations (coding), the results of which are
stored in memory” (p. 291). Runquist adds, “coded information then becomes available
to perform certain psychological functions such as recognizing stimuli, cueing other
information, giving meaning to incoming verbal strings, etc” (p. 291). Paivio thought the
relationship between imagery systems and visual systems show that “an image is
essentially a pictorial representation of an object or event and possesses the functional
properties of a picture” (Runquist, p. 291).
In regards to reading and vocabulary learning processes, “The dual coding theory assumes that information stored in two codes is better comprehended and remembered than that which is stored in one code” (Cohen & Johnson, 2011, p. 358). This theory assumes that meaningful learning is particularly apt to occur if the material being presented can be characterized in more than one way. The learning styles and abilities of students vary greatly within every classroom, and this “concept of dual coding, or the coding of knowledge in both verbal and nonverbal representations, suggests that the elements of both systems are intricately connected” (Hibbing & Rankin-Erickson, 2003, p. 760). With the notion of verbal and nonverbal depictions being interwoven into students’ learning processes, the exploration of utilizing dual coding in the classroom is an interesting topic of research.

Visualization’s Link to Comprehension

Research in the field of visualization and imagery based on dual-coding theory has built a positive correlation between visual strategies and reading comprehension. Sadoski and Paivio (2001) provide a memorable example of how images can play a vital role in creating meaning:

The unspeakable images of September 11, 2002, that were seared into our memories on that tragic day bear testament to the role of visual imagery in cognition. They represent more than words can say and remind us that no matter how well written text conveys meanings, reading and writing are not exclusively verbal. (p. 259)
As is made apparent in the passage above, images can have a profound impact on interpretations of life experiences, environmental perceptions, and making meaning of daily phenomena. This easily transfers to how a person may comprehend a piece of text.

Interestingly, Hibbing and Rankin (2003) proclaim that, “We have found that if students can create their own images on the television screens in their minds as they read, their potential for understanding the text is increased” (p. 771). Throughout their article, “A picture is worth a thousand words: Using visual images to improve comprehension for middle school struggling readers”, the authors advocate, “research on mental imagery demonstrates that comprehension of text is enhanced when students are prompted or taught to use mental imagery” (Hibbing & Rankin, p. 760). Hibbing and Rankin made observations and interviewed their own middle-school students after participating in various instructional activities utilizing visual images, mental imagery, television programs, and student drawing in the classroom. The practitioners assert that the use of visualization and imagery techniques can help both struggling readers and talented readers. According to Hibbing and Rankin, “We have noticed that the strategic use of visual material can enhance reading experiences for reluctant and low-ability readers and, indeed, can help them become more proficient creators of internal visual imagery that supports comprehension” (p. 759). Furthermore, the authors observed:

Creating a mental image of what is read is a natural process for our more proficient readers. In fact, when images do not come easily to our proficient readers, they see it as a warning that there is a breakdown in comprehension and are aware of the need to use a fix-up strategy (e.g., reread, adjust rate of reading, refocus). (p. 760)
Through imagery, visuals, and visualizing, students can monitor their understanding of text, and become more aware of their metacognition strategies. Douville (2004) reports, “Although a strong rationale for integrating mental imagery strategies across the curriculum is well established, many teachers fail to take instructional advantage of them as valuable learning tools” (p. 36).

Additional research concerned with visuals/images and the impact they can have on comprehension show similar results. Douville (2004) describes the Sensory Activation Model (SAM) strategy as being “developed to assist student[s] in the self-construction of elaborated images that evoke all the senses” (p. 36). She also reports that the SAM, “strategy has been demonstrated to aid students in the construction of self-generated images that facilitate both the reading and writing processes” (Douville, p. 36). One important activity that helped students practice the imagery and visualization processes, “included the teacher’s reading descriptive-rich literature selections aloud while the students closed their eyes to ‘see’ the story in their minds” (Douville, p. 37). Teachers can informally assess comprehension of the story by asking students to describe what they saw in their minds as the teacher read the text.

To encourage descriptive vocabulary that would allow for easier visualization and imagery, the researcher used a “sense-evoking modified cloze procedure that required the students to supply appropriate adjectives related to taste, smell, sound, touch, and sight” (Douville, p. 37). This time spent strengthening the descriptive vocabulary and sensory words of the students transferred to “an increased ability to show understanding of what they read through the imagery the students described when responding to reading by writing (Douville, p. 37). In addition to improved comprehension using the SAM
strategy, the “oral and written responses to reading…included more elaborated descriptive response than those prior to SAM instruction” (Douville, p. 37).

Moreover, Michael Pressley (1976) developed a study analyzing how mental imagery can help eight-year-olds remember what they read: “This study tried to demonstrate that 8-year-old children can be taught a mental imagery strategy which facilitates their memory of the type of prose material that third graders often encounter in everyday school work” (p. 356). Pressley concluded that:

Perhaps the most accurate, least speculative summary of the results of the study reported here is that when groups of 8-year-old children are told to use mental imagery to facilitate their memory of prose, are given practice at forming mental images, and it is guaranteed that the subjects do not attempt to read and image at the same time, then 8-year-olds’ memory of a very concrete, imageable [sic] story can be improved by using mental imagery. (p. 358)

Using visualization/imagery techniques with text to aid in comprehension is very much like a picture book, which is “defined as a storybook that is a fiction book with a dual narrative, in which both the pictures and the text work interdependently to tell a story. It is a tale told in two media, the integration of visual and verbal art” (Bishop & Hickman, 1992, p. 2). Through combining these two forms of media, visuals/imagery and storybook text, comprehension of the text and the meaning of the story is expanded and enhanced.

Visualization to Teach Vocabulary: Research and Strategies.

Knowing that there is a significant link between vocabulary and comprehension, and that it is beneficial to use visuals and imagery strategies to aid in improving
comprehension, vocabulary can also be effectively taught using images/visualization techniques. Rupley, Logan, and Nichols (1998-1999) report, “Instructional activities that allow for a visual display of words and promote students’ comparing and contrasting of new words to known words can be a beneficial means for increasing their vocabulary knowledge” (p. 339). Before students apply dual-coding strategies to understand whole texts, “children first must comprehend individual words before they can use visual imagery to their advantage when reading” (Levin, 1973, p. 19). Research also suggests that “children from populations with reading/learning difficulties seem to benefit from imagery instructions,” (Levin, p. 23), which can be an engaging way to boost the confidence of struggling readers with low vocabularies.

Cohen and Johnson (2011) explore and discuss the results of their research on dual coding theory and vocabulary. During the study and intervention procedures, 15-second grade students were randomly assigned to three different interventions of vocabulary instruction. The three interventions in vocabulary learning were:

1. A Dual Coding method, in which an index card with a picture depicting the word was presented to the participants;
2. An Image Creation method, in which the participants were told to create an image of the word in their heads and to draw the picture on paper;
3. And Word Only, which involved the verbal presentation of a word.
   (Cohen & Johnson, 2011, p. 358)

For initial baseline data, the Peabody Picture Vocabulary Test-III, Form B was used to measure the students’ vocabulary knowledge prior (Cohen & Johnson, 2011). The vocabulary words being taught included “seven animal and habitat words, seven
musical instrument terms, and seven science terms,” for a total of 21 words (Cohen & Johnson, p. 357). For each group of words, the students were separated into three groups and each group was exposed to a different intervention, so that each student participated in every intervention type at least once (Cohen & Johnson, 2011). Overall, “students reported that the imagery interventions were more effective than the Word Only condition” (Cohen & Johnson, p. 365). Findings in this research indicate:

Interventions used in the present study increase the depth at which the vocabulary is processed, by adding an imaginal component, and linking the verbal code to the visual code. Using this framework, the Image Creation method would be the intervention which enables the vocabulary to be processed at the deepest level as the participant must become active in forming an image and drawing it on paper. (p. 358)

Interestingly enough, many students felt that the Image Creation method was the most difficult. Cohen and Johnson (2011) reported:

While the Image Creation intervention was significantly more effective than Word Only for the science terms, many students described the former method as being difficult. Some said that being presented with a picture of the word, as per the Dual Coding Intervention, was the most helpful, because being presented with the picture was easier than having to create their own images. (p. 364)

The difficulties some of the students had in creating their own mental images may have been because they had never been taught how to do so, as Douville (2004) points out, “Although many students tacitly apply mental imagery to learning tasks, other students must be taught to do so” (p. 39). In addition to this study, Levin, Divene-Hawkins, Kerst,
and Guttmann (1974) found that, “children who benefit from pictorial presentations of stimulus items in simple learning tasks also benefit from an instruction to construct mental images of sentences they read” (p. 296). The dual coding technique of vocabulary learning in reading, be it a pre-selected picture or student created image, appears to be an effective method to strengthen the vocabularies of young readers.

Other visual and imagery strategies to teach vocabulary found in current research include topics such as linear arrays, using descriptive video in the classroom, and the Digital Language Experience Approach (Allen, 1999; Hoffner, Baker, & Quin, 2008; Labbo, Love, & Ryan, 2007). Rupley et al. (1999) remarks, “Readers and writers share meanings through their direct experiences with people, places, objects, and events and through their vicarious experiences, including interactive technology, videotapes, pictures, movies, reading, and writing” (p. 337). With the various strategies listed above, teachers can effectively use visualization and imagery strategies in different media to help students make deeper meaning of new vocabulary words in both their receptive and expressive vocabularies.

Allen (1999) explains how linear arrays are a unique vocabulary instructional practice in the classroom because it illustrates “representations of degree…that depict gradations between related words” (p. 52). Linear arrays are a visual way to focus on word relationships that may vary in subtle to distinct shades of meaning (Nilsen, 2002). Berne and Blachowicz (2008) concur that “focusing on word relationships is one of the most frequently cited successful instructional strategies for teaching vocabulary” (p. 316), and this can be effectively accomplished utilizing linear arrays in the classroom.
Hoffner, Baker and Quinn (2008) highlighted a unique way to incorporate vocabulary development, technology and writing into the reading/language arts classroom—through the integration and use of descriptive video. Building off the idea of closed captioning, descriptive video takes the narration of a movie or television show one-step further by fully describing elements of a scene that would not be known to the viewer/listener just through dialogue. As an example, the authors offered the opening scene from Walt Disney’s *The Lion King*, during which the various animals fill the savannah and celebrate Simba’s birth. While there is not any actual dialogue for a closed-captioned audience, the descriptive video feature (which can usually be turned on using the Secondary Audio Program SAP on a television) gives a detailed version of the scene that may provide additional insight into the action of the film (Hoffner, Baker, & Quinn).

Hoffner’s, Baker’s, and Quinn’s classrooms (2008) illustrate how utilizing the described programming can benefit students. One classroom in particular used the scene described from *The Lion King* above, and had the students watch the scene without descriptive video, and then with descriptive video. The teacher had the students give a written description of the actual scene after each viewing. The difference in the students’ use of vocabulary terms, details, and ability to retell the story, after using this dual coding technique, was impressive.

Hoffner, Baker, and Quinn (2008) claimed that “vocabulary, concept development, background knowledge, language precision, and descriptive writing are just some of the ways descriptive video can be used to enhance classroom instruction” (p. 576). While all of these elements are enhanced when using described programming, the
vocabulary development facilitated by this activity is improved through the visual and imagery dynamics.

To take the vocabulary lesson even further, the students became the actual describers of other un-narrated television or movie scenes (Hoffner et al., 2008). Much like developing the lines for a Readers Theatre, students “assume[d] the role of video describers and [wrote] their own description for segments from many films” (p. 578). Furthermore, students practiced their scripts, and performed their descriptions “as the film’s soundtrack play[ed] in the background” (Hoffner et al., p. 578). In addition to providing students with an exercise in descriptive writing, fluency practice, and vocabulary development, activities like this can be particularly motivating for even the most reluctant reader, while fully utilizing the components of dual coding theory.

Labbo’s, Love’s, and Ryan’s (2007) work on the Digital Language Experience Approach (D-LEA), an approach based on the Language Experience Approach, suggested that students of all ability levels can learn how to sequence events, generate high quality oral language and use highly descriptive vocabulary when they discuss digital photos and arrange them in presentation software” (p. 583). The dual elements of the D-LEA allow students to use their own written language and visual media to make new meanings and associations of words (Labbo et al., 2007). According to Labbo, Love and Ryan, “D-LEA activities allowed teachers in the intervention to more effectively focus students’ attention on visual representations of vocabulary terms. Students became analytical when viewing photographs as they talked and wrote about their own experiences” (p. 587). Also during the Digital Language Experience Approach:
The teacher invited students to do word recycling by associating other words that have similar meanings, and she wrote those groups of words on another chart. When children make word associations of this type, they have occasions to make words sticky by remembering them. (Labbo et al., p. 585)

By incorporating a variety of visuals, imagery, and meaning connections into integrated vocabulary lessons, students can increase both receptive and expressive vocabularies, and ultimately improve all around reading abilities.

Summary

Throughout this literature review, the historical, theoretical, and current research of effective vocabulary instruction has been examined. Combining constructivist, schematic, interactive, and dual coding theories of learning, the theoretical framework for vocabulary teaching and learning has been explored. Various research studies and journals have been explicated to show effective vocabulary strategies throughout the history of education, and into today’s current trends. Three types of vocabulary learning, vocabulary words tiers, as well as three categories of vocabulary words have been identified as being integral to understanding word study. In addition, the inherent connection between vocabulary knowledge, reading, and writing ability have been linked to student literacy success. Multiple exposures to words using a combination of definitional and contextual information, while engaging students in active word learning, have been identified as the core necessities for students to be able to gain complete ownership of words. Vocabulary knowledge has been identified as a key factor in student comprehension. Comprehension has been shown to be improved through dual-coding and visual/imagery techniques; therefore, using visual/imagery and dual-coding
theory to teach vocabulary will ultimately benefit students in building word knowledge
and improving overall understanding of texts. With a concentration on integrating
visualization and imagery strategies into vocabulary instruction, this chapter has focused
on uncovering successful ways to improve the vocabulary of struggling readers.
CHAPTER III. METHODS AND PROCEDURES

The breadth and depth of a student’s vocabulary knowledge is a leading contributor to the overall reading and literacy success a student may experience throughout grade school and into adulthood. This study answered the following questions:

1. Do vocabulary strategies utilizing visuals, imagery, and dual-coding theory effect the vocabulary knowledge of struggling third grade students?

2. What dual-coding vocabulary instruction, of the three strategies implemented, appear to be the most engaging and effective for the students?

Visual representations, imagery devices, and other assorted dual-coding strategies were expected to be identified as beneficial practices to teach students meanings of unknown vocabulary words in primary grade vocabulary instruction according to historical and current research. The following chapter will explore the methodology of the research that was conducted--including research design, participants, and the instruments used to collect data; in addition, a detailed description of the actual procedures will be discussed, as well as methods of data collection and analysis succeeding the study.

Methods

Research Design

The research design of this study was quasi-experimental pre-test-post-test design using a mixed method of data collection (McLean, 1995). Both quantitative and qualitative data were collected, as students were assessed using reputable norm-referenced instruments and were observed and polled by the researcher. This research
was quasi-experimental, as groups of students were not randomly assigned and no control group was available for comparison (McLean). All students within the participating classroom were offered to take part in the study, using both pre and post testing to analyze and support results.

Participants

The participants in this study were students from a third grade classroom located in a rural community in northwest Ohio. The cooperating teacher volunteered to participate in the study after being presented with the framework and procedures designed by the researcher. As the only elementary school in the district, the school is home to grades K-6. The 26 students in the classroom, 18 male and 8 female subjects, were identified by the language arts teachers as struggling readers within the grade and school. Of the 26 students, 21 subjects (8 female and 13 male) were given consent and gave assent to participate in the study. Twenty students came from Caucasian backgrounds with the exception of one Chinese-American female. Out of these 21 subjects, only 20 out of the 21 were present to complete the vocabulary pre and post tests, 14/21 completed both pre and post expressive vocabulary measurements, and 12/21 completed both pre and post receptive vocabulary measurements. Only 10 of the participants completed pre and post measures of all three assessments. This was due to time restraints and incomplete protocols during testing.

Instrumentation

Throughout the duration of this study, four different instruments were used to gather data. Two different norm-referenced assessments were administered prior to the vocabulary lessons. The first assessment, the Peabody Picture Vocabulary Test (PPVT)
Fourth Addition (Dunn & Dunn, 2007), was used to gather data on the subjects’ receptive, or hearing, vocabulary abilities. During this assessment, which was untimed and administered individually to each student, the student was asked to select a picture that best corresponded with the words that were orally presented by the examiner (Dunn & Dunn). With average testing time being approximately 11 to 12 minutes, the students were only presented testing items that were of “appropriate difficulty for the examinee” (Dunn & Dunn, p. 5). The researcher, as well as additional graduate students in reading education who were qualified to administer this test, had prior experience with the assessment, and knew where to begin and end the test, depending on the student’s chronological age and when a basal and ceiling had been reached.

Test administrators attempted to establish rapport with each student by asking students about their interests, and began the testing by asking the student his or her birthdate, and recording the student’s’ chronological age. For this test in particular, it was important the examiner did not round up when calculating the chronological age of the student. The chronological age of the student allowed the examiner to begin the test at the appropriate place according to the assessment manual. An easel displaying the picture sets/choices was displayed so that only one side of the easel faced the examinee, as the examinee only needed to see one page at a time. Procedures of administering this assessment indicated that the examiner should attempt to sit side by side with younger students, as younger students tend to point at the pictures, and this seating arrangement would give the examiner a better view of the examinee’s response. Testing took place in a quiet area, away from distractions and other examinees. Training items were administered first, to “teach the individual how to give the desired response” (Dunn &
Dunn, p. 8). The examinee was required to answer at least two training questions correctly to continue with testing. For each testing item, the examiner said “a word and ask[ed] the examinee to point to, or say the number of, the picture that shows the meaning of the word” (Dunn & Dunn, p. 8). While the examiner was allowed to repeat a stimulus word, the examiner was not allowed to coach the student, use the word in a sentence, spell the word, or begin the stimulus word with an article such as *a, an, or the* (Dunn & Dunn). Examinees were given approximately 10 seconds before the examiner prompted the student to answer, guess, or go on. Examiners attempted to establish a basal, which is the lowest item set that contains zero to one error, and established a ceiling, which is when an examinee makes eight or more errors on a set (Dunn & Dunn). Once the ceiling was established, testing was complete. This assessment provided the researcher with comparative data against the norms of other students the same age and/or grade level, as well as provided standard scores in which to make comparisons. Since two different forms (A & B) are available of this assessment, the researcher administered form A for pre-test data and form B for post-test data.

In addition, the *Expressive Vocabulary Test (EVT) Second Addition* (Williams, 2007) was administered the same day as the *PPVT-4* assessment during both the pre and post-tests. This was to ensure measures of both receptive and expressive vocabularies were consistent with the mood and environment of the student. Like the *PPVT-4*, the *EVT-2* was relatively quick to administer, with an average testing time of 10-20 minutes (Williams). It was previously noted that testing time is often shorter for younger students. This assessment provided the researcher with normed-data regarding the subjects’ expressive, or speaking and writing, vocabulary abilities at the beginning and
end of the research. During this assessment, the examiner presented a picture from the
test easel and read a stimulus question from the record form. The examinee was trained
to reply with a one-word response that would provide an acceptable label for the picture,
that would answer a specific question about the picture, or that would provide a synonym
for a word that is related to the picture. Since the format was similar to the previous
assessment (PPVT-4), and the EVT-2 was given on the same day as the PPVT-4, the
testing conditions were the same as in the PPVT-4 description above. The examiner once
again established the student’s chronological age to determine what page to start in the
manual and easel. The examiner read the instructions from the manual to the student and
administered example items to ensure the student understood the tasks. A basal was
established by the examiner when the examinee reached five consecutive correct items,
and the ceiling was established when the examinee missed five consecutive items
(Williams). The examiners recorded all responses in the examiner booklet. Once again,
there were two forms (A & B) available for the EVT-2, so different forms were
administered for pre- and post-testing. Scoring for both assessments took place outside
of the classroom using the scoring directions provided in the manuals.

The third instrument to gather data was created by the researcher (See Appendix
A). This instrument, a vocabulary knowledge test, was designed to assess the student’s
ability to read/hear selected vocabulary words and identify the meanings. Vocabulary
words for testing were selected from the Harris-Jacobson (1972) General Vocabulary
Core List of grades two and three. The researcher chose these words by compiling a list
from each grade (two and three), and looked for words that could not only be represented
visually or with images, but also could be tied together to facilitate cohesive vocabulary
lessons. This produced a list of words that have a common thread of representing emotions or feelings (See word list Appendix A). The pre-test created, using these 30 words, was used to determine the vocabulary words that were taught during the vocabulary instruction strategies. This pre-test was administered as a whole class and consisted of 30 multiple choice vocabulary questions the researcher presented orally. The researcher read the vocabulary word aloud to the class, and then read aloud the multiple choice answers the students were to choose from. Students were asked to circle the letter of the definition that best defined the meaning of the vocabulary word.

Based on the results of the pretest, the researcher used the 15 vocabulary words with which the majority of the class had difficulty. The researcher did this by converting raw scores for each vocabulary word into percentages, and identified the 15 lowest scoring words. These words were the focus of instruction. This test was also administered as a post-test after the vocabulary strategies had been taught in the classroom.

As the researcher taught the vocabulary words using the various lessons, she became an instrument to gather qualitative data, as she made observations and took anecdotal notes regarding student engagement, comments, and interactions. These notes were kept in a dated journal for review. The researcher also took an informal poll to note student feelings on the lessons that were taught. This was originally supposed to take place in individual interviews with students, but, due to time constraints, a whole class poll of a show of hands was given using the following questions: Which vocabulary lesson did you enjoy the most? Which lesson did you enjoy the least? Which lesson do you think helped you remember word meanings the most? Which lesson do you think
helped you remember word meanings the least? The researcher listed the lesson descriptions on the whiteboard and students were able to give their vote for each question.

Procedures

Prior to any testing, approval from both parents and students was necessary for the subjects to take part in the study. The researcher shared her reasons for being present in the classroom with the students and gave a short explanation of the study. A letter of consent was sent home for parent/guardians to return to the school (See Appendix B). Once consent from guardians was obtained, the researcher once again explained her purposes to the students, and asked for the students’ written consent as well (See Appendix C).

After consent and assent forms were collected, the researcher administered the vocabulary knowledge pre-test (See Appendix A) to the students as a whole class. All students were given the vocabulary test, but only participating subjects’ data were used. As the researcher administered the vocabulary pretest, students were seated at their normal tables and used folders to provide privacy and to prevent students from seeing one another’s work. The classroom teacher was present to help support students who needed redirection or assistance. Since the researcher was concerned with identifying whether or not the students understood the meaning of the words, the researcher administered the test orally. The test consisted of 30 vocabulary words. The researcher read the word aloud to the students, as well as read aloud the multiple-choice answers. The students circled the letter of the best answer.
Three days later, administration began of the *Peabody Picture Vocabulary Test-4 Form A* and the *Expressive Vocabulary Test-2 Form A*. This was given individually to each of the subjects, with the help of two additional reading graduate students who were certified to administer the assessments. On the first day of assessment, the same test administrator gave the student both the *PPVT-4 Form A* and followed it immediately with the *EVT-2 Form A*. This was altered on day two of assessment and will be discussed further below. Students were tested in a quiet room or hallway, away from other students taking the same tests. This was to ensure the students did not overhear one another’s answers. The time available for testing this day was 1 hour and 20 minutes. During this time, only 6 students were tested on both tests between the three test administrators. Students were not completing the assessments in the average time of 10-15 minutes, as starting at the student’s chronological age was too easy for the students and too time consuming for the assessors. The students were able to reach a basal far exceeding their chronological age, so the test administrators decided to make adjustments and began testing above the students’ ages. If needed, the assessor could backtrack to reach a basal, but in most cases that was not needed.

On the next and last day and time available to assess, seven graduate students, majoring in reading education, were present to administer tests. On this day, immediately following the first day, adjustments were made regarding where to begin each assessment, based on multiple students’ abilities on the previous day. Test administrators began testing in the testing easels of both tests, two to three years above the students’ chronological ages. In addition, two separate rooms were provided to give the assessments, and the researcher made the decision to use each room for administration of
one of the tests. Students were administered one of the tests in one room, and were sent
to the next room for the remaining assessment. With this change, some of the students
were administered the *EVT-2* first, and some students were administered the *PPVT-4*
first. This saved testing time, as the test administrators did not have to switch between
assessments and became more efficient at administering the assessments. During this one
1 and 20 minute block, the rest of the subjects were able to be assessed.

Once the pretests were administered and collected, the researcher reviewed the
vocabulary test to identify which words the majority of the class understood, and which
words needed to be taught. The words that the students struggled with the most (the
bottom 15) became the basis for the word study instruction and vocabulary activities.
This was calculated by determining the percentage of the class that correctly identified
the meanings of each of the vocabulary words. The following words became the focus
for instruction:

1. anxious
2. careful
3. cheerful
4. curious
5. eager
6. excited
7. fearful
8. fierce
9. glad
10. grateful
11. lazy
12. patient
13. wicked
14. willing
15. wise
Based on these vocabulary words, the researcher determined what words would be the best fit with each vocabulary lesson; this centered on available picture books for read alouds that could make meaningful associations, as well as the connections between the words and what the researcher would be asking the students to do in each lesson. The lesson focused on linear arrays (Bintz, 2011) utilized the words *fearless, fierce,* and *wicked*—as well as the word *glad* for an example and model. These words were chosen for this lesson because the three words could be connected and placed on a continuum. The lesson using the Digital Language Experience Approach (Labbo, Love, & Ryan, 2007) focused on the following eight words: *anxious, cheerful, careful, curious, grateful, eager, excited,* and *lazy.* These words were chosen for this lesson, as they seemed to be words that the students would be capable of representing in a digital picture. Finally, the lesson on drawing/imagining pictures (Hibbing & Rankin, 2003) taught the last three words—*patient, wise,* and *willing.* These words were placed with this lesson because of the alignment of a read aloud book that was fitting to teach the words using imagery. Each lesson’s procedure is described in full detail below.

One week after the last formal assessment, the researcher taught the first lesson using linear arrays in the third grade classroom. The picture and storybook *Sophie and the Next-Door Monsters* by Chris Case was used as an engagement and introduction to the lesson. Prior to reading the story, the researcher wrote the four words—*fearful, fierce, wicked,* and *glad*—on the front board and announced to the children that the day’s focus would be on learning the difference between the four words. The researcher then previewed the story to the students, asking them to make predictions about what the story might be about. Then, the researcher asked the students to pay attention to the characters’ feelings and emotions in the story and try to identify if the characters in the story represented any of the words on the board. As the
researcher read the story, she stopped and asked the students what they thought the character might be feeling at the time. The students were able to identify when a character was fearful and when a character was glad in the story, and were able to identify why.

After finishing the story, the researcher introduced the rest of the lesson by discussing each of the words on the board, prompting students to come up with definitions, synonyms, and antonyms for each word. The students and researcher discussed the variations in meanings between fearful, fierce, and wicked. To model what the students would be doing next, the researcher placed one of the paint strips representing a continuum on the board. Working with the word glad as a model, the students came up with words that could be placed on the continuum with the word *glad* showing how the continuum could represent ranges of meanings with words. Then the researcher asked the students how they could place the words fearful, fierce, and wicked on a continuum, and where they could be placed so that the continuum would make sense. The students decided that the words would be placed from left to right—fearful, fierce, and wicked—with fearful at the far left end and wicked at the far right end, and fierce somewhere in the middle. The researcher then gave the students directions on how to make their own continuum with the words and what they were to do.

Each student collected a piece of construction paper, a shaded paint strip, a baggie with a variety of paper images, a glue stick, and a writing utensil. The researcher held up each image that was inside each student’s baggie and made sure that the students could identify the images. Students were instructed to glue the paint strip onto the construction paper, place the words on their continuum, and make a web adding one to two synonyms or antonyms of each word. Then the students were instructed to come up with a sentence using each word, which could be written on the same side or the back of the construction paper. Students were to then decide which of
the images represented the three words and glue them close to that word. Students could choose to use any number of the images, but had to be able to defend why that image represented the word. While some students wrote a sentence for each word, some students chose to write a sentence incorporating all three words. One of the students even explained how the image of “The Joker” from *Batman* could represent all three of the words. He commented, “The Joker is fearful of Batman, a fierce fighter, and wicked because he does evil deeds.” The lesson concluded with students sharing their work, image selections, and sentences with the researcher and class (See Appendix D for student work).

Three days later, the researcher returned to the class to teach the second lesson using a variation of the Digital Language Experience Approach. The regular classroom teacher was not present and a substitute was in the room. The researcher had prepared a graphic organizer of the eight vocabulary words that the students were using for this lesson. As a whole class, the students came up with tentative definitions of each of the words and wrote them on the graphic organizer. For words they were unsure of, a children’s dictionary was consulted. After coming up with definitions and/or synonyms of each word and filling out the graphic organizer, the students were ready to listen to the read-aloud for the day, *Jacob’s Collection* by Brian Mundt. As the researcher read the story, students were encouraged to identify when a character in the book was representing any of the words discussed previously on the graphic organizer. Students were able to identify when the character was being *careful, curious, anxious, excited, grateful, cheerful, and eager*. The only word that was not expressed in the book was the word *lazy*. These eight words were the focus of the lesson.

Next, the researcher had the class stand up at their seats and had them practice representing different emotions just with their faces, bodies, and expressions. For example, the
researcher would say, “Show me happy,” and the students would give their best happy look; then, the researcher would say “freeze” and the students would have to freeze with their “happy” look. The students practiced representing several words such as angry, confused, surprised, etc. Once the students had mastered the act of representing the words with their faces and bodies, the researcher explained the task for the day.

The students were divided into eight groups and each group drew a word from the eight focus words of the day. Each group received a word, a digital camera, and needed a piece of paper/pencil. The group had to decide how to represent their word with a still image and capture that image with the digital camera. Any discrepancy over who would take the picture was settled over “rock, paper, and scissors”. Students were allowed to use objects from the room for props if necessary. Once a satisfactory picture was taken, the students had to come up with a scenario of at least three sentences explaining what may have happened before, during, and after the photo—using the focus word at least one time in the short story. Once students took the picture and wrote their scenario, the group would bring the story to the researcher for approval. The researcher collected the cameras and short stories to insert into presentation software for the students to share with one another during the next class period.

When the researcher returned with the PowerPoint slideshow of the students’ work three days later, the classroom teacher and the researcher were unable to open the slideshow and share the presentation. It was determined that the researcher would upload it to Google Documents and bring it to the next class. Lesson number three was still to take place that day.

For lesson number three, which was three days after the last lesson, the researcher focused on imagery, “mind movies”, and drawing to teach the final three words—patient, wise, and willing. Using the book Cookies: Bite-Size Life Lessons by Amy Krouse Rosenthal, the
researcher guided the students to listen and focus on what the image was that they were seeing in their minds as the researcher read. Students were given two small pieces of colored paper and one large piece of colored paper for the activity, and asked to get out colored pencils, thin markers, or crayons for drawing. For the first page of the book, students were to close their eyes while the researcher read. The first page read, “Cooperate means, how about you add the chips while I stir?” (Rosenthal, 2006, p. 2). The researcher then asked the students to describe what they imagined as the sentence was read. After several students shared, the researcher showed the students the picture of the page of the book. The students and researcher discussed how the images that they created were similar and different from one another and in the book. For the next page, the students were asked once again to close their eyes and make a “mind movie” of what was being read. The second page read, “Patient means waiting and waiting for the cookies to be done. A few more minutes. Aren’t I waiting so nicely? Still waiting” (p. 3). Without showing them the picture from the book, the researcher asked the students to draw what they imagined was happening in the book on their first piece of small colored paper. After a few minutes of drawing and adding detail, the students added the word patient to their drawings and offered to share what they had drawn to the class. Everyone had drawn pictures that depicted what they had imagined happening. After a few students shared, the researcher agreed to let them see the picture in the book. Then, the students wanted to discuss how the picture they had drawn was similar or different to what the illustrator had drawn.

The researcher continued reading the book, sometimes having the students picture the word, and sometimes showing them the pictures as she read. The last page of the book contained the second to the last word that was the focus of the lesson—wise. Once again, the students closed their eyes and listened while the researcher read. It read, “Wise means, I used to think I
knew everything about cookies, but now I realize I know about one teeny chip’s worth” (p. 30). After giving the students a few minutes to draw, the researcher asked the students how this description defined wise and asked students to share their drawings. Finally, the students had one word left—willing—and one larger piece of colored paper. The researcher discussed with the students how each of the words in the book had been related to eating, sharing, or baking cookies. For the final word, the students were instructed to come up with what the word willing could mean and relate it to cookies, as if it were another page in the book. Students wrote a sentence describing the relationship and drew an illustration depicting what they wrote. Finally, the students shared their own new page of the cookie book using the word willing.

The following day, the researcher returned to the classroom ready to share the students’ slideshow presentation that they had not been able to view previously. This time, the computer’s browser was not formatted for Google Documents and the presentation was still unable to be opened. This was a disappointment for both researcher and students, as the sharing of the pictures and slideshow was an integral part of the learning experience. Pressed for time, the researcher had to administer the post-vocabulary test that day, without the students getting to share their digital work. As the pre-vocabulary test was administered before, the researcher once again read aloud the vocabulary words and the multiple-choice options, and students circled the best answers. The researcher collected the vocabulary tests and spoke with the students about each of the lessons. The researcher conducted an informal poll regarding likes, dislikes, and effectiveness in learning the words and their meanings. Only one more day was available for post-assessing the students, so personal student interviews were not able to be conducted.

Two weeks later, the researcher returned to the classroom with four other graduate students majoring in reading education to complete as many post PPVT-4 Form B and EVT-2
Form B assessments as possible in the 1 hour and 20 minute time block. All five test administrators were spread out in a large room. While the researcher was able to gather complete post-assessment data from 14 of the students, only 12 of the PPVT-4 protocols were used, due to administrator error. All 14 of the EVT-2’s were used.

Data Collection

Both qualitative and quantitative data were collected. On the PPVT-4 Forms A and B, quantitative data regarding the students’ receptive vocabulary abilities was collected. The EVT-2 Forms A and B provided the researcher with data concerning the students’ expressive vocabulary abilities. The pre-test of vocabulary knowledge provided the researcher with data regarding what words the students understood the meanings of, and what words needed to be taught. The post-test of vocabulary knowledge provided additional quantitative data concerning growth, or the lack of, in vocabulary knowledge when compared to the pretest. Other data were collected qualitatively as the researcher observed the students in the classroom environment as they participated in the vocabulary building activities. These data were collected as written anecdotal notes at the discretion and observations of the researcher, primarily after the lesson was taught, as the researcher was also the teacher. The researcher observed behaviors, comments made by students, engagement level of students, and participation. In addition, the informal poll questions will add qualitative data about students’ own opinions on the various strategies and their usefulness as utilized during class.
Data Analysis

Using the data collected, this study answered the following questions:

1. Do vocabulary strategies utilizing visuals, imagery, and dual-coding theory affect the vocabulary knowledge of struggling third grade students?

2. What dual-coding vocabulary instruction, of the three strategies implemented, appear to be the most engaging and effective for the students?

The PPVT-4 allowed the students’ raw scores to be converted into standard scores, percentiles, normal curve equivalents, stanines, and age and grade equivalents (Dunn & Dunn, 2007). The data from Form A (pre-test) was compared with Form B (post-test) to analyze any types of significant change in student performance. The same types of quantitative data were also collected and analyzed using the raw scores from the EVT-2 Forms A and B. Once again, significant changes, or the lack of change, were analyzed when comparing the two forms using a t-test of paired samples.

The pre- and post-test vocabulary scores also provided quantitative data, in the form of percentages. Student scores on individual words from pre- to post-test, as well as the overall scores on the entire test were analyzed in terms of significant differences. The qualitative data was reported by sharing student comments and researcher observations through quoted dialogue and notes. Student comments will be compared and interpreted as objectively as possible, noting engagement, on-task behaviors, and questions students might have during each of the lessons.

Summary

As a quasi-experimental pre-test—post-test research design, a group of third grade readers participated in a series of assessments and vocabulary building strategies that were designed to enhance their word knowledge. By assessing the students’ receptive and expressive
vocabularies, determining what vocabulary words from the pretest needed to be taught, and implementing instructional strategies that focused on visuals, imagery, and dual-coding theory, the researcher has analyzed the affect of such strategies in the classroom setting. Through quantitative data and qualitative observations, the researcher has drawn conclusions on the effectiveness of the vocabulary strategies utilized in the study.
CHAPTER IV. RESULTS AND DISCUSSION OF RESULTS

As mentioned in previous chapters, vocabulary acquisition is pertinent to the success of readers as vocabulary knowledge is essential to comprehending text. Vocabulary instruction and word study in the early grades can maximize a student’s potential for growth in reading and writing. With various ways to teach vocabulary, this study attempted to answer the following questions regarding word study in third grade:

1. Do vocabulary strategies utilizing visuals, imagery, and dual-coding theory affect the vocabulary knowledge of struggling third grade students?

2. What dual-coding vocabulary instruction, of the three strategies implemented, appear to be the most engaging and effective for the students?

Throughout this chapter, the results of the pre and post assessments conducted in the third grade classroom will be summarized, and the researcher’s observations of the students will be shared.

Twenty-six parental consent forms were sent home and 21 consent forms were returned allowing those students to participate in the study. All 21 of the students who had parental consent signed student assent forms as well. On the day of the pre-vocabulary test, one of the students was absent, resulting in the collection of data from only 20 of the subjects for the pre/post vocabulary assessments. In regards to the other formal assessments, pre and post data were able to be collected from 14 of the 21 participants on the *Expressive Vocabulary Test-2*, due to school time restraints. For the *Peabody Picture Vocabulary Test-4*, complete pre and post data were able to be collected from 12 of the 21 participating subjects due to school time restraints and incomplete protocols.
Results

Descriptive Results

The first pre-assessment given to the students was a vocabulary knowledge test (See Appendix A) designed by the researcher based off of words from the Harris-Jacobson (1972) General Vocabulary Core List of grades two and three. The test was read aloud to the students as a whole class and the students were told to circle the best answer. The words missed most frequently by the students were determined by recording the percentage of errors per word. Table 1 depicts the percentage of errors in the class per word of the bottom 15 words.

Table 1

Percentage of Students that Incorrectly Answered Bottom 15 Words on Pre-test.

<table>
<thead>
<tr>
<th>Vocabulary Word</th>
<th>Percentage Incorrect</th>
<th>Vocabulary Word</th>
<th>Percentage Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grateful</td>
<td>65%</td>
<td>Lazy</td>
<td>65%</td>
</tr>
<tr>
<td>Patient</td>
<td>25%</td>
<td>Curious</td>
<td>15%</td>
</tr>
<tr>
<td>Careful</td>
<td>40%</td>
<td>Eager</td>
<td>50%</td>
</tr>
<tr>
<td>Anxious</td>
<td>55%</td>
<td>Fearful</td>
<td>25%</td>
</tr>
<tr>
<td>Excited</td>
<td>35%</td>
<td>Wise</td>
<td>15%</td>
</tr>
<tr>
<td>Fierce</td>
<td>40%</td>
<td>Wicked</td>
<td>25%</td>
</tr>
<tr>
<td>Glad</td>
<td>40%</td>
<td>Willing</td>
<td>25%</td>
</tr>
<tr>
<td>Cheerful</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These words became the focus of the lessons taught by the researcher. After teaching three lessons to the students, the post-test of vocabulary knowledge was administered. Table 2 compares pre and post-test overall scores of the subjects out of 30.
Table 2

Pre and Post Test Vocabulary Knowledge Scores Out of 30

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pre</th>
<th>Post</th>
<th>Subject</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>23</td>
<td>23</td>
<td>#11</td>
<td>25</td>
<td>27</td>
</tr>
<tr>
<td>#2</td>
<td>20</td>
<td>23</td>
<td>#12</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>#3</td>
<td>26</td>
<td>25</td>
<td>#13</td>
<td>27</td>
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<td>#4</td>
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<td>26</td>
<td>29</td>
<td>#20</td>
<td>21</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 3 compares the 15 words and the percentage of the subjects that correctly identified the word meaning before the vocabulary lessons and the percentage of the subjects that correctly identified the word meaning after vocabulary instruction. The table is also divided into three sections representing the three lessons that were taught and which words were taught with each lesson.

Table 3

Percentage of Subjects Correctly Identifying Word Meanings Pre and Post Word Study

<table>
<thead>
<tr>
<th>Vocabulary Word</th>
<th>Pre-test % Correct</th>
<th>Post-test % Correct</th>
<th>Vocabulary Word</th>
<th>Pre-test % Correct</th>
<th>Post-test % Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson #1 Linear Arrays</strong></td>
<td></td>
<td></td>
<td><strong>Lesson #2 D-LEA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fearful</td>
<td>75%</td>
<td>85%</td>
<td>Careful</td>
<td>60%</td>
<td>65%</td>
</tr>
<tr>
<td>Fierce</td>
<td>60%</td>
<td>65%</td>
<td>Curious</td>
<td>85%</td>
<td>100%</td>
</tr>
<tr>
<td>Wicked</td>
<td>75%</td>
<td>100%</td>
<td>Eager</td>
<td>50%</td>
<td>75%</td>
</tr>
<tr>
<td>Glad</td>
<td>60%</td>
<td>60%</td>
<td>Cheerful</td>
<td>80%</td>
<td>85%</td>
</tr>
<tr>
<td><strong>Lesson #3 Drawing/Imagining</strong></td>
<td></td>
<td></td>
<td><strong>Grateful</strong></td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Patient</td>
<td>75%</td>
<td>90%</td>
<td>Lazy</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Wise</td>
<td>85%</td>
<td>100%</td>
<td>Excited</td>
<td>65%</td>
<td>90%</td>
</tr>
<tr>
<td>Willing</td>
<td>75%</td>
<td>70%</td>
<td>Anxious</td>
<td>45%</td>
<td>45%</td>
</tr>
</tbody>
</table>
Additional pre testing was administered using the *Expressive Vocabulary Test-2 Form A* and the *Peabody Picture Vocabulary Test-4 Form B*. The raw scores from each of these normed tests were converted into standard scores using the examiner manuals from each assessment kit. After the post-vocabulary test was given, the *EVT-2 Form B* and *PPVT-4 Form B* was administered to the subjects. Table 4 shows the pre and post-test standard scores of both of these assessments.

Table 4

*Pre and Post Test Scores of PPVT-4 and EVT-2*

<table>
<thead>
<tr>
<th>Subject #</th>
<th>PPVT-4 Form A Pre-Test Standard Score</th>
<th>PPVT-4 Form B Post-Test Standard Score</th>
<th>Subject #</th>
<th>EVT-2 Form A Pre-Test Standard Score</th>
<th>EVT-2 Form B Post-Test Standard Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
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<td>78</td>
<td>#1</td>
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<td>#3</td>
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<td>#9</td>
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Research Question 1: Do vocabulary strategies utilizing visuals, imagery, and dual-coding theory affect the vocabulary knowledge of struggling third grade students?

Pre and post test scores were compared using t-test of Related Samples. Significant increases from pre to post were found in two of the three measures. The Vocabulary Test showed a significant increase from the pretest (M=23.3) to the post-test (M= 25.05); t(19)=-4.41, p=.0003, two-tailed. The PPVT also revealed significant increases from pre (M=98.67) to post (M=105.25) test scores; t(11)=-2.97, p=.0127, two-tailed; In contrast, results indicate that the treatment had no significant effect on expressive language as measured by the EVT 2; t(13)=-0.59, p=.5641, two-tailed (see Table 5).

When looking at Table 3, each lesson shows improvements in the majority of the words taught for each lesson. For lesson one, three out of the four words taught showed an increase in understanding, ranging in increases from 5%, 10%, and 25%. The fourth word did not decrease or increase, with the same percentage of students understanding the meaning of the word in both pre and post testing. In lesson two, seven out of the eight words showed an increase in correct answers—two words improved by 5%, one word improved by 15%, two words improved by 25%, and two words improved by 30%. The eighth word did not increase or decrease in the number of students who answered the question correctly. For lesson number three, two out of three words increased by 15%, while the third word, and only word in the study to decrease, went down by 5%. 

Table 5

*Pre and Post-test Statistics of all Three Assessments*

<table>
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<th>Post</th>
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</table>

Research Question 2: What dual-coding vocabulary instruction, of the three strategies implemented, appear to be the most engaging and effective for the students?

The researcher conducted an informal poll after administering the post-vocabulary test to measure students’ perceptions and attitudes towards the vocabulary lessons that were taught. This was accomplished by listing the three lessons on the board and reminding the students of what took place during each lesson. Students were asked to close their eyes when voting, and raised their hand to vote for which lesson they believed answered the question the researcher asked. The researcher asked the following questions:

1. Which vocabulary lesson did you enjoy the most?
2. Which lesson did you enjoy the least?
3. Which lesson do you think helped you remember word meanings the most?
4. Which lesson do you think helped you remember word meanings the least?

For the first question, eight students indicated that the linear array lesson was most enjoyable; six students indicated the Digital Language Experience Approach lesson was most enjoyable, and ten students indicated the drawing and imagery lesson was most enjoyable. For the second question, six students indicated the linear array lesson was least enjoyable; ten
students indicated the Digital Language Experience Approach was least enjoyable, and eight students indicated the drawing and imagery lesson was least enjoyable. For the third question, eight students indicated the linear array lesson was most helpful in remembering the meaning of the vocabulary word; five students thought the Digital Language Experience Approach was most helpful in remembering the meanings of vocabulary words, and eleven students believed the drawing and imagery lesson was most helpful in retaining the meanings of the words. For the last question, seven students indicated the linear array lesson was least helpful in remembering the word meanings; eleven students claimed the Digital Language Experience Approach helped them remember word meanings the least, and six students believed the drawing and imagery lesson helped them remember the vocabulary word meanings the least.

The researcher made other qualitative observations as the lessons were taught regarding student interaction and engagement with the words and activities. During the first lesson, which focused on linear arrays, many students needed individual help regarding where and why to place the three vocabulary words *fearful, fierce,* and *wicked* along the paint strip continuums. The students were eager to sort the pictures and glue the images next to the words that they believed represented the vocabulary word meaning the best, often completing this step before adding the required sentences and synonyms/antonyms. Some students chose to place only one image per word, while other students used many or all of their images while completing the activity. Students appeared to be all on task, as the researcher did not have to redirect them to continue with their work. When completing the activity, a student would raise his/her hand, ready to share the work and explain why and what he/she did.

During the Digital Language Experience lesson, students were concerned with the digital cameras and who was going to be the one to get to take the picture. Some students who had
previously wanted to be in the picture, refused to be in the picture because they wanted to take the picture. *Rock, paper, and scissors* was used in almost every group as a means of deciding who would take the picture. In addition, the researcher required each group to present its short story about the picture before the group was able to hand in the story. Many of the students needed to be given the directions regarding what was to be written over again, as well as needed guidance in writing complete sentences that made sense with the picture that they took. Many students were also off task, taking pictures of other unrelated people/items as the researcher worked with other groups.

The final lesson, dealing with drawing and imagery, had the engagement of the class as they listened to the story being read and prepared to draw their own pictures of what they had visualized. Students were observed peeking when they were supposed to be closing their eyes and listening, but each student drew an illustration when asked. Students were eager to share drawings and many students added quite a bit of detail to their work.

**Discussion of Results**

When comparing the means of the pre and post vocabulary tests, the mean increased from 23.3 to 22.05, which is a 1.75 increase. When calculating a t-test of paired samples, this increase showed a statistical significance, as $p= .003$ (See Table 5). These numbers answer the first question posed by the researcher in Chapter 1 of this study: Do vocabulary strategies utilizing visuals, imagery, and dual-coding theory affect the vocabulary knowledge of struggling third grade students? The statistical significance shows that the strategies utilized in the vocabulary lessons with the third grade students did, in fact, significantly expand their vocabulary knowledge.
While the mean of the *Expressive Vocabulary Test-2* showed a standard score increase from 96.5 to 97.79, an increase of 1.29, the t-test of Related Samples showed no statistical significance, as $p = .5641$; therefore, expressive vocabulary was not significantly increased by the methods used in this study. The *Peabody Picture Vocabulary Test-4* indicated an increase of the pretest mean of 98.67 standard score to a posttest mean of 105.25. This increase in the mean of standard scores of 6.58 showed statistical significance, as $p = .0127$ when conducting a t-test of Related Samples (See Table 5). This indicates that the receptive vocabularies of the third grade students were significantly impacted by the vocabulary lessons and word study that took place during the classroom activities.

Of the 15 focus words taught during the three lessons, 12 of the words showed an increase in test scores from pre-post testing, two words showed no change, and one of the words showed a decrease in understanding (See Table 3). The words *anxious* and *glad* remained the same with 45% and 60% correctly identifying word meaning on pre and post-test, respectively. The one word that dropped in score was the word *willing*, which dropped from 75% of the subjects correctly answering on the pretest and only 70% of the subjects correctly identifying the word’s meaning on the posttest. While it is unclear which lesson was most helpful for the students, it is apparent that each lesson did positively affect student performance on the post-test.

Informal polling showed that the majority of the students enjoyed the drawing and imagining lesson the most. The Digital Language Experience Approach lesson had the most votes for being the least enjoyable lesson. More students believed that the drawing and imagining pictures lesson was the most helpful in remembering word meanings and the lesson that had the least number of votes for being most helpful was the Digital Language Experience Approach lesson.
Observations of students participating and engaging in the activities showed the drawing and imagining pictures lesson was easiest for students to follow and understand, while the linear array lesson seemed to keep the students the most engaged. Little behavioral management was required for the aforementioned lessons, while the Digital Language Experience Approach lesson required significant redirection of students participating in off task activities, behavioral management issues within groups, and confusion with directions for the writing task. Looking at this data, the researcher can attempt to answer the second question asked in Chapter 1 of this study: What dual-coding vocabulary instruction, of the three strategies implemented, appear to be the most engaging and effective for the students? With the data mentioned above, the drawing and imagining lesson as well as the linear array lesson seemed to be the most engaging and effective for the students.

Summary

Overall, 21 students participated in the study structured around vocabulary lessons that integrated visualization, imagery, and dual coding theory. The study was conducted over a month, but all three vocabulary lessons were taught within a week’s time. Students took a pretest on their vocabulary knowledge to enable the researcher to determine what vocabulary words should be the focus of word study. The researcher then taught three vocabulary lessons and a post-test of vocabulary knowledge was administered to measure if significant changes had occurred. Students also took pre and post-tests of the Peabody Picture Vocabulary Test-4, as well as pre and posttests of the Expressive Vocabulary Test-2 to determine if significant changes in either receptive or expressive vocabularies were made. The researcher determined that the dual coding, visualization, and imagery lessons did have a significant impact on the students’ understanding of vocabulary knowledge. It was also determined that the students’ made
significant increases in their receptive vocabularies, but not in their expressive vocabularies.

Finally, the most effective and engaging lessons for the students were the drawing and imagining lesson and the linear array lesson.
CHAPTER V. DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Vocabulary and word study are integral parts of a comprehensive school curriculum. A student’s vocabulary knowledge builds the foundation of successful reading comprehension and enjoyment. With various ways to integrate word study into daily lessons, this study focused on using dual coding, visualization strategies, and imagery to engage third grade students in meaningful and effective vocabulary instruction. The methods and procedures in this study were designed to answer the following questions:

1. Do vocabulary strategies utilizing visuals, imagery, and dual-coding theory affect the vocabulary knowledge of struggling third grade students?
2. What dual-coding vocabulary instruction, of the three strategies implemented, appear to be the most engaging and effective for the students?

This chapter will summarize previous chapters one through four, provide an analysis of the results shared in chapter four, and make recommendations for educators and future research.

Summary of Previous Chapters

Research in literacy development, particularly in the area of reading, has identified a key component contributing to students’ lack of comprehension abilities past the elementary grades. This component, a strong base of vocabulary knowledge, serves as a backbone supporting young and old readers alike when attempting to understand a text. Historically, vocabulary instruction has not always been a main concern for research, yet its importance remains constant. With varying types of vocabulary to be taught to students, identifying best practices of word study is essential to empowering teachers to try new methods that are efficient, effective, and engaging. As mentioned in Chapter 2 regarding vocabulary learning processes, “The dual coding theory assumes that information stored in two codes is better comprehended and remembered than that
which is stored in one code” (Cohen & Johnson, 2011, p. 358). This theory assumes that meaningful learning is particularly apt to occur if the material being presented can be characterized in more than one way. Based on this theory, the addition of both visualization and imagery techniques can help both struggling readers and talented readers. In Chapter 2, Hibbon and Rankin advocate the, “strategic use of visual material [to] enhance reading experiences for reluctant and low-ability readers” (p. 759). Using these ideas and rationales of methods, best practices in vocabulary instruction could incorporate the dual coding and visualization techniques mentioned in previous research. This study was designed to identify some of those practices by delivering vocabulary instruction to third grade students that used dual coding concepts, visualization strategies, and imagery techniques.

The study took place over the course of one month in a third grade classroom. Twenty-one participants were given a pre-test of vocabulary knowledge to determine what words would be the focus of further instruction. Subjects were administered pre and posttests using the Peabody Picture Vocabulary Test-4 and the Expressive Vocabulary Test-2 to compare standard scores of their receptive and expressive vocabularies before and after vocabulary instruction. The students then took part in three different vocabulary activities during regular classroom time. Day one consisted of a linear array vocabulary lesson that utilized paint sample strips, a variety of images, and a read aloud to teach four of the fifteen vocabulary words of focus. The second lesson utilized a form of the Digital Language Experience Approach to expand the students’ knowledge of eight of the fifteen focused vocabulary words. After filling out a graphic organizer, participating in a class discussion, and listening to a story exemplifying some of the vocabulary words, students were then introduced to the anticipated lesson. By practicing representing emotions in still poses at their desks, students were prepared to go forward with the
lesson. Eight groups of students each had one vocabulary word to focus on; students were to come up with a still pose representing the vocabulary word and take a picture with a digital camera. Finally, students were to write a short three-sentence caption depicting what might have happened before, during, and after the picture. These pictures and writings were then composed into a slideshow for students to share with other classmates, but due to technology technicalities, the slideshow was never able to be shared with the class. The third and final lesson required students to draw the images they visualized in their minds after listening with their eyes closed to an excerpt from a story. These drawings represented the vocabulary words that were the focus for the day’s lesson. Students shared illustrations and discussed the importance of visualizing while reading, as well as how their drawings applied to the words of study.

Over the course of the three lessons, the researcher observed the engagement, behaviors, and interactions of the students as they participated in the activities. The researcher also did an informal in-class poll to determine the students’ perceptions of enjoyment and effectiveness of the three different lessons. A posttest of vocabulary knowledge was given as a means to compare gains in vocabulary knowledge from pre to post-testing.

After collecting and analyzing all data, the researcher found a significant gain in the vocabulary knowledge of the students who participated in the study. In addition, a significant increase in the students’ receptive vocabularies was indicated. Expressive vocabulary measures reported gains, but not statistically significant. Students reported that the linear array and the drawing and imagining lessons were the most enjoyable and effective. The researcher also observed increased student engagement, consistent on-task behaviors, and positive student interaction during the aforementioned lessons.
Conclusions

Serving as both the researcher and classroom teacher of the lessons that were implemented, the researcher’s interactions with the students gave considerable insight into the effectiveness of the strategies. While the pre and post measures showed significant gains in receptive vocabulary and in the students’ vocabulary knowledge, students also had exposure to new ways to store and remember new vocabulary words as they come across them in their own reading. By highlighting the importance of visualization while reading, the researcher was able to offer students a strategy to self-monitor their own comprehension. Utilizing paint samples as a means of showing different gradients of meanings of words, the researcher provided students with a visual in which they can place new words on a continuum, differentiating in even the slightest meaning. The students were able to recognize while two words can be very similar in meaning, there is still a difference that separates one word from the other, and it is important to pay attention to these differences when making their own word choices. Students were also made aware of how body language and facial expressions can represent a wide range of words and actions, and how they too can use this knowledge to remember meanings of new and unfamiliar words.

In addition, the data from the pre and post vocabulary testing shows that students did benefit from vocabulary instruction that utilized dual coding, visualization, and imagery techniques in the lessons. As mentioned in Chapter 2 of this study, Rupley, Logan, and Nichols (1998-1999) reported that “instructional activities that allow for a visual display of words and promote students’ comparing and contrasting of new words to known words can be a beneficial means for increasing their vocabulary knowledge” (p. 339). This research, along with the research of Levin (1973), who suggested that “children from populations with reading/learning
difficulties seem to benefit from imagery instruction” (p. 23) shows the meaningful contributions that visuals and imagery can give to vocabulary instruction. This study showed this to be true as well.

Students were motivated to learn and were engaged in the activities that took place within this study, which was a key factor in their ability to be successful in the lessons and in improving their vocabulary knowledge. The willingness of the students to participate and complete activities allowed for a much greater focus on the content of the lessons; students eagerly took charge of their learning. The design of each lesson fostered a learning environment that created highly motivated students. This motivation alone is important when assessing the value of the vocabulary instruction that took place. As referenced in Chapter 2 of this study, Gunning (2010) states that an “important component of a planned vocabulary program is motivation” (p. 284). Further more, instruction that includes active participation, cooperative learning activities, and variety is more likely to motivate students to become engaged and successful during lessons (Graves et al., 2011). The vocabulary lessons in this study utilized active participation, cooperative learning opportunities, and provided the variety that research has shown to be effective in learning situations.

The excitement and interest students showed during each of the lessons indicated a positive reaction to word study when the vocabulary was able to be represented in different ways, allowing students to dually code meaning and make meaningful connections. The use of a story/picture book as part of each lesson gave the class a reference point when referring to certain emotions represented by characters, and served as a piece of authentic text to tie the vocabulary words into the lesson. As far as the effectiveness and engagement of the different lessons, it should be noted that the absence of the sharing of the students’ pictures and stories on
the PowerPoint slideshow depleted a large piece of the learning process that accompanied the lesson. Without this aspect of the lesson being incorporated into the study, it unknown as to whether or not the attitudes and perceptions of the students toward the Digital Language Experience Approach lesson would have changed. Overall, this study showed that the utilization of dual coding theory, visuals, and imagery in vocabulary instruction increased the motivation, engagement, and word knowledge of the third grade students.

Recommendations

Recommendations for Classroom Teachers

As research has indicated consistently over time, comprehension is directly affected by a student’s vocabulary depth and breadth of knowledge. Classroom teachers can maximize student learning by capitalizing on vocabulary instruction that is engaging, effective, and efficient. This holds true for teachers of all content areas, as word study becomes even more intensive as students move through grades and new subject matter. By using dual coding strategies that provide students with a way to store meanings and associations of vocabulary words in more than one way, teachers are providing a service that will benefit a vast amount of students. This research and other research has shown that using dual coding, visualization, and imagery techniques, like the ones used in this study, can improve the vocabularies of young readers. In addition, it is vital to keep students motivated by employing instructional techniques that require active participating, group learning, and give students variety. Teachers are encouraged to implement strategies, such as these, in their own classrooms and adapt them to fit the needs of their students. Educators who improve the vocabularies of students are setting them up for greater success as readers and, ultimately, successful and productive members of society.
Recommendations for Administrators

Administrators should be ongoing advocates of word study across the grades and content areas; they should provide teachers with professional development opportunities that keep educators current with innovative teaching methods and research that will meet the needs of a greater number of students. Effective and engaging vocabulary instruction methods should be valued and shared across schools, districts, and states. Support should be given to teachers who may serve as literacy role models by encouraging them to share and exchange vocabulary instruction ideas and materials with staff. Most of all, administrators should remain flexible, approachable, and willing to trust faculty when testing new ways to boost comprehension through word study.

Recommendations for Further Research

When reflecting on the results of the study, it would be beneficial to do further research to pinpoint which of the three methods used was most effective for the students. This could be done by designing individual studies focusing on each method in particular, or by breaking the participants into three groups and alternating the methods to teach a set of vocabulary words. This way, more data could be collected on which method is the most effective regarding the three dual coding vocabulary lessons used in this study. Changes in this specific study would be increasing the amount of time available to assess and teach the students, and the addition of individual interviews of each child. Furthermore, the Digital Language Experience Approach lesson was incomplete in this study, so it is uncertain how the sharing of the slideshow would have further impacted student attitudes, perceptions, and knowledge of new words. Future research could explore this method to include all portions for a more detailed look at the effectiveness. Future research could also explore the difference of effectiveness in using dual
coding methods of vocabulary instruction against singular representations of a vocabulary word and its meaning. In addition, other research could examine if the number of vocabulary words taught using these methods affects the effectiveness of the lessons.
REFERENCES


APPENDIX A

PRE AND POST VOCABULARY TEST
Name:

Vocabulary Multiple-Choice Test

Directions: Circle the letter that best describes the meaning of the vocabulary word. The teacher will read each word and letter option aloud, so listen carefully!

1. Afraid
   A. Feeling sad
   B. Feeling fear
   C. Feeling uncomfortable
   D. Feeling sick

2. Grateful
   A. Feeling healthy
   B. Feeling angry
   C. Feeling great
   D. Feeling thankful

3. Angry
   A. Feeling calm
   B. Feeling upset
   C. Feeling happy
   D. Feeling mad

4. Patient
   A. Feeling mad
   B. Feeling calm
   C. Feeling eager
   D. Feeling forceful

5. Brave
   A. Feeling scared
   B. Feeling bold
   C. Feeling weak
   D. Feeling tired

6. Pleasant
   A. Someone who is friendly
   B. Someone who is irritating
   C. Someone who is shy
   D. Someone who is funny

7. Careful
   A. Wrestling in the house
   B. Paying close attention to detail
   C. Not stopping at a stop sign
   D. Saying please and thank you

8. Polite
   A. Being nice to others
   B. Not paying attention to others
   C. Making people laugh
   D. Being rude to others

9. Clever
   A. Someone who is smart
   B. Someone who is rude
   C. Someone who is funny
   D. Someone who is fast

10. Anxious
    A. Feeling calm
    B. Feeling uneasy
    C. Feeling happy
    D. Feeling shy

**All definitions came from http://dictionary.reference.com**
Name:

Vocabulary Multiple-Choice Test

Directions: Circle the letter that best describes the meaning of the vocabulary word. The teacher will read each word and letter option aloud, so listen carefully!

1. **Afraid**
   A. Feeling sad
   B. Feeling fear
   C. Feeling uncomfortable
   D. Feeling sick

2. **Grateful**
   A. Feeling healthy
   B. Feeling angry
   C. Feeling great
   D. Feeling thankful

3. **Angry**
   A. Feeling calm
   B. Feeling upset
   C. Feeling happy
   D. Feeling mad

4. **Patient**
   A. Feeling mad
   B. Feeling calm
   C. Feeling eager
   D. Feeling forceful

5. **Brave**
   A. Feeling scared
   B. Feeling bold
   C. Feeling weak
   D. Feeling tired

6. **Pleasant**
   A. Someone who is friendly
   B. Someone who is irritating
   C. Someone who is shy
   D. Someone who is funny

7. **Careful**
   A. Wrestling in the house
   B. Paying close attention to detail
   C. Not stopping at a stop sign
   D. Saying please and thank you

8. **Polite**
   A. Being nice to others
   B. Not paying attention to others
   C. Making people laugh
   D. Being rude to others

9. **Clever**
   A. Someone who is smart
   B. Someone who is rude
   C. Someone who is funny
   D. Someone who is fast

10. **Anxious**
    A. Feeling calm
    B. Feeling uneasy
    C. Feeling happy
    D. Feeling shy

**All definitions came from http://dictionary.reference.com**
Name:

Vocabulary Multiple-Choice Test

Directions: Circle the letter that best describes the meaning of the vocabulary word. The teacher will read each word and letter option aloud, so listen carefully!

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   B. Feeling angry
   C. Feeling great
   D. Feeling thankful

3. Angry
   A. Feeling calm
   B. Feeling upset
   C. Feeling happy
   D. Feeling mad

4. Patient
   A. Feeling mad
   B. Feeling calm
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   D. Feeling forceful

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10. Anxious
    A. Feeling calm
    B. Feeling uneasy
    C. Feeling happy
    D. Feeling shy

**All definitions came from http://dictionary.reference.com**
APPENDIX B

PARENT CONSENT FORM
January 2012

Dear Parents and/or Guardians:

I am a graduate student at Bowling Green State University, pursuing my Master’s Degree in Reading. I am conducting a study for my thesis, and I am inviting your third grade child to participate in the study. During the study, I will explore ways to improve your child’s vocabulary.

The purpose of my study is to find effective ways to teach children vocabulary words that are engaging, useful, and that will strengthen their reading skills. The results will give teachers valuable information on ways to teach new vocabulary to students. Your child will benefit by learning new words that will help them as they read.

During the study, your child will be given two picture vocabulary tests, approximately ten minutes each, which assesses his/her hearing, speaking, and writing vocabulary skills. In addition, your child will also take a multiple-choice vocabulary test that will be orally read to the class. The results of this test will be used to choose words to teach in the vocabulary lessons that will follow. Three vocabulary lessons using pictures, visuals, and imagery will be taught to the children over the course of a week.

One of the lessons includes taking a digital photograph of your child with other students that will only be used in the classroom activity and will not leave the classroom. Children will be writing their own stories based on the pictures. You may choose to allow your child to participate in the study, but decline to have their picture taken. Accommodations can and will be made for any child who does not wished to be photographed. After finishing the vocabulary activities, children will take the post-tests of the picture and vocabulary tests to measure growth. Finally, I will conduct short 2-3 minute interviews with each child to find out what vocabulary activity helped them the most.

Your participation is completely voluntary. You are free to withdraw your child from the study at any time. Your child may decide to skip questions or discontinue participation at any time without penalty. Deciding to participate or not will not affect your child’s grade or relationship with the teacher or school. Children who do not participate in the study will partake in the vocabulary testing and daily vocabulary lessons with other classmates, but the data collected from those children will not be included in the study. The anticipated risks of the study are no greater than those encountered on a regular day.

All data collected from your child will be stored in a locked cabinet at Bowling Green State University. Only your child’s teacher, intervention specialist, and myself will have access to the data. Upon completion of the study, data will be destroyed to maintain confidentiality. Data will remain confidential, as names will not be used, and a coding system will be used to identify participants.

If you have any remaining questions, or any questions throughout the study, please feel free to contact me, Jamie Lenox, at jlenox@bgsu.edu or 614-623-6341, or my thesis chair, Dr. Angela Thomas, at angthom@bgsu.edu or 419-372-9546. If you have any questions concerning your rights, please contact the Chair of the Bowling Green State University Human Subjects Review Board at hsrb@bgsu.edu or 419-372-7716. Please fill out the information on the back of this form, indicating your consent for your student’s participation in this study. Thank you for your time.
APPENDIX C

STUDENT ASSENT FORM
December 2011

Dear Students:

My name is Miss Lenox and I am going to college to be a reading teacher. I am working on a big project that I need some help with from third grade students. I picked this project to help you learn more words. I will need your help to complete my project.

It is up to you if you would like to help me. I will work with each of you using short word tests that have pictures or choices of answers. I want to see what words you know. We will do three activities during class to learn new words. We will be drawing, using digital cameras, and matching pictures to words. You do not have to have your picture taken unless you want to, and the picture will not leave your class. When we are done, you will take the word tests again. I will ask you a few questions at the end about what you liked best. Your teacher will not change your grade if you help me or do not help me.

I will not share anything you tell me or do with anyone but your teacher. Your teacher and I will not make you help with my project if you do not want to. If you change your mind and do not want to be a part of my project, you can stop at any time.

If you or your parents have any questions about this project, your parents may reach me, Jamie Lenox, at (614) 623-6341 or jlenox@bgsu.edu, or can reach my teacher, Angela Thomas, at (419) 372-9546 or angthom@bgsu.edu. They may also call BGSU’s Human Subjects Review Board at (419) 372-7716 or at hsrb@bgnet.bgsu.edu if you have any questions. Thank you for helping me with my project.

By signing your name below, you have read or have been read this form and agree to participate in the study with Miss Lenox.

Student Name (please print): ____________________________ Date: ___________

Student Signature: ____________________________ Date: ___________

Will you allow your photograph to be taken during a classroom activity for your use during this study? Please circle yes or no.

YES  NO
APPENDIX D

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