DETERMINING BEST PRACTICE FOR VOCABULARY INSTRUCTION IN A MIDDLE SCHOOL SETTING

BY

Carrie Cronan

Submitted to the graduate degree program in Curriculum and Teaching and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

_____
Chairperson

_____

_____

_____

_____
Committee Members

Date Defended: August 27, 2010

The Dissertation Committee for Carrie Cronan

Certifies that this is the approved version of the following dissertation:

DETERMINING BEST PRACTICE FOR VOCABULARY INSTRUCTION IN A MIDDLE SCHOOL SETTING

_____

Chairperson

Date approved: October 12, 2010

ABSTRACT

This study analyzes which of three specific methods of vocabulary instruction are effective for student learning. The three methods are the Frayer model, the Keyword method, and traditional vocabulary instruction. The study attempts to answer two research questions: 1) Which of three types of instructional approaches is most effective for student recall: the Keyword method, the Frayer model, or traditional vocabulary instruction? 2) Are identified research based, best practice forms of instruction such as using the Frayer Model and the Keyword method taught through rich, in-depth, explicit vocabulary instruction meaningful ways to improve students' individual vocabularies? Eighty-seven seventh grade students from a suburban mid-western school district participated in three separate units of instruction, receiving one of the instructional methods each time. Repeated measures Analysis of Co-Variance was used to analyze the data. Results of the analysis found that the Keyword method was statistically significantly more effective than traditional instruction in only one of the two groups. The final chapter addresses why statistical significance was not achieved in all instances and discusses implications for further research in vocabulary instruction.

ACKNOWLEDGMENTS

The author of this document would like to sincerely thank the doctoral faculty of the College of Education for their scholarship and their dedication to the success of students at the University of Kansas. Special thanks is given to Dr. Donita Massengill-Shaw, Dr. Bruce Frey, Dr. Phil McKnight, Dr. Karen Jorgensen, and Dr. Barbara Bradley for serving on the dissertation committee.

TABLE OF CONTENTS

DETERMINING BEST PRACTICE FOR VOCABULARY INSTRUCTION IN A MIDDLE SCHOOL SETTING

CHAPTER ONE: INTRODUCTION

> A vocabulary is the stock of words (or signs) available to a person or a language community. The vocabulary comprises all the words a person "knows," both those a person can understand and those a person can use appropriately. New experiences add new words to the vocabulary and refine or elaborate the meanings of known words. Unlike other aspects of language, vocabulary continues to grow throughout life, increasing with each gain in experience and understanding. Because the vocabulary that individuals can command reflects so well their intellectual resources, we still have oral examinations, and vocabulary plays a major role in tests of intelligence (Hart and Risley, 1995, p. 6).

Vocabulary is the ability to understand meanings of individual terms (Schatschneider, Harrell, Buck, 2007). The development and acquisition of vocabulary is an integral part of one's academic, social, and professional life. Vocabulary affects all content areas in educational experiences and plays a major role in virtually all aspects of communication. Manzo, Manzo, and Thomas (2006) claimed, "We could not help but think that vocabulary development might arguably be one of the most important things we can do with and for students cognitively, culturally, and socially" (p. 613).

In this first chapter, I will discuss why vocabulary is important for reading comprehension, writing, speaking, and listening skills. Both effective and ineffective strategies and methodologies of vocabulary instruction are discussed. Additionally, I give reasons for why this study is needed. Finally, the purpose for this study and research questions are presented.

Importance and Instruction

"People with an impoverished vocabulary live an impoverished emotional life; people with rich vocabularies have a multihued palette of colors with which to paint their experience, not only for others, but for themselves as well" (Robbins, 1991, p. 201). This quote indicates those who can communicate effectively through writing and speaking have a distinct advantage over those who cannot. Effective communication comes from clarity and precision. People with elaborate vocabularies are usually effective communicators.

Why is Vocabulary Important?

Students with limited vocabulary skills are at greater risk for having difficulty with reading than those students with strong word knowledge abilities (Beck, McKeown, & Kucan, 2005; Blachowicz & Fisher, 2000; Juel & Deffes, 2004). Vocabulary affects many different areas of learning including reading and listening comprehension, writing, and speaking ability.

Comprehension.

The most important purpose for reading is to read for meaning (Baumann & Kame'enui, 2004). There is a definite relationship between vocabulary and reading comprehension. Daneman (1991) noted that vocabulary is partly an outcome of comprehension skills, and reading comprehension is partly an outcome of vocabulary. "Reading instruction that focuses on the growth of children's vocabulary results in enhancing their abilities to infer meanings and to better comprehend what they read" (Rupley, Logan, & Nichols, 1998, p. 336). In a given text, word meanings make up as much as 70-80% of comprehension (Davis, 1972; Nagy & Scott, 2000; Pressley, 2002).

According to Manzo, Manzo, and Thomas (2006), "A rich vocabulary increases comprehension and, therefore, most all learning—from casual and intentionally instructional listening to discourse and content-based reading" (p. 615).

However, research has shown that while there is a relationship, a correlation, between vocabulary and comprehension, there is no conclusive evidence that this relationship is causal one way or the other. Even when a relationship is shown between vocabulary and comprehension, the effect sizes of these relationships are relatively small. In vocabulary research literature, one of the main reasons that vocabulary is listed as important is because of this emphasis on the vocabulary-comprehension connection. This can be misleading and confusing at times if one does not specifically analyze exactly what the relationship between these two constructs is. In addition, research has shown that if one is predominantly interested in improving reading comprehension, that significantly larger effect sizes will be found through the use of effective, explicit comprehension instruction; significantly large gains will not be found through the use of vocabulary instruction (Pressley, Disney, & Anderson, 2007).

Writing.

In reading research, much attention has been given to the relationships between reading and writing and between reading comprehension and vocabulary. However, very little research has been conducted on the effects of vocabulary instruction as it directly relates to writing (Beck, McKeown, & Kucan, 2008). One can logically assume that since one of the most important elements of writing instruction involves word choice, vocabulary knowledge directly impacts the quality of writing. Pressley, et al. (2007) wrote,

> The obsession with vocabulary effects on comprehension ignores the fact that vocabulary serves other purposes. Might writing or oral communications improve with increased vocabulary knowledge because of such knowledge? After all, productive expression depends greatly on lexical precision. We are struck by the reality that no one seems to care much about such relationships compared to the vocabulary-comprehension link (p. 222).

In the few studies that have been done in this area of literacy research, the results do show that intensive vocabulary instruction and knowledge have a causal relationship with higher quality essay and narrative writing (Duin & Graves, 1986; Duin & Graves, 1987; & Thibodeau, 1963).

Duin and Graves (1987) found that intensive vocabulary instruction, specifically teaching a set of words prior to essay composition, along with writing instruction produced superior results on student essays compared to traditional vocabulary instruction. In 1988 a follow-up study by Duin and Graves compared three different groups of seventh grade students' vocabulary and writing. One group received intensive instruction in both vocabulary and writing, the second group received instruction only in vocabulary (both traditional and intensive instruction), and the third group participated only in activities that were considered to be traditional methods of vocabulary instruction.

For the vocabulary instructional planning, the researchers chose and taught words around a common topic. They then taught each word relating them to students' experiences and planned activities to facilitate students' automatically retrieving the new meanings. The researchers assessed students on a final essay and found that both the Vocabulary and Writing group and Intensive Vocabulary group were more successful than the Traditional Vocabulary instruction.

> Students receiving Intensive Vocabulary and Writing instruction learned 97% of the words and used an average of 7 of the 13 taught words per essay; those receiving Intensive Vocabulary Alone learned 92% of the words and used an average of 5 of them per essay; and those receiving Traditional Vocabulary instruction learned 75% of the words and used an average of less than 1 word per essay. Finally, and most importantly, as compared with a similar writing task given earlier, this instruction significantly improved the quality of students' writing. Scores of students receiving the Vocabulary and Writing instruction increased by 51%; those receiving the Vocabulary Alone instruction increased by 26%; and those receiving the Traditional Vocabulary instruction decreased by 20%. (Duin & Graves, 1988, p. 209).

One way to improve student writing is to encourage students to "borrow" words and phrases from quality literature to use in their own writing. First, students must be immersed in experiences in which literature is read, discussed, and effective word choice is explicitly pointed out. Scott, Blackstone, Cross, Jones, Skobel & Hayes (1994) explained this process using an example from the popular children's novel *Tuck Everlasting* (Babbitt, 1975) in which the author described a character as "a great potato of a woman." Once identified as an effective form of word choice by a student, the student then changed the phrase to "a long string bean of a man" to use in his/her own writing. This type of emphasis on word play has multiple benefits for student writing. One, it focuses students' attention on the process a writer experiences when writing and allows for students to attend to ideas surrounding author's purpose. Also, the students are expanding their own vocabularies through word play, being creative with language, and learning about figurative language. This type of activity encourages revision and improvements in student writing through emphasizing what word choice a professional writer selects when composing.

Vocabulary instruction is necessary as a component to an effective writing program. "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" (Rupley, Logan, & Nichols, 1998, p. 337).

Speaking, Listening, Assessment, and General Importance.

Three other related areas of importance are speaking, listening, and high-stakes assessment. Listening to an eloquent speaker is a pleasurable experience. Listening to a speaker who is nervous, fumbles over words, has limited vocabulary skills, and who drones on and on with no apparent direction is a painful experience. While speaking skills consist of much more than just vocabulary knowledge, precise use of language can make a tremendous difference in impacting an audience. "Research on the richness of vocabulary used in sources of spoken and written language has revealed that speech is 'lexically impoverished' when compared to written language" (Jitendra, Edwards, Sacks, & Jacobson, 2004, p. 301).

Listening comprehension can also be affected by limited vocabulary awareness. While having basic knowledge about a topic is imperative for understanding, the more words one knows, the more one can understand what is being spoken (Hart & Risley, 1995; Hunt, 1978).

In addition, tests such as the ACT or SAT, which determine college placement, or the GRE, which are required for graduate school entrance, have vocabulary components to them. Also, yearly state mandated assessments have test items on vocabulary. Students with higher vocabulary skills will have a greater advantage on such high-stakes assessments (Gallagher, 2009).

There are more basic, general reasons as to why vocabulary is important in our schools and in our society. Manzo, (2006) provided a list of durable reasons for sustained vocabulary development which include:

- Word power is a painlessly acquired way to feel and be more effective and, therefore, to raise self-esteem.
- Word learning can improve the capacity to learn; it is an educational IQ booster.
- Most any attention to words will stimulate increased word consciousness and word learning.
- Words are humankind's major means of codifying, transferring, influencing, and counterinfluencing all that is known, believed, and held to be important.
- About 98% of human teaching and learning is mediated—or passes through—language.
- When we think, we generally talk to ourselves in words; so words influence self-talk and, therefore, self-teaching and capacity for high-level problem.solving.
- The words we are taught and learn, have semantic sentiments that reach deep inside the psyche to reflect and influence what we feel and value.
- Words help to capture and anchor a sea of vague feelings, experiences, and partially formed ideas.
- Words make it possible for us to compress, manipulate, store, and carry ideas about; they make concepts and hard-won ideas portable and transferable.
- Words codify content area concepts and academic language; as such, they define schema and "prior knowledge" and offer a relatively easy way to assess and enrich these.
- Words make it possible to refine and refute ideas through communication with others.
- Words advance human understanding.
- Vocabulary level has the highest correlation of all other factors and with every measure of every aspect of intelligence.
- English-language learners probably are most in need of a richer vocabulary to advance themselves socially and academically in English-speaking societies.
- Those who speak Romance languages (e.g., Spanish, French, or Italian) probably know more affixes for many difficult words with Latin prefixes, suffixes, and roots. Therefore, if taught, they can learn many more low-frequency words than most students whose first language is English.
- Researchers have not been able to find the upper limits of human capacity to learn new words; the more we learn, the more we seem able and willing to learn.
- Many of the above reasons explain why schooling requires learning many "big" (erudite) and unusual or discipline-specific (esoteric) words. (pp. 615-616).

Instruction

The task of teaching vocabulary is challenging. Reasonable estimates developed by Anderson and Nagy (1992), Anglin (1993), Nagy and Anderson (1984), Nagy (1988), and White, Graves, and Slater (1990) show that students learn around 3,000 to 4,000 words per year, acquiring a reading vocabulary of approximately 25,000 words by the end of elementary schooling and around 50,000 words by the end of high school. Teaching vocabulary can feel overwhelming for educators; however, there are some specific strategies, methods, and models that researchers have found to be effective ways for teachers to manage the teaching of vocabulary.

Specifically, the National Center on Education and the Economy (2003) provided guidelines for vocabulary instruction. It suggests teachers should limit the following activities: having students look up definitions as a singular method of learning terms, writing student generated sentences to show understanding of vocabulary words, assuming all words need to be defined, using context clues as a reliable source for understanding, and testing on single definitions. The panel recommends increasing time for silent reading, providing opportunities for students to use and hear words in rich contexts, using graphic organizers to provide in-depth understanding, giving opportunities for meaningful use of words through speaking, listening, and writing, explicit instruction, and focusing on inference.

Greenwood (2004, p. 28) claimed, "There is a great divide between what we know about vocabulary instruction and what we do." The importance of vocabulary is evident; in order to be an effective writer, speaker, or professional in society, one must have a strong vocabulary (Blachowicz & Fisher, 2004). However, with an abundance of

research available for teachers, many still choose not to focus on explicit instruction to increase vocabulary acquisition among students. Specific examples of effective and ineffective aspects of instruction are discussed in detail below.

Ineffective Instruction

Nagy and Scott (2000) stated, "the word *vocabulary* may suggest a reductionist perspective in which words are learned by memorizing short definitions and sentences are understood in a strictly bottom-up fashion by putting together the meanings of individual words" (p. 269). Many educational experiences with vocabulary have consisted of looking up words in a dictionary, matching words and definitions, or matching words with synonyms or antonyms. Traditional instruction might include word lists, teacher explanations, memorization, and quizzes. Unfortunately, this type of instruction is largely ineffective (Bromley, 2007, Nagy, 1988, Stahl, 1999, Watts, 1995). The results for learners are superficial and do not support long term retention.

Even currently, many educators still teach vocabulary primarily through teaching dictionary usage. This is problematic because dictionary definitions are very difficult to understand. McKeown (1993) and Nist and Olejnik (1995) analyzed the usefulness of the dictionary and determined that most definitions were so difficult to understand students were unable to use the information in a relevant manner. Student friendly definitions created and given by the teacher are usually best to use in vocabulary instruction (Beck, McKeown, & Kucan, 2002). The idea that vocabulary study consists only of the word and its definition is inconsistent with current understanding of the learning process (Kamil & Hiebert, 2005). "Overuse of dictionary hunting, definition writing, or teacher

explanation can turn students off learning new words and does not necessarily result in better comprehension or learning" (Bromley, 2007, p. 536).

When students use the context of a sentence or paragraph, they are trying to determine the meaning of a term based on the general context used around the term. "Students essentially guess at the meaning based on parts of the text that they do comprehend" (Phillips, Foote, & Harper, 2008, p. 63). Both finding definitions and using context clues to understand meaning will probably help students understand meanings of terms better; however, these methods will not produce in-depth, rich knowledge for vocabulary. This, in effect, is why these two types of instruction are considered ineffective. "Each version utilizes the lowest levels of cognitive processing from the perspective of Benjamin Bloom's (1956) Taxonomy of Thinking and are therefore, highly unlikely to lead to true understanding, learning, or transfer to new situations" (Phillips, et al., 2008, p. 63).

Additionally, it is ineffective to require students to use vocabulary terms in student created sentences for several reasons. First, if students have looked up the definition in the dictionary, they may not have any understanding of what the definition actually means. Second, if they then apply their own interpretation of the definition to the term and try to use it in a sentence, the sentence will most likely be nonsensical. Also, students often believe they have used a word in a sentence properly, but have not, in fact, shown that they truly know the definitive use of the word. In not knowing the part of speech for the term, students may even have an understanding of the definition, but still use the word incorrectly. For example, a student could create a sentence such as the following: *I am meticulously in making sure that my room is always clean and orderly.*

The student has shown an understanding of the definition of the term, but still used it improperly in the sentence.

Nagy (1988) claimed that most vocabulary instruction fails because of a lack of in-depth word knowledge. Because of the connection between reading comprehension and vocabulary, if words are not truly understood through deep analysis of meaning, reading comprehension can be affected in a negative manner. Thus, surface level instruction for vocabulary is not only ineffective as a means of increasing language; it can also be detrimental for the reader's comprehensive ability. The solution to this problem is to make sure that practitioners are picking out the most important words in text that provide the reader meaning and then teaching students those particular words in great depth.

Effective Instruction

Research studies have found there are many different ways to effectively teach vocabulary in the classroom. Carroll (1964) stated that good vocabulary instruction must resemble the way people learn words in normal conditions, only more efficiently. The goal for teachers is to provide broad, rich experiences with words, to model, explicitly instruct, and actively engage students in acquiring new vocabulary (Blachowicz & Lee, 1991). Blachowicz and Fisher (2002) identified four guidelines for effective vocabulary instruction which are building a word-rich environment, helping students develop as independent word learners, using instructional strategies that model good word-learning behaviors, and using assessment that match the goals of instruction. Additionally, engaging students in word play and using a wide range of books in the classroom are both ways to improve word knowledge (Blachowicz & Fisher, 2004). In a comprehensive

review of vocabulary research after the 1980's, Blachowicz and Fisher (2000) compiled a list of four main principles to guide vocabulary instruction:

1. That students should be active in developing their understanding of words and ways to learn them.
2. That students should personalize word learning.
3. That students should be immersed in words.
4. That students should build on multiple sources of information to learn words through repeated exposures.

Additionally, Pressley, et. al, (2007) believed that all of the following are elements of effective vocabulary instruction:

1. Immersing children in rich verbal interactions, especially meaningful and interesting conversations around worthwhile content and experiences (e.g., hands-on science experiences, deeply connected social studies units on topics that appeal to students).
2. Promoting extensive reading of worthwhile texts that are filled with mature vocabulary.
3. Attending responsively to students' vocabulary needs—for example, monitoring when students are struggling to identify a word to put into writing or an oral presentation and helping students with it; monitoring when students are intrigued by any content that includes objects that could be identified by vocabulary students should know (e.g., when students are intrigued by *concave* and *convex* lenses as part of an experiment on light, make certain they know the difference between concave and convex); and being sensitive to unfamiliar words in read-alouds, making certain that potential teachable moments around such words results in teaching of the words.
4. Finding ways to provide definitions to students of potentially unfamiliar words, including making certain that students use dictionaries. The dictionaries available to students should be excellent ones that do a good job of explaining the meanings of words. Students can also be taught to use Internet dictionaries and hyper-text options to access the meanings of words.
5. Rich teaching of vocabulary words, involving extensive use of and experience with them over long periods of time, makes a good deal of sense.
6. Teaching children that the meanings of words often can be inferred from context clues, that is, from information in the sentences surrounding unfamiliar words. Encourage students to look for clues to the meanings of novel words.
7. Teaching children the meanings of common word parts (i.e., prefixes, suffixes, roots) and providing substantial practice in applying this knowledge to understanding unfamiliar words, practice that encourages students to

internalize morphological analysis (i.e., automatically relate what they know about word parts when they encounter a new word).

8. Provide rich vocabulary instruction, for example, as in the Beck et al. (1982) study. (pp. 223-224).

Researchers Carr and Wixson (1986) provided the following four guidelines for evaluating vocabulary instruction: (1) Instruction should help students relate new vocabulary to their background knowledge. (2) Instruction should help students develop elaborated word knowledge. (3) Instruction should provide for active student involvement in learning new vocabulary. (4) Instruction should develop students' strategies for acquiring new vocabulary independently.

In addition, Stahl (1999) wrote,

> The goal of vocabulary learning is to have students store the meanings of words in their long-term memory, and to store the kind of information about a word that is useful in understanding text. Since most words are learned from context, good vocabulary instruction should simulate learning from context. Learning from context, however, is a long-term process. Good vocabulary teaching should compress that process so that students can learn more words in a shorter period of time." (p. 14).

The effective teacher plans lessons utilizing quality vocabulary instruction that produces significant, long term results in as efficient a manner as possible.

Rationale

The National Reading Panel reported that "(1) most vocabulary is learned indirectly, and (2) some vocabulary must be taught directly" (2000, p. 35). It seems as though there is a definite need for direct instruction while there has been evidence that the process of reading itself may be responsible for the indirect acquisition of words. However, contextual reading does not automatically result in vocabulary development (Blachowicz & Lee, 1991). Many research studies claim that reading is the single most

important factor in increased word knowledge (Anderson & Nagy, 1991). In addition, there has been discussion about the futility of vocabulary instruction due to the fact that students will learn about 1,000-5,000 new words from context every year. If teachers teach between 10-15 words per week, that's about 400 words per year. This does not seem to be very effective compared to what students learn in context. However, according to Stahl and Fairbank's (1986) meta-analysis of vocabulary research, teaching through direct instruction effectively is, "a useful adjunct to the natural learning from context" (p. 100). "Direct vocabulary instruction provides the contextualized, elaborated and repeated opportunities students need to learn important words and concepts" (Rekruht, 1996, p. 66).

One of the greatest reasons for explicit vocabulary instruction is an attempt to diminish the gap between struggling readers and successful readers—most often students who struggle are poor, and those achieving greater success come from families of greater financial affluence. Research shows that students from disadvantaged socioeconomic backgrounds lag far behind their more advantaged peers in word knowledge (Hart & Risley, 1995). The idea that these students will make gains in vocabulary knowledge through indirect means such as reading on their own is just not realistic. Remedial readers have low vocabularies and poor comprehension because they have less opportunities to read, have been read to less often, and are not provided with the same types of literary opportunities as good readers (Maria, 1990). Simply providing richer linguistic environments is not sufficient for reluctant or remedial readers (Nagy, 2007). More explicit instruction is needed concerning the meaning of words for not just struggling students, but for the vocabulary growth of all (Biemiller, 1999). Thus, it is the

responsibility of educators to do everything they can to help these readers through direct, explicit, systematic vocabulary instruction.

This dissertation study is important due to the lack of vocabulary research found for vocabulary instruction in suburban school districts at the middle school/junior high level, specifically for use with general populations of students, not just students with learning disabilities. In conducting literature searches, I found very few studies of vocabulary instruction in general classrooms in suburban districts, nor did I find research comparing the Keyword method, Frayer model and traditional instruction. The majority of studies found using the Keyword method were conducted with special populations, students with learning disabilities, college students, or elementary aged students. More research is needed at the middle school level in all areas of reading research as most is conducted in elementary school settings. Specifically, I was unable to find any studies that matched the exact conditions set forth in this dissertation research. For example, I did not find any studies comparing the Keyword method, the Frayer model, and traditional instruction with middle school students. Therefore, it is logical to state that there was a void in the reading research that can be filled with this dissertation study.

Purpose

Because of the importance of vocabulary in virtually all areas of students' lives, teachers must continuously assess, revise, and improve best practice in vocabulary instruction. The purpose of this dissertation research is to test three instructional practices, the Keyword method, the Frayer model, and traditional instruction. Two of the instructional methods, the Keyword method and the Frayer model, were chosen because they were the most frequently cited methods in a multitude of literature reviewed during

the planning phase for the research project. That is, upon conducting searches in relevant, current literature on vocabulary research and instruction, the above mentioned methods were found most prevalently.

For this quantitative study, I used data from pre tests and post tests to determine which of three instructional methods were most effective in creating gains in student learning for specific vocabulary terms. As mentioned above, two of the methods included the Keyword method and the use of a graphic organizer called the Frayer model. The third instructional approach was traditional vocabulary instruction using definitions and contextual information. I hypothesized that students using the Frayer model and the Keyword method would outperform students receiving traditional vocabulary instruction.

Research Questions

The following research questions were examined through this study:

1. Which of three types of instructional methods is most effective for student recall: The Frayer model, the Keyword method, or traditional instruction?
2. Are identified research based, best practice forms of instruction such as using graphic organizers and the Keyword method taught through rich, in-depth, explicit vocabulary instruction meaningful ways to improve students' individual vocabularies?

CHAPTER TWO: REVIEW OF THE LITERATURE

For the purpose of this dissertation, the following topics will be addressed—the theoretical framework, the history of vocabulary research and instruction, factors that affect students' vocabularies, what it means to "know" a word, the connection between vocabulary and reading comprehension, learning vocabulary through context, rich instruction, and teaching strategies and methodologies.

Theoretical Framework

Constructivism is the conceptual framework used as a basis for this research study. Constructivism as a learning theory claims that individuals construct knowledge and meaning through their own interactions and experiences with the world. As described by Cambourne (2002), three core theoretical assumptions about constructivism are:

1. What is learned cannot be separated from the context in which it is learned.
2. The purposes or goals that the learner brings to the learning situation are central to what is learned.
3. Knowledge and meaning are socially constructed through the processes of negotiation, evaluation, and transformation (p. 26).

Constructivist theory argues that the experiences and contexts in which learning occurs are critical to each learner's understanding of, and ability to use, that learning. In addition, constructivism focuses on the learner himself, believing that individuals construct their own meaning from the world. Knowledge is constructed by students actively participating and engaging in the learning process. The world isn't "out there" for students to passively sit back and learn. They must construct their own knowledge through experience and context.

Along with constructivism, another framework that is embedded in this research looks at factors of engagement (Cambourne, 2002). Cambourne's Principles of Engagement consist of the following four concepts:

- Learners are more likely to engage deeply with demonstrations if they believe that they are capable of ultimately learning or doing whatever is being demonstrated.
- Learners are more likely to engage deeply with demonstrations if they believe that learning whatever is being demonstrated has some potential value, purpose, and use for them.
- Learners are more likely to engage with demonstrations if they are free from anxiety.
- Learners are more likely to engage with demonstrations given by someone they like, respect, admire, trust, and would like to emulate (2002, p. 28).

There are three types of causal links between vocabulary knowledge and reading comprehension developed by Anderson and Freebody (1981). These constructs include the *instrumental hypothesis*, the *knowledge hypothesis* and the *aptitude hypothesis*. The *instrumental hypothesis* is the notion that knowing more words makes one a better reader; the more vocabulary knowledge and acquisition one has, the easier it is to understand text. The *knowledge hypothesis* claims that a large vocabulary provides one with a superior knowledge base which then contributes to greater comprehension, and the *aptitude hypothesis* is the belief that if one has a high aptitude (high IQ, verbal ability, etc.) that this aptitude is what allows one to comprehend well and increase vocabulary knowledge. While all of these links must contain some validity, the instrumental hypothesis most closely relates to classroom instruction, and research in classroom instruction has been questionable in regards to showing causality between vocabulary and reading comprehension.

History of Vocabulary

Vocabulary has been an important topic in reading instruction. The history of vocabulary research is long and numerous. As early as 1925, the National Society for Studies in Education (NSSE) Yearbook stated,

> Growth in reading power means, therefore, continuous enriching and enlarging of the reading vocabulary and increasing clarity of discrimination in appreciation of word values (Whipple, 1925, p. 76).

Early vocabulary work was conducted by E.L. Thorndike who published *Is' Word Book* in 1921. From the 1920's to the early 1950's, vocabulary was a central focus of educational research (Calfee & Drum, 1978). From the mid 1950's through the decade of the 1970's, vocabulary research seemed to lose popularity. Two important books on educational research, *What Research Has to Say About Reading Instruction* (Samuels, 1978) and the *Handbook of Reading Research* (Pearson, Barr, Kamil, & Mosenthal, 1984) did not have chapters on vocabulary instruction in them.

During the mid to late 1980's and 1990's vocabulary research experienced a resurgence in importance due in part by the work of researchers such as Richard Anderson, William Nagy, Isabel Beck, Margaret McKeown, and Steven Stahl (Graves & Watts-Taffe, 2002). Additionally, a work by Becker (1977) claimed that inadequate vocabulary knowledge was to blame for school failure on the part of disadvantaged students. This article spurred discussion and debate, bringing vocabulary back into the spotlight. During the decade of 2000 vocabulary has been an important topic in educational research primarily due to the relationship between vocabulary and comprehension. The National Reading Panel (2000) identified five "pillars" of reading instruction that include vocabulary, comprehension, fluency, phonics, and phonemic

awareness. Comprehension may arguably be considered the most important of these five topics, and the vocabulary-comprehension connection has helped vocabulary to remain an important research topic. On the 2008 annual International Reading Association's "What's Hot" list, word meaning/vocabulary was deemed a "hot" topic by over 50% of the researchers surveyed in the literary publication *Reading Today* (Cassidy & Cassidy, 2008).

Factors that Influence Vocabulary Development

Several factors are substantial that influence vocabulary acquisition and development among individuals. Socioeconomic status has been proven, through significant vocabulary research, to be of enormous implication in regards to vocabulary knowledge (Beck & McKeown, 2001; Beck, McKeown, & Kucan, 2002; Biemiller, 2004; Biemiller, 2005; Hart & Risley, 1995; Stahl & Stahl, 2004; White, Graves, & Slater, 1990). To further exacerbate difficulty in school, Becker (1977), found that lack of vocabulary can be a crucial factor underlying the school failure of disadvantaged students. Additional factors such as prior knowledge, the amount an individual reads, and metalinguistic awareness can also significantly influence vocabulary development.

The Importance of Language

Researchers Hart and Risley (1995) conducted a study to learn about vocabulary, vocabulary acquisition, and family dynamics in relation to vocabulary among 1-3 year old children from differing socio-economic backgrounds in the 1980's. The researchers first conducted a study at the Turner House Preschool. The Turner House Preschool was a community based program designed to improve educational and developmental experiences of neighborhood children from low socioeconomic backgrounds. Results

from initial assessments comparing the three groups of children indicated that not only did professors' children have higher rates of vocabulary size, but the projected curve of development for these children would greatly surpass the Turner House children's rate of vocabulary development. Vocabulary development showed the poorer children getting farther and farther behind in vocabulary while those with more economic advantage getting farther and farther ahead (Stanovich, 1986).

Because of this early work at The Turner House Preschool, Hart and Risley then participated in a 2 and a half year long second study of 42 families trying to determine how much language and what kind of language was used in the home. The families were of different ethnic, racial, and socioeconomic backgrounds. The researchers collected sequential hour long monthly observations in the different homes for a period of over 2 years. Because this study focused around issues of poverty, socioeconomic backgrounds among the different families were very important. Among the participants, 13 families were considered professional, or higher socioeconomic status, 23 were considered working class, or middle/lower socioeconomic status, and 6 families were on welfare.

The results of this study indicated there were tremendous gaps in vocabulary between the families of different socioeconomic status. Not only was there a difference of 1,500 words spoken per hour between the group of professional and the group of welfare parents, but there was also an extreme difference in the quality of the interactions among parents and children between the groups. The group of professional parents were found to have more occurrences of positive, encouraging talk, and incidental teaching through discussion than the working class and welfare parents. In addition, the number of average minutes of parent-child interaction per hour went up in direct relation to

socioeconomic background as did the average number of parent utterances per hour to the child. "Overall, the higher the social class of the parent, the more time and talk their children received" (Hart and Risley, p. 65).

In addition, the researchers were able to determine that the children's language accomplishment at the age of 3 would be predictive of their academic performance and language skill in the third grade. In Hart and Risley's study, the researchers calculated the number of interactions found per hour in each household and determined the number of words children would hear in a year; the children in professional families would hear 11 million words while children in welfare families would hear just 3 million. By the time professional children enter kindergarten, they would have heard 32 million more words than those children in welfare families (Hart and Risley, 1995). The results of this study coincided with the theory that vocabulary acquisition is not so much a function of inherent intelligence as it is exposure to an enriched language environment (Becker, 1977).

Vocabulary Growth and Concept Development

Vocabulary learning is the process of acquiring and retaining information and understanding words and their meanings. Vocabulary learning and growth is complex in nature. This learning can occur in many forms such as in conversation, incidental learning in reading, writing, listening, and in speech (Blachowicz & Fisher, 2002).

Incidental Reading and the Matthew Effect

One important implication in vocabulary development is known as the Matthew Effect.

> "Because poor readers tend to read less than better readers, the gap between good and poor readers in absolute numbers of words read becomes progressively greater as the child advances through school. This is part of the Matthew Effects discussed by Stanovich (1986), who suggested that the 'rich get richer and the poor get poorer' in vocabulary and other aspects of reading. That is, children who are good readers become better readers because they read more and also more challenging texts, but poor readers get relatively worse because they read less and also less challenging texts" (Stahl, 1999, p. 12).

This notion refers to the biblical concept that "the rich get richer and the poor get poorer" as is claimed in the book of Matthew in the Bible. In reading education this analogy relates to the idea that readers who are successful are intrinsically motivated to read and spend plentiful time reading while struggling readers read less because the process is not intrinsically motivating to them; in fact, it may feel like punishment. Thus, those who read become better and better readers while those who do not fall farther and farther behind.

This is significant because vocabulary can be developed incidentally through reading (Anderson & Nagy, 1991; Nagy & Anderson, 1984; Nagy, Anderson, & Herman, 1987; Stahl, 1999). If students who read more develop stronger vocabulary and word knowledge skills than students who do not read frequently, then one solution to vocabulary development is to get students to read with greater frequency. Although explicit vocabulary instruction is important, widespread reading also improves student learning in vocabulary acquisition and word knowledge. Anderson & Nagy (1991) point out that if an average student spends 25 minutes a day reading, he or she will encounter approximately 1 million words of text per year. If just 2% of those words were unfamiliar, than the student would be encountering 20,000 new words per year. Out of

these 20,000 words, if just 1 in every 20 words is learned, the student would learn 1,000 new words each year.

In addition, reading to students can have a significant impact on vocabulary development. Stahl, Richek, and Vandevier (1990) determined that 11 and 12 year old students learned as many word meanings from a single listening to a text as they would from a single reading; especially those students deemed to have low vocabulary knowledge and ability.

Vocabulary and Prior Knowledge

The more prior knowledge one has about topics found in a text, the more connections can be made that may assist with comprehending meaning in the text. Schema theory is the idea that in order for learning to occur and to remain in memory, new information must connect to old information in the brain (Brewer & Treyins, 1981; Wilson & Anderson, 1986).

One significant study examining the ways prior knowledge impacts reading comprehension was conducted by Boscolo and Mason (2003). It tested 160 high school students according to levels of topic knowledge and interest. In this case, the words "topic knowledge" were used to describe prior knowledge. Three levels of coherence were created from the same text by the researcher—meaning that they wrote three texts on the same topic; an "easy" text, a "middle-level" text, and a "difficult" text. This was done in order to assess whether high levels of topic knowledge and high levels of topic interest would compensate for text difficulty. The researcher found that students who had high topic knowledge and higher levels of topic interest scored better than all other groups on the final assessment which tested students on various comprehension skills.

Additionally, the group who had high topic knowledge and low levels of topic interest scored significantly higher than groups with low topic knowledge. Thus, having greater prior knowledge helped students to comprehend the text better.

It is sometimes possible to understand the vocabulary in a text but still not comprehend the text fully. Stahl (1999) gave an interesting example of this phenomenon using a passage from an Australian newspaper:

> A hair raising century by Australian opener Graeme Wood on Friday set England back on its heels in the third test at the Melbourne Cricket Ground. Unfortunately, living desperately cost the Australians the match. Wood was caught out of his crease on the first over after lunch. Within ten more overs, the Australians were dismissed. Four were dismissed by dangerous running between creases. Two were dismissed when the English bowlers lifted the bails from the batsmen's wickets. The three remaining batsmen were caught by English fieldsmen. One was caught as he tried for a six. When the innings were complete, the Australians had fallen short of the runs scored by the English (cited in Hayes & Tierney, 1981, p. 265).

Even if the reader understands the meaning of words such as lunch, crease, and century, that understanding alone is not sufficient in order to comprehend this text about the sport of cricket. The reader must have prior background knowledge to relate to the vocabulary in the passage thus reaching full comprehension.

Vocabulary and Comprehension

The relationship between word knowledge and comprehension is undisputable (Davis 1944, 1968). The more vocabulary one knows, the easier it is to comprehend text. Additionally, "researchers have acclaimed vocabulary knowledge as the single most important factor in reading comprehension" (LaFlamme, 1997, p. 372). After reviewing research on word acquisition, Anderson and Freebody (1985) stated, "Word knowledge is

a requisite for reading comprehension: people who do not know the meanings of words are most probably poor readers" (p. 367).

Comprehension may be defined as the active construction of meaning using both the reader's own knowledge (life experiences) and their domain knowledge (content area information) to decipher and interpret print and nonprint text (Alverman & Eakle, 2003). Comprehension is inarguably the most important aspect of reading and reading instruction. Vocabulary development as it relates to comprehension, is imperative, with word meanings making up as much as 70-80% of comprehension (Davis, 1972; Nagy & Scott, 2000; Pressley, 2002). Thus, without some understanding of the concepts that words represent, learners can not comprehend well (Rupley, Logan, & Nichols, 1999). The purpose of most vocabulary research in the area of teaching is to determine how vocabulary instruction can most effectively be used to improve reading comprehension (Nagy, 1988). Because of the abundance of research linking vocabulary and comprehension, vocabulary instruction cannot be neglected.

Early vocabulary knowledge is a powerful predictor of students' comprehension years in the future (Beck, McKeown, & Kucan, 2008). The single best predictor of how well a reader can understand text is the reader's general vocabulary knowledge (Anderson & Freebody, 1981). Incredibly, Cunningham and Stanovich (1997) found that vocabulary knowledge in first grade predicted students' reading comprehension in their junior year of high school. Another study conducted by Juel and Deffes (2004) suggested that the vocabulary of entering first graders predicted their reading ability at the end of first grade and also their eleventh grade reading comprehension.

Stahl and Fairbanks (1986) published a meta-analysis of studies analyzing the effects of vocabulary instruction in the area of comprehension and in learning word meanings. The researcher was attempting to determine if vocabulary instruction had a significant impact on reading comprehension and what strategies for instruction in vocabulary are most effective. Thus, they embarked on a meta-analysis of 52 studies calculating effect sizes for research using either no-exposure control groups or no-instruction control groups. The no-exposure control group did "not get exposure of any type to the target words prior to the post tests" (Stahl & Fairbanks, p. 79) and "in a no-instruction group, students were typically given the target words paired with their definitions and told to study them any way they would like" (p. 79). In addition, the researcher analyzed methods and strategies of vocabulary instruction to determine which activities were most effective. The conclusions of this meta-analysis indicated that vocabulary instruction did, indeed have a significant effect on comprehension when the learned words were found in the tested passage. In addition, the researcher found a slight but significant effect on comprehension scores in which the vocabulary words were not included as part of the passage. Results for instructional methods showed that mixed methods were more effective than definitional only strategies. Additionally, this research concluded that the Keyword method of instruction "was found to have reliable effects on recall of definitions and sentence comprehension" (p. 72).

Another study conducted by Bos and Anders (1990) looked at the effects of interactive vocabulary instruction on both vocabulary learning and reading comprehension. The researcher used three interactive vocabulary strategies with 61 junior-high aged subjects who were categorized as learning disabled. The vocabulary

activities included semantic mapping, semantic feature analysis and definition instruction. The intervention consisted of eight 50-minute sessions over a time span of seven weeks. The subjects were assessed using a 30 item multiple choice test which consisted of 15 vocabulary items and 15 comprehension items. The results showed that students who received the interactive vocabulary instruction scored higher on the reading test, specifically the comprehension items, than students who were in the definition instruction group. Bos and Anders concluded that the depth of understanding found through the rich instructional methods of semantic mapping and semantic feature analysis encouraged deeper processing of understanding for specific word terms thus leading to improved reading comprehension. They claimed,

> Definition instruction focused on correctly pronouncing the vocabulary and accurately memorizing content-related definitions of the words, more indicative of surface processing. In this instructional condition students were not encouraged to "think about" how the vocabulary related to their current understanding or how the concepts might be related one to another. Each vocabulary/definition was taught as a separate piece of information. Students were left to infer the relationships among the vocabulary and their prior knowledge. In contrast, the interactive interventions highlighted the semantic relationships among the vocabulary and encouraged students to "think about" what they already knew about the concept (p. 39).

A common purpose for vocabulary research is to determine best practices for improving vocabulary knowledge in order to provide an increase in reading comprehension. As mentioned above, some research has shown an increase in student reading comprehension when vocabulary terms found in a selected passage are taught through effective instructional methods prior to reading a text (Beck, Perfetti, & McKeown, 1982; Brett, Rothlein, & Hurley, 1996). However, it is important to note that while correlations have been found between vocabulary and comprehension

(Cunningham & Stanovich, 1997; Davis, 1944, 1968; Singer, 1965, Spearitt, 1972), increasing vocabulary knowledge does not automatically lead to increases in comprehensive ability. While "the most effective vocabulary instruction is the kind that also improves comprehension" (Dole, Sloan, & Trathen, 1995, p. 452), it is extremely difficult to prove conclusively that vocabulary instruction does, in fact, improve reading comprehension. According to Pressley, Disney, and Anderson (2007), "short-term vocabulary focused interventions can have specific impacts on vocabulary learning without having much general impact" (p. 217). One intention behind teaching vocabulary is to definitely help students comprehend text better; however, teaching vocabulary is not necessarily going to guarantee improvements in general reading comprehension (Disney & Anderson, 2006).

Levels of Word Knowledge

A point of confusion affecting decisions about how best to develop students' vocabulary awareness is the issue of exactly what it means to know a word. Word knowledge is a complex process. One does not always either "know" or "not know" what a word means. There are many variations in between "knowing" and "not knowing." Important questions educators must ask are, "What depth of word knowledge should teachers try to impart to their students?" and "How well do readers have to know words to benefit from them in their reading?" (Nagy, 1988, p. 4).

In attempting to come up with answers to these difficult questions, vocabulary researchers create projects that assess and evaluate how effectively or ineffectively teaching vocabulary assists students' comprehension of text. The following information

summarizes some of the research on levels of word knowledge and vocabulary understanding.

Knowledge of word meanings is a leveled construct. Multiple and repeated exposures to a word in rich contexts develops a comprehensive understanding of that word (Biemiller, 2001). Student's knowledge and understanding of words can range from simple to complex. Cronbach (1942) claimed different stages or levels of knowledge for understanding word meanings. These dimensions are: generalization-defining the word, application-being able to apply meaning, breadth-understanding different or multiple meanings of words, precision-knowing when a word does or does not apply to a situation, and availability-being able to use the word in conversation or writing.

Dale (1965) created stages of word knowledge:

Stage 1: never saw the word before.
Stage 2: heard the word, but don't know what it means
Stage 3: recognizes the word in the context as having something to do with _____.
Stage 4: knows the well.

Beck, McKeown, and Omanson (1987) described a continuum for degrees of knowledge about a word. The first degree is having no knowledge, next is a general sense such as knowing malfeasance has a negative connotation. After that, a learner might use context to determine understanding, such as knowing a term only in one specific context. Then, students may understand a word but not be able to quickly recall understanding to use in conversation. The last degree of the continuum is having rich, deep understanding of a word's meaning, how it relates to other words, and metaphorical understanding of the meaning. Learners proceed from not knowing a word, to becoming somewhat familiar

with it, to a richer, deeper, more intense and flexible word understanding that they can use in different modalities of expression (Carey, 1978; Dale, 1965).

Finally, Nagy and Scott (2000) described five aspects of word understanding. First is the idea of incrementality, the idea that words are known to various degrees of complete understanding. Second, is polysemy, or understanding multiple meanings. Third is multidimensionality, because word knowledge has numerous dimensions and can not be represented in a linear context. Fourth is the concept of interrelatedness or understanding that word meaning is affected by the ways that words are related to each other. Last is heterogeneity, the idea that different words require different types of word knowledge.

Nagy (1988) explained that teachers must realize that partial word knowledge is not enough for students to make gains in reading comprehension; in order for vocabulary knowledge to affect comprehension, students must have sufficient depth of word knowledge. When students only know the definition of a word, this may lead to inaccurate assessments of the term in a complete sentence or paragraph, thus negatively effecting comprehension. However, when students understand definitions, know multiple meanings of terms, realize contextual relationships between words, and can distinguish when a word is used appropriate or inappropriately, then students' reading comprehension can improve due to vocabulary understanding.

Learning Words from Context

There are two ways learners acquire vocabulary knowledge: incidentally or through intentional means (Sternberg, 1987). "Although some words are learned through explicit instruction, most are learned through a gradual process of inferring word

meanings from uses in oral and written contexts" (Carlisle, Fleming, & Gudbrandsen, 2000, p. 184).

The idea of incidental learning implies that learners acquire vocabulary through means other than formal education and schooling. "Incidental word learning involves a process of inferring the meaning of words from context; the term does not apply to situations in which teachers provide explicit instruction about word meanings" (Carlisle, et. al, 2000, p. 186). These words may be learned through conversation, reading for pleasure, television, movies, the Internet, or any other outside media source. As mentioned previously, schooling can only account for a few hundred words per year, and individuals acquire thousands of new words to their vocabularies every year, thus, the extra words are learned incidentally. While incidental learning occurs in vocabulary and other academic areas, this research should not be confused to mean that teachers should neglect vocabulary instruction because children's vocabularies will develop incidentally (Sternberg, 1987).

In Sternberg's work, two types of contextual clues were recognized as facilitating vocabulary learning including external context clues, or words in the sentence that could assist the reader in understanding the meaning of a specific term, and internal context clues, which includes prefixes, suffixes, and stems (Sternberg, Powell, & Kaye, 1983; Sternberg & Powell, 1983, as cited by Pressley, et. al, 2007). In related research, Kuhn and Stahl (1998) found 14 studies that concluded students did a better job understanding definitions of words when using external semantic contexts. Additionally, many researchers have conducted studies showing the benefit of learning internal context clues,

roots and stems, and how that learning benefits developing word knowledge (Levin, Carney, & Pressley, 1988; Graves & Hammond, 1980).

Pressley, et. al (2007) claimed, "Although there is some evidence of incidental learning from context and some evidence that intentional contextual analysis strategies can be taught profitably, learning from context is neither certain nor are the effects typically large" (p. 215). Contextual reading does not automatically result in word learning (Jenkins, Stein, & Wysocki, 1984). Sternberg (1987) strongly believed that vocabulary was acquired from context. However, current research identifies many problems in the teaching of vocabulary through the use of external context clues. Specifically, Stahl (1999) pointed out that with many examples of context, a word meaning can not be determined or the meaning acquired from using external context might be completely incorrect. Additionally, Schatz and Baldwin (1986) claimed that context does not always give clear clues to word meanings.

A study conducted by Pany, Jenkins, and Schreck (1982) assessed the most effective ways for students to learn vocabulary definitions when looking at three presentations for the terms. The three presentations included a *meanings from context* condition, in which the vocabulary appeared in a two-sentence passage and the meaning of the target word was meant to be inferred, a *meanings given* condition, in which the meaning of the term was given to the subject after the subject read a sentence with the term in it, and a *meanings practiced* condition, in which I provided a synonym for the target term and the subject repeated the synonym twice. A control group was also used in which the control participants were shown the vocabulary terms but not given the meanings to those terms. The results of this study showed that subjects performed much

better in the *meanings given* and the *meanings practiced* conditions than in the control group. Not terribly surprising, this shows that giving the meaning of the term as opposed to not giving it at all, improves students' learning. Possibly most interesting in this study was the finding that the *meanings from context* group did not perform much better than the control group. This might lead one to believe that learning incidentally through context is not always effective and that explicit instruction with definitions is a better method for learning. In addition, even though students performed better with definitional knowledge, this does not guarantee that students will understand completely and with depth, the meaning of the terms defined (Pressley, et. al, 2007).

Carlisle, Fleming, and Gudbrandsen (2000) conducted a study looking at vocabulary learning through oral context among fourth and eighth grade students during a month long science unit. They hypothesized that students would learn topical terms through an incidental, oral context during the unit with no explicit definitional instruction by the researcher. Students were given a pre test and a post test on both the topical terms covered in class and a group of terms not related to the topic of study. Students also participated in a "word interview" assessment to determine breadth of knowledge over specific terminology. The results of this study found that students' recognition and understanding of the topical terms did significantly increase in comparing pre test and post test scores. However, no significant change was found on the non-topical terms leading one to infer that incidental learning of vocabulary related only to topical terms students were, in fact, learning through their science unit. The researchers also found that students with greater background knowledge of the topic made greater gains in vocabulary knowledge than those students with less prior knowledge. One conclusion of

this research is the "vocabulary a student learns incidentally during content instruction depends both on exposure to vocabulary and the student's previous knowledge about the topic of instruction" (Pressley, et. al, 2007, p. 215).

Vocabulary Acquisition and Rich Instruction

Because one of the most important reasons for teaching vocabulary is to assist students in developing their abilities to comprehend text, researchers have conducted studies on the richness and depth of instruction dealing with vocabulary learning (Beck, McKeown, & Kucan, 2002; Curtis & Longo, 2001; Foorman, Seals, Anthony, & Pollard-Durodola, 2003; McKeown, Beck, Omanson, & Pople, 1985). "By 'rich' instruction, we mean instruction that goes beyond definitional information to get students involved in using and thinking about word meanings and creating lots of associations among words" (Beck et al.,2002, p. 73). When teaching with rich instruction, teachers question, give explanations, repeat instruction, and clarify for students (Sobolak, 2008). Rich instruction requires learners to use and think about vocabulary in many ways; extending understanding from simple definitional knowledge to more complex understanding of words through teacher generated processes. Examples of such processes include understanding multiple meanings of words, making decisions about when and where words are used correctly and incorrectly in context, and explaining one's thinking when working with words.

One such study conducted by McKeown et al., (1985) determined the effects of frequency and richness of vocabulary instruction. Fourth grade children separated into groups received one of three different types of instruction: traditional teaching requiring only definitional knowledge among words, rich instruction delving into elaborate word

meanings and different contexts, or intensive rich instruction that promoted the use of knowledge of words extending outside the classroom. The instruction manipulated frequency so that words were encountered either 4 or 12 times (McKeown, Beck, Omanson, & Pople, 1986). The results of this study showed that students benefited from frequent encounters with words, thus, demonstrating the value of repetition in vocabulary learning. In addition, as hypothesized, the elaborate, intensive rich vocabulary instruction was most effective in producing the highest scores on a vocabulary knowledge test. The second highest scoring category was the rich instruction and the lowest scoring category of students was found to be the group learning only definitional knowledge for words. Moderate gains were found on comprehension scores when students were assessed over passages containing the words taught to them through the rich instructional methods.

Which Words to Teach?

One conclusion to the research mentioned above is that teachers should teach vocabulary words that are found in texts students will read. The next dilemma teachers must ponder is to determine which specific words they should select from short stories, poems, or literature.

Beck, McKeown, and Kucan (2002) have developed a system for determining what types of terms teachers should be instructing. First, teachers need to understand that there are different levels or "Tiered" words. Tier One words are terms that are frequently encountered in text, conversation, or writing that are used often and well-known. Examples of Tier One words are everyday, basic, familiar words such as *clock*, *baby*, *happy*, or *walk*. Tier Three terms are very low-frequency words that are rarely encountered in texts and are most often domain specific such as *isotope*, *lathe*, *peninsula*,

and *refinery*. Tier Two terms are the words that teachers need to focus their attention on teaching explicitly to students. These terms are found frequently in text and have a distinct and clear impact on comprehending text. Some examples of Tier Two terms might include *coincidence*, *absurd*, *industrious*, or *fortunate*. "Because of the large role they play in a language user's repertoire, rich knowledge of words in the second tier can have a powerful impact on verbal functioning" (Beck, et. al, 2002, p. 8).

While this hypothesis developed by Beck, et. al (2002) is reportedly untested, the common sense logic is a good starting point for teachers when determining which terms to teach students in order to improve reading comprehension (Disney & Anderson, 2006). At the same time, teachers must analyze what types of terms are age appropriate when determining what Tier Two words are in selected texts. Tier Two words are not the same for eighth graders as they are for third graders.

Flanigan and Greenwood (2007) created a "four-level framework" based partially on the work of Graves (1984, 2000) and McKeown and Beck's (1988) work. The four levels include:

Level 1—critical "before" words
Level 2—"foot-in-the-door" words
Level 3—critical "after" words
Level 4—words not to teach

Level 1 terms are words that are absolutely essential to understanding the passage and are representative concepts that students must have in-depth understanding of in order to comprehend effectively. Level 1 words should be taught prior to reading text and should be taught through explicit, rich, in-depth instructional methods and strategies. Level 2 words are also critical to the text, but only need a superficial or basic understanding in

order for students to successfully comprehend. These words only require a short amount of instructional time. Level 3 terms are important concepts to discuss and analyze after the reading. These words are often clearly defined in the writing of the passage so that additional teacher explanation may not be necessary prior to reading. Level 4 terms include words that students already know, words that do not meet the goals for instruction set by the researcher, and words that have sufficiently rich surrounding context.

More research and analyses needs to be conducted in the field of reading research to assist educators with the important task of knowing what words need to be taught and at what grade level. "There needs to be some very, very serious work on this problem, resulting in sets of words that students need to know that teachers can teach over the course of the year connected to the topics that need to be covered well in the elementary (and secondary) curriculum" (Pressley, et. al, 2007, p.221). Biemiller and Slonim (2001) have identified approximately 15,000 root words that should be known by the end of secondary schooling. Assuming that around 5,000 root words require formal instruction, this translates to teaching two to four root words per day. Even with the work of Beck and her colleagues and Biemiller and Slonim, the task of figuring out which words to teach and how many words should be taught can feel completely overwhelming for educators. However, the conclusions of this research are good guidelines for consideration.

Assessments

Because word knowledge is such a complicated phenomenon, it is difficult to assess vocabulary ability with accuracy. Standardized measures of vocabulary understanding have been criticized on multiple levels (Pearson, Hiebert, & Kamil, 2007). A method that is prevalent among researchers measuring the effects of specific vocabulary instructional practices is to create assessments specifically measuring key terms taught over a short period of time. This process narrows down exactly what was learned from what was taught. However, the types of test items can have significant impact on what level of understanding of a word is being measured exactly.

After conducting a basic search of experimental vocabulary studies through Reading Research Quarterly, I found that 16 out of the 17 studies found used researcher created assessments. This is most likely due to the fact that researchers are examining methods of instruction that are most beneficial for teaching students specific terms and they want to collect data measuring students' knowledge of those specific terms. In order to accomplish this, it would be unwise to use a standardized vocabulary measure, but would make more sense to create an assessment specifically measuring the terms taught throughout the unit. In these cases, the assessment is created in order to most closely match the instructional context, thus providing better information about students' success related to methods of instruction. In 37 studies analyzed by the National Reading Panel (2000), 31 used experimenter-generated only assessments for collecting data and 5 used both experimenter-generated and standardized assessments. It is clearly a common practice to use researcher created assessments for vocabulary related experimental research.

Teaching Strategies and Methodologies

Specifically, the Keyword method and graphic organizers are identified best practice strategies that teachers may use to help students improve vocabulary acquisition and retention. These methods will be described in detail below.

Keyword method

The Keyword method was originally developed by Atkinson (1975) for individuals learning a foreign language. The method was a mneumonic device that associated a term in English with a word in a foreign language. Results of experiments performed by Atkinson showed high statistical significance for the Keyword method when comparing a keyword experimental group of students with a control group not receiving the Keyword method of instruction. Participants in the keyword group recalled 72% of items on a comprehensive vocabulary test whereas the control group participants recalled 46% of the items.

In the Keyword method of vocabulary learning, learners make an association with a to-be-learned word to a word they already know (Levin, 1983). "Words are learned because of associations that connect the new with the known" (Bromley, 2007, p. 531). Usually, when using the Keyword method, this association is a rhyme or sound. For example, in trying to understand the definition of the word *gaunt*, the learner develops a keyword such as *goat*. The learner is already familiar with a goat, but is learning the definition for *gaunt* which is, "very thin or bony." Next, the learner creates a visual image combining the keyword with the word to be learned. In this example, the student would draw a picture of a very thin goat to help remember the definition of the word *gaunt* (Mastropieri, Scruggs, & Mushinski, 2001).

The process of learning new information using the Keyword method is based on a process of recoding, relating, and retrieving (Levin, 1983). Recoding, in this case, is simply finding a keyword that is more familiar to the learner that can be connected to the vocabulary term. In the above mentioned example, picking the word *goat* is a recoding process. Relating the term through a picture helps connect the new information to information a learner already has stored in memory. This leads to the ability to retrieve the information learned about the definition, keyword, and the vocabulary term. Pressley (2007) claimed that, "the Keyword method produces hugely positive effects with respect to immediate learning, although the evidence is more mixed with respect to whether it produces advantages with respect to long-term retention of meanings" (p. 212).

A number of studies have demonstrated the superior ability of the Keyword method in teaching vocabulary (Levin, Levin, Cotton, Bartholemew, Hasty, Hughes & Townsend, 1990; Levin, Levin, Glasman & Nordwall, 1992; Levin, McCormick, Miller, Berry & Pressley, 1982; Pressley, Levin, Kuiper, Bryant & Mitchener, 1982; Pressley, Levin, & Miller, 1981; Stahl & Fairbanks, 1986). Because of this abundance of research on one particular vocabulary method, I chose to use the Keyword method as an "effective" type of vocabulary instruction for this research project. Some Keyword method studies will be described below.

Researchers Pressley, Levin, & Miller (1981) found the Keyword method helped students' recall of definitions and showed increased comprehension of English vocabulary in context. In this experiment, the subjects were college aged students enrolled in an Introduction to Psychology course at the University of Ontario. Four total experiments were conducted. In experiments 1 and 2, the subjects were assessed on their

understanding of vocabulary terms used correctly or incorrectly in both narrowly defined (experiment 1) and broadly defined (experiment 2) sentence contexts. The subjects were split into two groups: the control group, which did not learn the Keyword method and was instructed to "try hard to remember the vocabulary items" (p. 218) and the experimental group, which received instruction through the Keyword method. The results of these experiments found that keyword subjects scored an average of 90.2% correct for experiment 1, with the control scoring 74% average correct. For experiment 2, the keyword group scored 72.9% and the control group scored 64.5%. In experiments 3 and 4, the subjects were presented with the more demanding task of placing the vocabulary terms correctly in appropriate sentence contexts. Subjects in experiment 3 were asked to complete a cloze task for the terms and subjects in experiment 4 constructed their own sentences using the vocabulary terms. The results for experiment 3 found that the keyword group again outperformed the control with percentages at 64% and 40%, respectively. In experiment 4, the keyword subjects averaged 47.5% correct sentence construction compared to the control groups 32.8%.

Mastropieri, Scruggs, Levin, Gaffney, and McLoone (1985) conducted a two-part experiment to determine if learning disabled students in sixth, seventh, and eighth grades would learn better with traditional vocabulary instruction or through the use of the Keyword method. Subjects in both groups were presented with 16 low frequency terms. In experiment 1, the students were given a keyword and mnemonic picture for the term. In experiment 2, the students had to generate keywords and pictures themselves. The results of these experiments found that students in the keyword group outperformed those

in the control group regardless of whether the keyword and picture was given to them or self-generated.

Levin, McCormick, Miller, Berry, and Pressley (1982) compared a keyword only instruction group with a verbal instruction only group of fourth grade students. Again, two experiments were conducted. In experiment 1, thirty students were simply measured on vocabulary instruction after the experimental group was taught using the Keyword method and the control group was taught using traditional instruction. Results showed the keyword group outperformed the control at 82.8% and 55% correct, respectively, In experiment 2, additional conditions were added. Sixty-four students were given 15 terms to learn. Students were split into four groups: a keyword group, a control group, an experiential context group, and a picture context group. The keyword group was instructed using the Keyword method. The control group was told to use their own best method of study. The picture context group learned the individual terms by looking at a picture of the word representing the word's definition. The experiential context group were instructed through the use of two steps. One, students were read a sentence with the vocabulary term embedded and context clues provided meaning. After the sentence was read, a definition was given to the student. Step two, a question was asked of the student which helped the student to apply the meaning of the term. The results of this study found that the Keyword method outperformed the other groups and that neither of the nonkeyword (ie. picture and experiential) related methods improved students' performance.

Mastropieri, Scruggs, and Mushinski (2001) conducted a similar study using a Keyword method group and control group. Twenty-five adolescents (sixth, seventh, and

eighth graders) with learning disabilities were assessed after being split randomly into one of the two assessed groups. Students were taught 16 difficult vocabulary terms, including eight concrete and eight abstract terms. The results found that students learning through the mnemonic Keyword method outperformed those students in the control group.

Even with substantial research showing the effectiveness of this method, the Keyword method is not often used in schools. Pressley, et. al, (2007) claimed,

> Do not believe for a minute that developing powerful vocabulary-teaching and vocabulary-learning procedures will result in their embrace by teachers. The keyword studies are telling on this point. Often, the Keyword method produced very large effects on vocabulary learning. Yet, we have never seen the method widely used in schools. Like all instructional procedures that make it into school, vocabulary-learning and vocabulary-teaching procedures must make sense to teachers and kids (Pressley & Harris, 1994)! The Keyword method never passed that test (p. 222).

While reading researchers have found significant effects for using the Keyword method, there are disadvantages to this process of learning. It can be a time consuming strategy for teachers to use in the classroom. Teachers must explicitly model and practice the Keyword method with students. Also, "the extent to which students can transfer the keyword technique to other areas of study is relatively unknown at this time" (Tierney & Readence, 2005, p. 327).

Graphic Organizers

A graphic organizer is a two-dimensional visual representation that presents relationships between concepts (Rice, 1994). Typical structures for organizers include circles and boxes with connecting lines visually representing ways that ideas connect to each other and relate to words to be learned. Research on the use of graphic organizers has yielded overwhelmingly supportive results. Graphic organizers help develop critical

and higher order thinking skills, are simple ways for students to work collaboratively and cooperatively together on word development, and assist visual learners in retaining information about words and language. Eeds and Cockrum (1985) stated,

> word meaning instruction that helps learners fit new words into an already existing conceptual network is substantially more effective than having students look up words in a dictionary or read words in interesting and relevant context (pp. 495-496).

Graphic organizers are one way to help students develop such a conceptual network.

A recent survey found that 77% of content area teachers surveyed used graphic organizers as an instructional teaching strategy (Barry, 2002). In a meta-analysis over both quantitative and qualitative studies analyzing the effectiveness of graphic organizers, researchers determined that graphic post organizers (used after reading) produced greater effects than graphic advanced organizers (used prior to reading) (Moore & Readence, 1984). However, these uses of graphic organizers may not be centered around vocabulary instruction but on connecting concepts, analyzing text structure, and improving reading recall and comprehension.

The Frayer model (Frayer, Frederick, & Klausmeier, 1969) is a type of graphic organizer meant to help students learn vocabulary words in greater depth. The organizer is set up as a large square with an oval in the center in which the selected vocabulary word is written. In the surrounding four boxes, the upper left hand side is for the definition of the word, and the upper right hand side is meant as a space to write in "characteristics." The lower left side box is meant for students to write in "examples;" and the lower right hand side is for "non-examples." One of the greatest benefits of using this type of organizer is that it connects the new information with information students

already have in their schemas. Schema theory states that one can not learn new information unless it connects to information already stored in the brain (Brewer & Trevins, 1981). Vocabulary terms are learned because of associations that connect the new with the known (Bromley, 2007). Key to the success of this type of organizer is the involvement of students, on task behavior, and a constructivist, discovery based approach to learning. It is imperative that students do the work themselves with minimal teacher guidance, with the teacher focusing primarily on correcting inaccurate ideas or responses. Tierney and Readence (2005) stated, "It is a fact that a teacher-created hierarchy and teacher-provided examples and attributes will not be as effective a learning environment as one in which students actively participate" (p. 321).

In a study conducted by Peters (1974) students who used the Frayer model for concept development scored significantly higher on a comprehension assessment than students using traditional textbook organization for understanding concepts in a social studies textbook. The participants were 360 ninth grade students from two different suburban high schools in the midwest. This study is helpful in understanding how the Frayer model can assist students' with understanding of difficult concepts, but does not specifically target vocabulary instruction.

A study conducted with 58 fourth grade students found that using the Frayer model was significantly more effective than a definition only model for improving mathematical vocabulary (Monroe & Pendergrass, 1997). Knowledge of vocabulary was assessed through writing before and after a two week long unit of study. The implications for this research determined that the Frayer model was an effective way to improve students' technical vocabulary.

In sum, literature has shown a clear and relevant connection between vocabulary and comprehension. The more vocabulary an individual knows, the easier it is to comprehend text. Socioeconomic status, prior knowledge, and metalinguistic awareness are all factors that influence vocabulary development. Research claims that a large amount of vocabulary is learned through context. Additionally, effective instruction includes rich experiences with words, active engagement, developing independence as word learners, promoting wide reading, and encouraging word play in the classroom.

Areas that are needed for future research include more specific analysis for best practice in vocabulary instruction, and vocabulary research focusing specifically on general education, middle school aged students. This dissertation addresses these areas of need.

CHAPTER THREE: RESEARCH METHODS

Design Overview

Participants

Eighty-five seventh grade students participated as both the control and experimental groups. All are on the same team in the school. A "team" in a junior high or middle school setting consists of a group of core subject teachers (math, language arts, social studies, and science) all teaching the same group of students. For example, a team of three teachers would typically teach approximately 75 students; a team of four teachers would typically teach around 100 students. Teaming is traditionally a middle school concept, developed in order to assist teachers in working together to better know their individual students. Teaming allows for a common "team plan" hour, in which the core teachers get together to discuss needs of individual students, plan together so as not to overload on homework or tests on the same day, communicate with parents on successes and/or concerns that the team teachers have, and discuss what occurs on a day to day basis with the shared team of students.

The students who participated in this study attended school in a predominantly middle to upper-middle class suburban area outside of a large mid-western city. In a total school population (grades 7-9) of 852 students, the racial makeup was 85.57% white, 5.83% Hispanic, 3.93% African-American, and 2% other. Ninety-six percent of students were non-low socio-economic status and 3.69% were identified as free and reduced lunch students. (In general, students were well behaved and high achieving.)

For the 2008-2009 school year, 98% of seventh grade students scored at "Proficient" or higher on the Kansas Reading Assessment. The state average score for

this same assessment was 84% of students scoring at "Proficient" or higher. For the 2009-2010 school year 96.7% of seventh grade students scored at "Proficient" or higher on the Kansas Reading Assessment. The Kansas Reading Assessment or KRA, is the assessment used to determine if schools reach Adequate Yearly Progress or AYP. Adequate Yearly Progress is a term used from the No Child Left Behind Act, a federally mandated law passed in 2001 that encourages standards-based education reform by requiring states to develop standards based assessments and to use these assessment scores to determine how well schools are performing. Adequate Yearly Progress is a percentage that increases each year, in the areas of mathematics and reading. A certain percentage of students must score at a proficient level in order for the school to pass AYP. Currently, the school in which all participants of this study attend has passed AYP each year it has been in effect.

I was also the participants' sole language arts teacher. All eighty-five students had language arts class five days a week for a forty-five minute long period. The morning and afternoon groups were split between four classes. Hours 1 and 3 were the morning group, hours 4 and 5 served as the afternoon group. The hours were randomly chosen and assigned as morning or afternoon for no reason other than convenience. All classes of students received all three instructional interventions in order to be ethical in ensuring that one group of students did not receive what is considered through current research as the "best" instruction.

In this study, 50 students were female and 36 students were male for a total of 87 participants. The students ranged in age from 11 to 13 years old. In comparison one, 10

participants were excluded due to absences on either the pre or post test; in comparison two, 13 were excluded; and in comparison three, 10 were excluded.

Measures

The first set of pre and post tests created were used with the novel The Outsiders by S.E. Hinton (1967). Forty terms were assessed on both measures. The tests were identical in structure, however specific vocabulary terms were switched around so that the measures were not exactly the same, the intention being to create parallel forms of the assessments. This, however, was a mistake. I corrected this mistake by rescoring the assessments, only grading identical test items (test questions) on the pre and post tests. This error changed the total number of test items and will be discussed further in the "Results" section of this document.

For the first set of assessments, test items were divided into 5 sections with 8 questions in each section, for a total of 40 questions. I created these assessments based on the information found in two research articles discussing effective and ineffective components of vocabulary measures, *Vocabulary Assessment: What we Know and What we Need to Learn* by Pierson, Hiebert, and Kamil (2007), and *Automatic Question Generation for Vocabulary Assessment* by Brown, Frishkoff, and Eskenazi (2005). In addition, the tests were influenced by comparisons to researcher created assessments found in McKeown, Beck, Omanson, and Pople's (1985) study *Some Effects of the Nature and Frequency of Vocabulary Instruction on the Knowledge and Use of Words.* Thirty-two of the test items were objective in nature, only one answer can be correct. The last eight items were more subjective, asking students to write definitions for terms in

their own words. I created a key for grading these eight subjective items on the assessments.

I found it to be unnecessary to assess 40 terms and therefore reduced the tests for The Giver (comparison 2) and The Westing Game (comparison 3) to 30 questions each. Specifically, this decision was made because I determined that 30 words was a much more feasible goal for classroom instruction for a 3 week unit of study in which class periods were 45 minutes each day. The initially proposed 40 words per unit was just too many to cover during the allotted period of time. Therefore, the assessments were shortened.

After realizing the testing error, the first assessment went from a 40 item test to a 32 item test. The second assessment went from a 30 question test to a 16 question test and the third assessment started with 30 test items and concluded with 18.

Reliability Analysis

An internal consistency estimate of reliability was conducted on each of the three assessments used for this study. Items on the assessments were equivalent to each other and were scaled as "1" for a correct answer and "0" for an incorrect answer.

For the first assessment used with the unit over the novel The Outsiders, 74 student scores were valid, while 13 were excluded for a total of 87 participants. Cronbach's alpha was .811, suggesting that the scale scores were reasonably reliable for respondents like those in the study. On this test, 31 items were included and one item was removed from the scale due to having zero variance. The second test, used with the novel The Giver, had 78 valid participants with 9 excluded. Cronbach's alpha was .716 for this assessment, also showing that scores were reasonably reliable. There were 18

items included on this second assessment. For the third assessment, 77 students participated. Cronbach's alpha was .751, showing that scores were reasonably reliable. Sixteen items were included on this final assessment.

Procedures

After reviewing a multitude of research studies relating to vocabulary instruction and best practice in teaching methods, I wondered which of three types of instructional methods would be most effective for student recall: the Frayer model, the Keyword method, or traditional instruction. The procedures for each comparison are listed below as well as the quantitative method for the comparisons.

For each unit of study, I chose to teach vocabulary words that came from novels students would read in class because of research claiming that vocabulary words taught should be words found in context (Beck, McKeown, & Kucan, 2002; Beck, McKeown, and McCaslin, 1983; Blachowicz & Fisher, 2002; Brett, Rothline, & Hurley, 1996; Jenkins, Matlock, & Slocum, 1989; Knight, 1994; McKeown & Curtis, 1987; Nagy, Herman, & Anderson, 1985; Nagy & Scott, 2000; Robbins & Ehri, 1994; Stahl, 1986). My goal was to determine which of three methods for vocabulary instruction would be most beneficial for students. In order to accomplish this goal, the following steps were implemented in each of the three comparisons:

1. Twenty-five to forty words were selected from a novel that students would read over a three week period of time. All terms were selected as "Tier Two" terms appropriate for middle school aged students.
2. Students were given a pre test to collect baseline data.
3. Students were split into two groups—the morning group and the afternoon group.
4. The morning group received one method of vocabulary instruction and the afternoon group received another method of vocabulary instruction.

5. All students were given a post test to determine which method of instruction was more effective.
6. The data were collected, entered into SPSS, and analyzed.

This above mentioned process was identical for all three comparisons in the research study. More specific, detailed information for each comparison is listed below.

Comparison 1

For the first comparison, a list of vocabulary words were selected from the novel The Outsiders by S.E. Hinton (1967) for students to learn over a 3 week period of study (15 days of classroom instruction). This unit took place during the first quarter of the 2009-2010 school year. The list of these terms is given in the appendix, p. 105. Terms were selected using Beck, McKeown, and Kucan's (2002) criteria for selecting Tier Two terms. Specifically, I chose terms that have high frequency for mature readers. The words were neither too easy nor only used in isolated, specific domains (too hard). Some examples of the terms for this novel include: *unfathomable, incredulous, gallant, aloof, nonchalant, contemptuous*, and *imploringly*. Additionally, some of the terms for this novel were found in the reference section of Beck, McKeown and Kucan's (2008) book, Creating Robust Vocabulary: Frequently Asked Questions and Extended Examples (p. 172) as examples of Tier Two terms for teachers to use with middle school aged students. Terms were selected that would be encountered in text read either during class that day or for homework that night. In designing a systematic program for explicit vocabulary instruction, Kameenui, Dixon, and Carnine (1987) stated, "we would select words from upcoming passages to facilitate comprehension of those passages" (p. 141).

After the terms were selected, I created the pre test to collect base line data. This test is explained in detail above. Students took the pre test before any instruction was

given on the vocabulary terms. The pre test was administered the first day of the novel unit of study. Students were instructed to work alone, to answer all items to the best of their ability, and to guess or leave the item blank if they had no idea what the answer might be. Additionally, students were told that the pre test was not a graded assignment and that it was part of my research project. I explained that students would be learning three methods for acquiring new vocabulary terms throughout the school year. For each unit, students would take a pre test and a post test to determine which method was the most successful. Pre tests were collected, scored, and entered into SPSS. Students were not told their scores on the pre test at any time.

On the same day that the pre test was administered, students (in classes of 20 to 25) were broken into two groups—a morning group and an afternoon group. Hours 1 and 3 were the morning group and hours 4 and 5 were the afternoon group. The morning group was taught the Keyword method of instruction and the afternoon group was taught the words through a traditional instructional method. While these terms may seem reversed, see table on p. 68 for further clarity. I allotted the same amount of time for instruction in both groups, 15 minutes per day, 4 days per week.

Morning Group-Keyword method

Students in the morning group were given 3-4 words to learn per day, 4 days per week over a period of 3 weeks. These students were in my 1st and 3rd hour classes. These classes learned to use the Keyword method for mastering specific vocabulary terms.

I told students they would be using the Keyword method and asked if anyone knew about the method. None of the students had ever been exposed to it. I modeled the process for using the Keyword method extensively with students on the first day.

Greenwood (2002) claimed, "the facility to attend to words depends on metalinguistic sophistication that can be fostered by teachers who assist students by thinking aloud, modeling, and guiding until effective learning strategies become automatic" (p. 25). These processes, thinking aloud, modeling, and explicitly instructing were very important to me when instructing students using both the Keyword method and the Frayer model. The three terms first learned were: *unfathomable*, *aloofness*, and *nonchalant*.

First, I showed students how to use the Keyword method with a very simple term in which to create a keyword and picture. This term was *gaunt*. I felt that students would be unfamiliar with the term and not know the definition. This term is easy to create a keyword that can simply be turned into a picture. If the definition for *gaunt* is *extremely thin or bony*, a simple keyword to pick is the word *goat*, because *goat* sounds very similar to *gaunt*, then the participant can draw an extremely thin, bony goat to connect the definition to the keyword through a pictorial representation. It is easiest to pick a concrete word for the keyword because concrete words are the simplest to use for drawings. This explanation for the Keyword method was given previously in the literature review. Students need to first see an easily identifiable way to come up with a keyword for a term, then use that keyword to draw a picture that connects with the definition for the word.

After modeling in this manner, I moved on to the term *unfathomable* to model for students. For this example, the instructor chose the keyword *phantom* because it sounded similar to the term *unfathomable*. On the white board, she first wrote the term *unfathomable* and then the definition-*something very difficult to believe or imagine*. Underneath the term and definition she wrote keyword-*phantom*. While writing down the

information I explained what I was thinking out loud to students. Students also wrote down everything from the white board on their notes packet. I also explained that these three terms would be found in the first few chapters of the novel students would read for homework that evening. In this example, the keyword naturally connects with the definition for *unfathomable* in that, for most people, a ghost is something unbelievable and so I drew a picture of a phantom in the form of a Halloween type, sheet wearing ghost. During this time, students were beginning to participate out loud with the instructor. For the next word, *aloofness*, (which I changed to *aloof*) I wrote the term and the definition-*one who is apart, distant, uninterested* on the white board. I then asked students for some ideas for keywords. They came up with words that either rhymed (such as woof or roof), started with the same sound (such as amuse), or reminded them of the term in some way (examples here included: obtuse, loofah, and alone). I chose the word I thought was the most concrete, the easiest to make a picture out of, and one that I could connect to the definition, that word being *roof* for the keyword. I explained to students why I chose that particular term. Next, I drew a house with a roof that had a face on it (in order to personify it). I then drew another house with a roof with a face on it that was far apart from the first house. One roof had a talking bubble that said, "I'm not interested in being close to you." While the example seemed silly and the students laughed at the ridiculousness of the drawing, the example was successful in combining the keyword and the drawing to the definition for the term. I explained that often they would have to stretch their thinking in order to come up with logical, relevant keywords that they could draw and connect with definitions for terms. I repeatedly told students to try and use the simplest keywords possible.

For every single day of vocabulary study, I first modeled the first term of the day for students to ensure that students were understanding the process. Specifically, they went through the exact same steps listed above for modeling, and invited students to participate in selecting keywords for which I would then make a final decision. However, I told students that they could either use my example for the first term, or create their own. I then allowed students to use the method for the next two to three terms during the instructional time.

While students were working, I circulated throughout the room and questioned students when I felt they were having difficulty understanding the method. I assisted students while checking their understanding and worked with them when they were struggling to create examples that successfully utilized the Keyword method. This method was initially difficult for students to get used to, so, I spent the majority of the time modeling and working individually with students who were not quite getting it.

Afternoon Group-Traditional Instruction

Students in the afternoon group also worked on 3-4 words per day, 4 days a week for a 3 week period. These students were in my 4th and 5th hour classes. For each of the 3 comparisons, the morning and afternoon groups remained the same; the method of instruction was the only aspect that changed.

For the groups receiving traditional instruction, I gave the term to students, then the definition, and asked students to create a sentence in which they used the vocabulary term properly, with meaningful context. No modeling for this process occurred as I simply wrote the terms and definitions on the white board while students copied the information into their notes. I provided worksheets for students that said "word,"

"definition," and "sentence" for students to use to take notes on. These packets were used daily to record information about vocabulary terms and definitions. Since I allotted the same number of minutes for vocabulary instruction in all classrooms and the keyword method took longer than the traditional instruction, students were instructed to study the terms either alone or with a partner once the note taking was completed in order to fill any extra time. The terms learned were identical each day among both the morning and afternoon groups.

Comparison 2

The second novel of study was The Giver (1993) by Lois Lowry. Tier Two terms were chosen by the instructor. A list of these terms is in the appendix, p.110. These terms were also identified in Beck, McKeown and Kucan's (2008) book, Creating Robust Vocabulary: Frequently Asked Questions and Extended Examples (p. 171) as Tier Two terms appropriate for classroom instruction. I also cross checked teaching guides for The Giver and found that some of the same words had been chosen by the author of the study guide to teach with the novel. The main concern on the part of I when choosing Tier Two terms was not that the terms would be too easy, or considered Tier One terms, but that they might be considered too difficult or Tier Three. For example, the word *languid* is considered Tier Two by Beck, McKeown and Kucan, (2008), however, it could be argued that many educated adults could not define the term accurately, especially out of context. This limitation, determining whether terms were appropriate for instruction or might be too difficult, will be discussed further in the "Discussion" section of this document. I selected words from the novel that I felt my students had either seen or heard before but weren't certain of their definition, or terms that I thought my students might never have

encountered but that would be used frequently in high quality literature that students would need to know the definitions to further comprehension.

Next, students were given a pre test to determine baseline data for the new group of words to be encountered when reading the novel The Giver. Scores were never distributed to students for either the pre or post tests.

This unit was taught during the 3rd semester of the 2009-2010 school year, in January immediately upon returning from winter break. Students in the morning group remained in their first and third hour classes.

Students in the morning group were given three words to learn per day. I found that trying to teach four words per day was not feasible within the time allotted for instruction. Initially, the first unit started with students learning four words per day; however, it was quickly determined that there was not enough time in a 45 minute class period for this many terms to be taught.

Morning Group-Graphic Organizers (Frayer model)

On the first day of the novel unit, all students were given the pre-test to collect baseline data for the vocabulary terms to study during the unit. On the second day, students were given three terms to learn that would be encountered in their reading of the first two chapters of The Giver. These terms were: *aptitude*, *chastisement*, and *petulance*.

Next, I explained that students would be using the Frayer model to learn new vocabulary terms and modeled how students were to fill out the Frayer model graphic organizer in an explicit manner. The term *aptitude* was chosen to use with students to demonstrate the process. First, the instructor drew a large square Frayer model on the

white board separating it into four squares with an oval in the middle. The term *aptitude* was written in the middle. Students were told to write down everything on their papers (which consisted of four separate Frayer model organizers) that I wrote on the board to practice the method. Next, I gave the definition for *aptitude* as *an ability or talent* and wrote it in the upper left hand "definition" section of the organizer. I then chose to start with the "examples" section to illustrate how students could come up with their own ideas for different terms. For examples, I wrote: artistic, mathematical, athletic, musical, and mechanical. Next, I filled in the characteristics section for *aptitude* with the following words: innate, natural, hard-work, positive, and skill. I explained that the "characteristics" section dealt with synonyms for the word, words that remind one of the term or related to it in some way, and what connotation the word had. I also explained that I was going to focus on the "characteristics" section before the "non-examples" section because the "non-examples" were going to be challenging to figure out. Lastly, I worked on the "non-examples" section by using the terms/phrases: unskilled, incapable, not having an ability or talent, and limitation.

I explained that the expectation for the number of terms used in each box was to have a minimum of three words or short phrases. Additionally, I explained that non-examples might be considered antonyms and that it was very important to pick terms and phrases that would be the opposite of the meaning of the term and not just random things that the term was not; this was not what "non-examples" meant. For example, a non-example for aptitude was not "cat," although a cat isn't an example of an aptitude, it doesn't logically fit as a non-example. While this may seem like an obvious factor, for

12 and 13 year olds, it really is not obvious at all and must be pointed out on the part of the instructor.

I modeled how to work in a cooperative group (students were placed in small groups of 3-4 students per group) and explained the expectations for the process of working together to fill out worksheets using the Frayer model of vocabulary learning. As mentioned before, the Frayer model is a graphic organizer that students use in a small group setting to increase depth of understanding for one single vocabulary term at a time. Each student had his or her own paper to fill out individually even though they were working together as a group. The group process included discussing the individual components (boxes) on the page after writing down the specific term in the middle of the page and writing the definition of the term in the upper left hand box that was provided by the instructor. I gave the expectation to students that each member of the group was to verbally participate in some manner when coming up with ways to fill out the individual boxes on the graphic organizer.

Afternoon Group-Keyword method

Students in the afternoon group were also taught three words per day during vocabulary instruction. The Keyword method was used as the technique for learning. The method of instruction was identical to the methods listed above during the unit for the novel The Outsiders. Since these classes had not had any exposure yet to the Keyword method, I used extensive modeling, and direct explicit instruction to ensure that students understood the process.

First, I used the same example term, *gaunt*, with the keyword *goat* to explain how students should use pictures to connect keyword terms with definitions for vocabulary

words. Next, I continued to model the process using the term *aptitude*, found in the first chapter of the novel.

Comparison 3

For the third and last comparison, a list of vocabulary words were selected from the novel The Westing Game (1979) by Ellen Raskin for students to learn over a three week period of study (15 days of classroom instruction). This unit took place during the fourth quarter of the 2009-2010 school year. The list of these terms is given in the Appendix, p.111. Terms were selected using Beck, McKeown, and Kucan's (2002), criteria for selecting Tier Two terms, as mentioned above in the section *Which Words to Teach*? Tier Two terms were selected by the instructor and cross checked with teacher study guides. Students were again given a pre test on the first day of the unit followed by three weeks of instruction and a post test at the end of the unit.

Morning Group-Traditional Instruction

Students in the morning group in hours 1 and 3 learned 3 terms a day for 4 days a week for a 3 week time period. For this third comparison, students in the morning group learned their vocabulary terms using a traditional method for instruction. This method is identical to the process mentioned above during the first unit on The Outsiders.

Students were given terms on the projector screen and told to write down the term as well as the definition that I provided. Next, students wrote a sentence for each word using legitimate context showing student understanding of the meaning of the individual term. This information was kept among the students' materials and brought out daily for note taking. Any additional time was spent studying the notes taken in class, either

individually or with a partner. The extra study time was usually no longer than two to three minutes.

Afternoon Group-Graphic Organizers (Frayer model)

Students in the afternoon group learned to use the Frayer model for acquiring understanding of new vocabulary terms during this unit. The methods of instruction were identical to the methods listed above for the unit over the novel The Giver. New terms were given to students daily to discuss with the members of their small group.

The instructor first modeled how to fill out the different boxes on the worksheet with students using a term from the first chapter of the novel. Next, students were told to continue to fill out their individual Frayer model boxes with their small groups. I circled the classroom for the rest of the instructional time in order to monitor students' understanding of the process. When students seemed to have difficulty coming up with three words or phrases for each box, the instructor would give possible suggestions for students to choose. Additionally, if students wrote words that I felt were incorrect, I would guide the students in making better selections.

Array of Instructional Techniques

The following array is given to provide a visual chart in which to understand that all students received all three methods of instruction for the same amount of time. My intention was to determine which method would be the most statistically significant in assisting students' retention of vocabulary knowledge. Ethically, it only made sense to make sure that all students received all forms of instruction.

	Morning Group-Hours 1 & 3	Afternoon Group-Hours 4 & 5
Comparison 1-The Outsiders	Keyword method	Traditional Instruction
Comparison 2-The Give	Graphic Organizers	Keyword method
Comparison 3-The Westing Game	Traditional Instruction	Graphic Organizers

Data Collection and Analysis

All pre and post tests were scored. A total number correct on pre and post tests were entered in a spreadsheet for each student. The scores were then converted to percentages.

Through SPSS, repeated measures ANCOVA were conducted after all data were collected. This process evens out all scores among students on the pre tests, thus showing gains in scores among students on the post tests. I assessed the data to determine which of the three instructional methods were most effective in improving student learning.

CHAPTER FOUR: RESULTS

The purpose of this study was to compare three instructional approaches the Keyword method, the Frayer model and traditional instruction to determine if any of the methods would improve students' understanding of definitions of vocabulary terms. The following research questions were examined through this study:

1. Which of three types of instructional methods is most effective for student recall: The Frayer model, the Keyword method, or traditional instruction?
2. Are identified research based, best practice forms of instruction such as using graphic organizers and the Keyword method taught through rich, in-depth, explicit vocabulary instruction meaningful ways to improve students' individual vocabularies?

In the following section the results of the data analysis are presented. I hypothesized that the Keyword method would be more effective than either the Frayer model or the traditional method of instruction. In order to determine if this hypothesis was correct, repeated measures ANCOVA with one between subjects factor (hour-order of teaching method) and one within subjects factor (method-Frayer, Keyword, or Traditional instruction) was used for data analysis. The independent variables were the instructional method and hour. The dependent variable was the post test score for the assessments and the covariate was the pre test score for the assessments.

The pre and post test score data was collapsed into variables for the three separate instructional methods: Keyword method, Frayer model, and traditional instruction. The scores for all tests were converted to percents.

Descriptive statistics are given in the chart below.

Pre and Post Test Descriptive Statistics for Morning Group

	N	Mean	Std. Deviation
Keyword Pre	39	62.5801	17.43596
Frayer Pre	43	46.8992	20.07856
Traditional Pre	40	28.2813	15.24292
Keyword Post	39	76.3622	19.95568
Frayer Post	37	64.4144	19.53065
Traditional Post	42	50.4464	21.22366
Valid N (listwise)	28		

Pre and Post Test Descriptive Statistics for Afternoon Group

	N	Mean	Std. Deviation
Keyword Pre	39	51.2821	17.02641
Frayer Pre	39	35.8974	16.39347
Traditional Pre	38	63.6513	15.79170
Keyword Post	40	67.6389	18.78248
Frayer Post	37	51.0135	22.70324
Traditional Post	38	74.3421	17.59023
Valid N (listwise)	28		

Repeated measures ANCOVA found a significant effect of method, Wilks' Lambda = .84, $F(2, 50) = 4.85$, $p = .012$. There was also a significant interaction of method by hour, Wilks' Lambda = .72, $F(2, 50) = 9.9$, $p < .001$.

Post-hoc tests to determine the nature of the interaction were conducted. There were two groups involved in this data collection. The morning group consisted of the students in my first and third hours at school. The afternoon group consisted of the

students in my fourth and fifth hours at school. These groups received different types of instruction. These follow up tests determined that the groups did not respond to the method of instruction in the same way. For the morning group, repeated measures ANOVA found a significant effect of method, Wilks' Lambda = .663, F (2, 23) = , p = .009. Follow-up comparisons found that the Keyword method produced significantly higher mean scores over the traditional instruction method but not over the Frayer model of instruction. For the afternoon group, there were no significant differences among any of the methods.

The first research question is, "Which of three types of instructional methods is most effective for student recall: The Frayer model, the Keyword method, or traditional instruction?" The answer to this question is the Keyword method, but not in all instances.

The second research question is, "Are identified research based, best practice forms of instruction such as using graphic organizers and the Keyword method taught through rich, in-depth, explicit vocabulary instruction meaningful ways to improve students' individual vocabularies?" The answer to this question is "possibly." It depends on the way in which one defines "meaningful." The significant interaction found through the data analysis process, determined that the only statistically relevant method found was the Keyword method. Thus, answering both research questions 1 and 2.

CHAPTER FIVE: DISCUSSION

The results of this study found that among the three instructional methods, the Keyword Method, the Frayer Model, and traditional instruction, the Keyword Method was the only one to have a statistically significant impact on students' recall of definitions for terms. However, it is important to realize that this statistical significance was found with only the morning group. No method was found to outperform any other in the afternoon group. Therefore it is unreasonable to claim that the Keyword Method is always superior for classroom instruction, or that it could be considered the "best" way for students to learn definitions for vocabulary terms.

All three methods of instruction improved student learning. An outcome of good vocabulary instruction should be to see an improvement on students' scores on traditional vocabulary assessments (Curtis, 1987). However, the goal of this research was not necessarily to just improve student learning but to determine which methods of instruction would be the most effective in improving the learning of students. While the Keyword method was found to be superior over only the traditional instruction with one group and no other significance was noted, students did make gains in their learning. In 1968, researchers Petty, Harold, and Stoll found in their study that while several different methods of teaching vocabulary were not statistically significant from each other, the methods were helpful for teaching vocabulary. One can conclude that some direct vocabulary instruction was better than no direct vocabulary instruction.

In a study comparing teaching with traditional instruction and teaching through context, Jenkins, Matlock, and Slocum stated,

> In studies of teaching individual word meanings, researchers have investigated the effectiveness of Keyword methods (Pressley, Levin, & McDaniel, 1987), direct instruction (Jenkins, Pany, & Schreck, 1978; Kameenui, Carnine, & Freschi, 1982), and intensive multitask instruction (Beck, Perfetti, & McKeown, 1982). Each of these methods increases word knowledge, and improves comprehension of sentences containing the words taught (1989, p. 217).

This research specifically claims that the methods are helpful for making gains in student learning but does not state that one method is necessarily better than the other. However, there are multiple studies (listed in the Literature Review of this document) that do claim superiority in specific vocabulary methodology, particularly with the Keyword method and the use of graphic organizers.

The following discussion attempts to determine why statistical significance was not achieved among both groups when using methods that have clearly been shown to be superior to traditional instruction in other research. In addition, limitations are contemplated and alternative classroom instructional methods in vocabulary are explored.

Lack of Statistical Significance

It is difficult to state precisely why statistical significance was not achieved among all groups in this study. Pressley, Levin, and McDaniel (1987) claimed,

> Vocabulary research, and more generally, the entire field of curriculum and instruction, is at its best when it is an experimental discipline. New procedures are compared to old ones; old techniques are examined to determine if they are all that they are 'cracked up to be.' The potential for growth of the experimental science of vocabulary acquisition in particular, is great, if for no other reason than the large number of procedures that have been hypothesized to promote the growth of vocabulary (e.g. Johnson & Pearson, 1978) (p. 107).

As mentioned above, the process of experimentation is imperative for vocabulary instruction and for teaching in general. While researchers always desire statistically

significant results in order to validate their hypotheses, the process of doing the research itself is just as important when statistical significance is not achieved.

Length and Time.

Without question, one of the greatest difficulties involved with these comparisons was the time factor. It was extremely difficult to teach three words per day, four days per week to students over a three week novel unit. It became tedious, unmotivating, and boring doing the same process so many times. Additionally, many other concepts needed to be taught during the individual units of study for the novels such as comprehension strategies and lessons over indicators for the state assessments. Spending so much time on vocabulary every day became a hindrance. I felt that students' general comprehension of the different texts may have been negatively affected due to the emphasis on vocabulary study, solely because of the amount of time spent teaching vocabulary strategies and vocabulary terms, which in turn limited the amount of time spent teaching about reading comprehension for the novels.

However, this study was not about reading comprehension, it was about determining if methods of instruction were statistically relevant for improving vocabulary ability. In regards to vocabulary and time, it is worth pondering the notion that the length of time spent on vocabulary instruction might have been either too much time, whereas students might have become bored, or too little time, in which depth of understanding and repetition of terms was not achieved throughout the study.

Additionally, would there have been a statistical difference if the participants in the study were assessed over a shorter period of time learning fewer words overall?

Would a relevant difference have occurred if students learned 10 words over a period of one week instead of 30 terms for a period of three weeks?

Comparisons with other Studies.

In Beck, McCaslin, and McKeown's (1980) study teachers worked with students for 75 daily sessions of 30 minutes each, totaling 2,250 minutes of vocabulary instruction. Theirs was not a comparison study, but solely measured students' performance based on the rich instruction given. Students scored an average of 86 words correct out of 104, which is 83% correct. To compare with this dissertation research study looking at best practice for vocabulary learning, students were instructed for a total of 36 days during sessions that lasted 15 minutes each, totaling 540 minutes of vocabulary instruction. It was a comparison study, however, students scored an average of 75%, 63%, and 59% for the three different instructional methods. What seems significant between Beck, McCaslin, and McKeown's study and this dissertation research is the staggering difference in the amount of time spent on instruction.

Mastropieri, Scruggs, and Fulk (1990) found that students using the Keyword method outperformed those in the control group on tests of recall and comprehension. This study included only twenty-five adolescents all of whom were classified as learning disabled. Students were taught 16 terms and were assessed immediately after the instruction. The instruction and all testing were done on the same day. While the results of this study seem completely valid, the methodology, design and participants are markedly different than my dissertation study.

Additional Keyword method studies were conducted with college students (Pressley, Levin, & Miller, 1981) and elementary students (Levin, McCormick, Miller,

Berry, & Pressley, 1982). It is possible that the age of students in this study might have impacted the results, however, this is difficult to determine as there are no studies with similar conditions for middle school aged students found in relevant literature.

High Achieving Population.

The participants of this study were considered high achieving according to the results of standardized achievement tests. It is a legitimate claim that the more knowledge of the world that an individual has, the more exposure to difficult and diverse vocabulary that an individual encounters, the more words that person will know (Hart & Risley, 1995; Hunt, 1978). Would the results of this study been significantly different if the study were conducted in a rural setting, an urban setting, or even in a school that was not as high functioning? Possibly. Curtis (1987) stated,

> Methods may vary in their effectiveness for different groups of students. For example, some students who are low-vocabulary scorers do seem able to use information in the text to learn new word meanings without any instruction in how to do so. Other individuals seem to benefit from instruction in how to use context in order to do this. But, when students' comprehension skills are not very well developed, more direct instruction in the meaning of words may be the most effective approach (p. 48).

It is possible that the academic achievement levels of the students in this study may have had something to do with the lack of statistical significance. However, there is not an abundance of evidence that this is so.

Limitations

Teacher as Researcher Bias

A bias can be considered a prejudice, tendency, or inclination towards or in favor of something. In qualitative research, researcher bias is dealt with by identifying bias and openly discussing and monitoring bias through rich description and discussion (Merriam,

2004). In quantitative research and specifically within this study, researcher bias may have come into play from hypothesizing that the Keyword method and/or the Frayer model would outperform the method of traditional instruction. However, I was aware of this possibility prior to delivering instruction to students and deliberately controlled the length of time spent on instruction in the classroom with a timer to ensure that no method of instruction was longer than another. Thus, students received instruction for the same amount of time. If I had spent 20 minutes with students using the Frayer model and 15 minutes for both traditional instruction and the Keyword method, the results of the study could have been skewed due to time and researcher bias.

In this dissertation, I addressed different potential areas for researcher bias including my presence and impact on students, students' strengths and weaknesses with methods, being overly optimistic about a teaching approach, and any prejudice or bias towards students with learning issues.

Terms

It is difficult to say with absolute certainty that every single term chosen was quantifiably a "Tier Two" term. Word study and word knowledge is a complicated phenomenon; abstract in many ways, and difficult to objectify. However, I believe that each individual term selected for students to study was appropriate for their grade level and status as high achieving students. When possible, the terms were cross referenced with word lists provided by study guides or from the work of Beck, McKeown, and Kucan (2002). Drum and Konopak (1987) stated, "the ease with which a person learns new words and their meanings not only depends on that person's exposure to the words

and his or her facility in discerning the meaning but also on the characteristics of the words themselves" (p. 73).

Graves (2000) believed that teachers need to teach words students do not know and the best resource for determining what students do not know is the students themselves. Through using pre and post testing, I was able to determine what terms students did not know. However, it may have been more effective in the study to use pre test information to only teach the words that students clearly did not know and eliminate from classroom instruction those terms that students passed on the pre tests. At the same time, there were virtually no words on the pre assessments that all students knew. Additionally, when looking over the different sections of the tests, matching, multiple choice, antonyms, etcetera, only a few students had perfect scores for some of the sections on the pre tests.

Definitions.

All definitions for terms were given to students by the instructor. These definitions were chosen specifically because the instructor felt they were student friendly and easy to understand. Beck, McKeown, and Kucan's (2002) research advocated to use teacher created, student friendly definitions. In all instances, the terms and definitions were absolutely identical among both the morning and afternoon groups, thus, the only difference being the instructional method.

However, had traditional instruction been for students to look up definitions in the dictionary instead of writing down the definition that I provided based on the fact that I believed the definitions would be easier for students to understand, there may have been a significant difference in students' understanding. Additionally, students often use

different dictionaries in class when looking up terms. A variety of dictionaries will use different words to describe word meanings. This can affect student learning. Therefore, had "traditional instruction" been designed differently, retention of word knowledge may have been skewed higher towards either the Keyword method or the Frayer model. Studies have shown that students who are learning definitions for vocabulary words in which the definitions are extremely difficult to understand often do not have accurate understanding for the terms being studied (Bromley, 2007; Kamil & Hiebert, 2005; McKeown, 1993; Nagy & Scott, 2000; and Nist & Olejenik, 1995).

Keyword method

As mentioned in the literature review in this document, Pressley, et. al, (2007) claimed that while the Keyword method has been shown to be effective as an instructional strategy, it is not widely used in schools. As a language arts teacher for seven years and a general education middle school teacher for 13 years, I have never encountered the Keyword method other than through graduate school research. When I approached the language arts coordinator in her very large, suburban school district about including the method in the language arts handbook for the school district, I said I did not know what the Keyword method was. Additionally, I suggested that the Keyword method be included as a method for teaching vocabulary in the school district's new Secondary Reading curriculum resource guide. The language arts coordinator stated that she did not want to include it because teachers would not be familiar with it. I have yet to meet a language arts teacher who uses the method, or has ever heard of it. It is a confusing contradiction that reading research recommends using the Keyword method so

prevalently and yet the method is so rarely used in schools. If it is an effective method for student retention why isn't it used more often?

This study suggests that in some instances there is not a significant difference between using traditional methods of vocabulary instruction and using the Keyword method. However, it is difficult to determine why this was so. In comparing this study with other studies using the Keyword method, one apparent difference is that many of the studies were conducted with students identified as having learning disabilities (Jitendra, Edwards, Sacks, and Jacobson, 2004; Mastropieri, Scruggs, Levin, Gaffney, and McLoone, 1985; Mastropieri, Scruggs, and Mushinski, 2001). I was unable to find a study in which the participants were in middle school, not solely learning disabled students, which found that they Keyword method outperformed traditional instruction. However, in this study it was found to outperform traditional instruction but only with one of the groups assessed.

One obvious limitation of the Keyword method was that at times, the method did not seem suitable for the specific terms, usually because the term was too abstract to use with a concrete pictorial representation. For example, students often had difficulty thinking of a simple keyword and corresponding picture to represent a word such as *obsequious*. At times, it seemed that the keywords and pictures were just too far removed from the term to be helpful. I concluded that for specific terms, it might be more appropriate to have a range of methods and strategies to help students remember and understand definitions.

Graphic Organizers

In reference to graphic organizers, some researchers have claimed, "although evidence exists to suggest the power of the visual-display system for teaching complex sets of interrelated facts, more experimental research is needed" (Kameenui, Dixon, & Carnine, 1987, p. 144). A meta-analysis of studies used with graphic organizers found that, "learners treated with graphic organizers outperformed learners in control-group situations by about two-tenths of a standard deviation" (Moore & Readence, 1984, p. 13). However, this analysis was not specifically related to vocabulary knowledge but to the use of graphic organizers in any context.

Another limitation of graphic organizers is that the learner must have some current schema to connect to the vocabulary being learned (Dunston, 1992). For example, if students have never seen or used a term, and have no existing schema whatsoever for a word, a graphic organizer for the word will not help them build knowledge about that concept.

A specific limitation of the Frayer model is that it may best be used with complex topics and ideas. Rekrut (1996) discussed the Frayer model and stated,

> This approach to direct vocabulary instruction provides a thorough picture of a word and is most suitable for teaching complex concepts, such as *perseverance* (Ryder and Graves, 1994) and *intuition*. The Frayer model might be fruitfully used in physics to elucidate concepts such as *mass* or *power*, or in art to clarify painting styles like *impressionism* or *cubism* (p. 71).

Additionally, Greenwood (2002) stated when discussing the Frayer model,

> This is the most time consuming and labor-intensive model, and it should be reserved for the most difficult vocabulary. It takes at least half an hour, so only key content words warrant this much teacher and student time (p. 261).

However, there are many other types of graphic organizers with almost identical structure and content as the Frayer model that are not intended to take such a considerable amount of time. I completely disagrees that the process is a minimum of 30 minutes long for one term. This is an extreme exaggeration and most students would not be actively engaged in such a tedious, time consuming process.

Traditional Vocabulary Instruction

It was a great surprise to discover that the Frayer model did not outperform the traditional method of vocabulary instruction and that the Keyword method did outperform the traditional method with both groups of students. However, one reason for this may have been that the primary purpose of the assessments was to determine if students acquired basic definitional knowledge of terms. The tests were not designed to analyze depth of understanding for words but to see if students' had sufficient recall for basic definitions. For example, one section of the assessments was simply matching terms to definitions that were no more than a few words long. No section of the assessment asked for extremely rigorous, complex understanding of word definitions requiring students to provide multiple meanings or extensive examples of their knowledge. However, it is logical to assume that if students did not know the basic definition of the word, they certainly would not have extensive knowledge, thus, their scores would have essentially been the same. It would not make sense to believe that the Keyword method nor the Frayer model helped students with a rich understanding of terms but not basic knowledge of the definitions.

The primary limitation of teaching vocabulary through traditional means is that it does not necessarily promote active engagement; it can be very boring. Writing down

words and definitions does not require an extensive amount of thought. Writing words in student created sentences does stretch thinking some, but is not a tremendously rigorous activity. The process of analyzing the meaning of terms (through the Frayer model) does require elaborate thinking with use of multiple examples. The main benefits of the Keyword method seem to be the advantage of using a pictorial representation in order to improve retention and memory. At the same time, this research does not support that there is a difference between the methods, thus, the argument may seem to be a weak one.

Assessments

It is possible that the construction of the pre and post tests may have affected the results of this study. If my intention was simply to determine if students could recall definitions for terms, then a test consisting only of one type of item may have been the best measure to use. For example, the tests created for this study consisted of five different sections: matching, multiple choice, student created definitions, fill in the blank, and antonyms. A better design may have been to use an assessment that only used one section, such as multiple choice or matching, but not both.

Alternative Classroom Methods/Classroom Instruction

If one were to conclude that due to the lack of statistical significance in this study, even though the Keyword method was found to be advantageous over traditional methods with one group, none of the three mentioned methods are "good enough" for significantly improving students' learning, then the next step in the research process might be to look for additional methods that might be more effective for classroom instruction.

It is possible that the utilization of different classroom instructional methods would have yielded different statistical results in this study. These methods are discussed

below and include teaching through context, rich instruction, and the use of repetition in learning. Also, I argue why vocabulary still matters, explore the fact that students did make gains in their vocabulary knowledge, and discuss limitations with individual methods in the study.

Additional Instructional Methods

There are many additional instructional methods that can be effective in teaching students new word meanings and strengthening understanding of partial word knowledge. Nagy & Herman (1987) claimed,

> "vocabulary instruction that does improve comprehension generally has some of the following characteristics: multiple exposures to instructed words, exposure to words in meaningful contexts, rich or varied information about each word, the establishment of ties between instructed words and students' own experience and prior knowledge, and an active role by students in the word-learning process" (p. 33).

I believe that of the above mentioned characteristics, the Frayer model includes all except multiple exposures to instructed words, and exposures to words in meaningful contexts. In order to experience all of the characteristics, one would spend even more time teaching individual word meanings than I did for this particular study; a task that seems quite unrealistic for general classroom instruction.

Teaching Through Context.

One strategy commonly embraced as being effective for vocabulary instruction is the learning of terms through the use of surrounding context. "Most teachers and most researchers would probably agree that using context clues is likely to be one of the most practical means of learning new words" (Graves, 1987, p. 173). Kameenui, Dixon, and Carnine (1987) stated,

> Because students derive the meanings of many words incidentally, without instruction, another possible role of instruction is to enhance the strategies readers use when they do in fact learn words incidentally. Directly teaching such strategies holds the promise of helping students become better independent word learners. However, learning from context will rarely result in anything like "complete" word knowledge. Levels of quick lexical access, full concept knowledge, and unprompted recall appear to be achieved (if ever) only over long periods of time. Research does not uniformly confirm substantial results from context-learning instruction, but perhaps such research has had unrealistic expectations for both the amount and quality of learning that can take place in short periods of time (p. 140).

On the other hand, "words are learned from context, but just how readily that learning takes place is still a question" (McKeown & Beck, 2004), p. 14). Also, just because one reads words in context, this does not guarantee automatic understanding of word meanings (Jenkins, Stein, & Wysocki, 1984). A disadvantage of learning through context is that at times, the context is unclear and can actually be a hindrance to understanding the meanings of words (Schatz & Baldwin, 1986).

Further research might compare the learning of new vocabulary terms through the use of context with instructional methods such as the Keyword method, the Frayer model and/or traditional vocabulary instruction.

Repetition.

Experts argue that for effective vocabulary instruction words should be encountered with great frequency, utilize words over a period of extended time, and should encourage students to use the words outside of the time spent solely on vocabulary lessons and instruction (Beck, McKeown, & Omanson, 1987).

In this study, students were never told when the post tests would be taken. This was planned intentionally to prevent students from studying for the test, which some would have done. Additionally, the tests were not given as a grade for the same reason.

Students would have felt greater pressure to achieve higher scores on the post tests if they knew when they would be taking them and/or if the test would have an effect on students' grades. If students studied the terms, the cause for potential gains in learning might have been from studying, not from the particular methods learned in class. Simultaneously, if students had spent time studying words, they would have had repeated exposures to the terms which could have significantly impacted their word knowledge and definitional understanding. In Stahl and Fairbanks (1986) meta-analysis on vocabulary instruction Is determined that, "more encounters yielded better results than fewer encounters for word knowledge, for fluent access to word meanings, for context interpretation, and for story comprehension" (p. 532).

Why Vocabulary Still Matters

Vocabulary will always be an important topic for reading instruction. This is primarily due to the comprehension and vocabulary connection. Reading is "indispensable for adequate functioning in most current societies" (Van Den Broek & Kremer, 2004, p. 1). McKeown and Beck (2004) stated,

> Research indicates that direct instruction in vocabulary can increase vocabulary learning and comprehension. If instruction is to influence comprehension, it needs to involve a breadth of information about the instructed words and engage active processing by getting students to think about and use the words (p. 13).

However, explicit vocabulary instruction is a significantly time draining process when individual words are taught. According to Stahl and Shiel (1999) between 300 to 400 words can be taught through direct instruction to students each school year.

In 1979, Delores Durkin found that out of 4,469 minutes of reading instruction in elementary schools, approximately 19 minutes was devoted to vocabulary instruction,

with an additional 4 minutes added for vocabulary review. Researcher Michael Graves claimed,

> I know of no studies on the amount of vocabulary instruction in secondary schools. However, 14 years of teaching secondary reading courses to inservice teachers, talking to secondary content teachers in a variety of subject areas, and observing secondary classrooms has convinced me that even less vocabulary instruction occurs at that level. More specifically, I believe that anything other than a very brief introduction to some words from an upcoming selection is extremely rare, and that even such brief instruction is quite rare (1987, p. 166).

Currently, I has been unable to find any studies devoted to documenting how much time is spent on vocabulary instruction in secondary schools.

Blachowicz, FiIr, & Ogle (2006) discussed the importance and negligence of vocabulary instruction,

> Vocabulary instruction has been overshadowed by instruction in word recognition and comprehension; however, it is clearly an area of concern in its own right and, therefore, needs to become a priority in the instructional preparation and inservice professional development of classroom and content area teachers (p. 534).

Conclusions

Further Research Needed

Further research in vocabulary instruction is needed in order to determine which practices are best to use with students in the classroom. The National Reading Panel (2000) stated, "There is a great need for the conduct of research ... in authentic school contexts, with real teachers, under real conditions" (p. 4-27). Specifically, studies comparing traditional methods of vocabulary instruction with more contemporary methods of learning such as rich instruction, using graphic organizers, mnemonic devices for learning, repetition, and learning from context will be most beneficial for practitioners in reading instruction.

Additionally, vocabulary research at the secondary level is needed. Studies need to be conducted determining how much time is actually being spent on vocabulary instruction on a day to day basis in middle and high schools. While information about secondary language students and learning disabled students is extremely important, it is equally important that research is conducted on the general populations for urban, suburban, and rural school districts.

Teacher surveys and interviews could give valuable information about teachers' perceptions on vocabulary instruction and word knowledge in the classroom. Research is needed to learn about what teachers actually know about vocabulary instruction and what they are specifically doing in the classroom. There seems to be a gap between what educators know about good vocabulary instructional practices and what they actually do (Greenwood, 2002). Blachowicz, Filr, and Ogle (2006) stated, "For researchers the challenge is to begin to look at the ways in which various aspects of vocabulary acquisition and instruction are interrelated" (p. 535).

Assessment of vocabulary is another area in which further research is needed (Pearson, Hiebert, & Kamil, 2007). Because it is such a complex phenomenon to even understand how one "knows" a word, the assessment of such knowledge is difficult to quantify and test. Further research can help general practitioners to accurately assess what their students know about word knowledge. Additionally, stronger research in vocabulary assessment can help teachers to accurately conduct their own classroom research.

Final Thoughts

The results of this study showed that the Keyword method can be considered a superior method over traditional vocabulary instruction. However, the results also concluded that graphic organizers did not significantly outperform traditional instruction for vocabulary learning. I still believe that direct, explicit vocabulary instruction is important. What teachers must do is determine which methods work best with individual students.

Rekrut (1996) identified four questions secondary teachers should ask themselves when trying to determine which type of instructional strategy is best for vocabulary instruction in the classroom:

1. **What kind of vocabulary is being taught?**
a. recognition of words already in the learner's oral vocabulary
b. learning words for which the learner has a concept, e.g., learner knows the concept *chew* but not the word *masticate*
c. learning both word and concept, e.g., learner must come to understand disaster medical procedures when he or I learns the word *triage*
2. **How well does the method directly involve and engage students in the learning process?**
a. the student does the work
b. instruction utilizes previous student experience and mobilizes background knowledge
3. **Does the method provide the learner with a strategy for acquiring new vocabulary independently?**
a. student-friendly
b. both a teaching and a learning method
c. generalizable to a variety of vocabulary-type situations, e.g., remember famous people and something about them, recall dates, know geological periods, recognize mathematical terms
4. **What is the cost in terms of teacher preparation and class time?**
a. pre-lesson teacher preparation of materials and procedure
b. class time required to present the material
c. student time required for practice and study
d. teacher and student time for evaluation (p. 73).

Once instructors evaluate their answers to these questions, they can, and should, use data to determine which methods are the most effective.

Baumann, Edwards, Boland, Olejenick, and Kame'enui (2003) stated,

> Is it best to teach individual word meanings to ensure that they are available for instant access when reading text? Is it best to teach strategies for learning words that permit a reader to independently induce word meanings from the linguistic context or derive meanings from mor-phemic information? Is it best simply to cut out any systematic approach to vocabulary instruction... The simple answer to this dilemma is, "It depends." The complex answer to this dilemma is, "It depends" (p. 450).

The most important element of effective classroom instruction is balance. From this study one might conclude that multiple methods of instruction are helpful for student learning. Herman and Dole (1988) stated,

> Sometimes students can simply be given definitions of words and such knowledge is sufficient for understanding words and for enhancing comprehension of a given text. Other times students will need a strategy for using context to figure out word meanings in order to maintain comprehension. At still other times, students will need more extensive instruction to learn new words because definitions alone and context alone are not sufficient for a thorough enough understanding of words crucial to comprehending a given text (p. 51).

Students are individuals with differing needs. The best teachers know how to teach using a variety of methodologies and strategies to meet those individual needs.

References

Aitchison, J. (1987). Words in the mind: An introduction to the mental lexicon. Oxford: Basil Blackwell.

Allen, J. (1999). *Words, words, words: Teaching vocabulary in grades 4-12.* Stenhouse: Portland, ME.

Alvermann, D.E. & Eakle, A.J. (2003). Comprehension instruction: Adolescents and their multiple literacies. In Sweet, A.P. & Snow, C.E. (Eds.), *Rethinking reading comprehension.* (12-29). New York, NY: Guilford Press

Anderson, R.C., & Freebody, P. (1981). Vocabulary knowledge. In J. Guthrie (Ed.), *Comprehension and Teaching: Research reviews,* 77-117. Newark, DE: International Reading Association.

Anderson, R.C. & Freebody, P. (1985). Vocabulary knowledge. In H. Singer and R.B. Ruddell (Eds.), *Theoretical models and processes of reading (3rd ed.)* (pp. 343-371). Newark, DE: International Reading Association.

Anderson, R.C. & Nagy, W. (1991). Word meanings. In R.Barr, M.Kamil, P. Monsenthal, and P.D. Pearson, (Eds.), *Handbook of Reading Research,* Vol. 2, pgs. 690-724. New York: Longman.

Anderson, R.C . & Nagy, W. (1992). The vocabulary conundrum. *American Educator, 16,* 14-18, 44-47.

Anglin, J.M. (1993). Vocabulary development: A morphological analysis. *Monographs of the Society for Research in Child Development, 58,* 1-186.

Atkinson, R. C. (1975). Mnemotechnics in second-language learning. *American Psychologist, 30,* 821-828.

Babbit, N. (1975). *Tuck everlasting.* New York: Farrar, Straus & Giroux.

Barry, A. (2002). Reading strategies teachers say they use. *Journal of Adolescent and Adult Literacy, 46(*2), 132-141.

Baumann, J.F., Edwards, E.C., Boland, E.M., Olejnik, S., & Kame'enui, E.J. (2003). *American Educational Research Journal, 40,* 447-494.

Baumann, J.F. & Kame'enui, E.J. (2004). *Vocabulary instruction: Research to practice.* New York: Guilford Press.

Bear, D.R., Invernizzi, M., Templeton, S., & Johnston, F. (2004). *Words their way: Word study for phonics, vocabulary, and spelling instruction.* Upper Saddle River, NJ: Pearson.

Beck, I.L., McCaslin, E.S., & McKeown, M.G. (1980). *The rationale and design of a program to teach vocabulary to fourth grade students* (LRDC Publication No. 25). Pittsburgh, PA: University of Pittsburgh, Learning Research and Development Center.

Beck, I.L., & McKeown, M.G. (2001). Text Talk: Capturing the benefits of read-aloud experiences for young children. *The Reading Teacher*, 55(1), 10-20.

Beck, I.L., McKeown, M.G. & Kucan, L. (2005). Choosing Words to Teach. In E.H. Hiebert & M.L. Kamil (Eds.), *Teaching and Learning Vocabulary.* Mahwah, NJ: Erlbaum.

Beck, I.L., McKeown, M. & Kucan, L. (2002). *Bringing words to life: robust vocabulary instruction.* New York: Guilford Press.

Beck, I.L., McKeown, M.G., & Kucan, L. (2008). *Creating robust vocabulary: Frequently asked questions and extended examples.* New York: Guildford.

Beck,I.L., McKeown , M.G. & McCaslin, E.S. (1983). Vocabulary development: All contexts are not created equal. *The Elementary School Journal, 83,* 177-181.

Beck, I.L., McKeown, M.G. & Omanson, R.C. (1987). The effects and uses of diverse vocabulary instructional techniques. In M. McKeown & M.E. Curtis (Eds.), *The nature of vocabulary acquisition* (p. 147-163). Hillsdale, NJ:Erlbaum.

Beck, I.L., Perfetti, C.A., & McKeown, M.G. (1982). The effects of long-term vocabulary instruction on lexical access and reading comprehension. *Journal of Educational Psychology, 74,* 506-521.

Becker, W.C. (1977). Teaching reading and language to the disadvantaged—What we have learned from field research. *Harvard Educational Review, 47,* 518-543.

Biemiller, A. (1999). *Language and reading success.* Cambridge, MA: Brookline Books.

Biemiller, A. (2001, spring). Teaching vocabulary. *American Educator,* 143-148.

Biemiller, A. (2004). Teaching vocabulary in the primary grades. In J.F. Baumann & E.J. Kame'enui (Eds.), *Vocabulary Instruction: Research to Practice.* New York: Guilford Press.

Biemiller, A. (2005). Size and sequence in vocabulary development. In Hiebert, E. H., & Kamil, M. L. *Teaching and learning vocabulary.* Mahwah: NJ.

Biemiller, A. & Slonim, N. (2001). Estimating root word vocabulary growth in normative and advantaged populations: Evidence for a common sequence of vocabulary acquisition. *Journal of Educational Psychology, 93,* 498-520.

Blachowicz, C. (1986). *Making connections: Alternatives to the vocabulary notebook. Journal of Reading, 29,* 643-649.

Blachowicz, C. & Fisher, P. (2000). Vocabulary instruction. In M.L. Kamil, P.B. Mosenthal, P.D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 503-523). Mahwah, NJ: Erlbaum.

Blachowicz, C. & Fisher, P. (2002). *Teaching vocabulary in all classrooms.* Upper Saddle River, NJ: Merrill Prentice Hall.

Blachowicz, C. & Fisher, P. (2004). Vocabulary lessons. *Educational Leadership, 61,* 66-69.

Blachowicz, C., Fisher, P., Ogle, D. & Watts-Taffe, S. (2006). Vocabulary: Questions from the classroom. *Reading Research Quarterly, 41,* 524-539.

Blachowicz, C., & Lee, J. (1991). Vocabulary development in the whole literacy classroom. *The Reading Teacher, 45,* 188-195.

Bloom, B.S. (1956). *Taxonomy of educational objectives, handbook I: The cognitive domain.* New York: Guilford Press.

Bos, C.S. & Anders, P.L. (1990). Effects of interactive vocabulary instruction on the vocabulary learning and reading comprehension of junior-high learning disabled students. *Learning Disability Quarterly, 13,* 31-42.

Boscolo, P., & Mason, L. (2003). Topic knowledge, text coherence, and interest: How they interact in learning from instructional texts. *The Journal of Experimental Education, 71,* 126-148.

Brett, A., Rothlein, L. & Hurley, M. (1996). Vocabulary acquisition from listening to stories and explanations of target words. *The Elementary School Journal, 96,* 415-422.

Brewer, W. F., & Treyens, J. C. (1981). Role of schemata in memory for places. *Cognitive Psychology, 13,* 207-230.

Broaddus, K. & Ivey, G. (2002). Taking away the struggle to read in the middle grades. *Middle School Journal, 34,* 5-11.

Bromley, K. (2007). Nine things every teacher should know about words and vocabulary instruction. *Journal of Adolescent and Adult Literacy, 50,* 528-537.

Calfee, R.C. & Drum, P.A. (1978). Learning to read: Theory, research, and practice. *Curriculum Inquiry, 8,* 183-249.

Carey, S. (1978). Semantic development: The state of the art. In E. Warner & L.R. Gleitman (Eds.), *Language acquisition: The state of the art* (pp. 345-489). Cambridge, England: Cambridge University Press.

Carlisle, J.F., Fleming, J.E., & Gudbrandsen, B. (2000). Incidental word learning in science class. *Contemporary Educational Psychology, 25,* 184-211.

Carr, E. & Wixson, K.K. (1986). Guidelines for evaluating vocabulary instruction. *Journal of Reading, 29,* 588-595.

Carroll, J.B. (1964). Words, meanings, and concept. *Harvard Educational Review, 34*(2), 178-202.

Cassidy, J. & Cassidy, D. (2008). What's hot for 2008. *Reading Today, 25,* 10-11.

Channel, J. (1981). Applying semantic theory to vocabulary teaching. *English Language Teaching, 35,* 115-122.

Cronbach, L.J. (1942). An analysis of techniques for systematic vocabulary testing. *Journal of Educational Research, 36,* 206-217.

Cunningham, A.E., & Stanovich, K.E. (1997). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology, 33*(6), 934-945.

Curtis, M.E. (1987). Vocabulary testing and vocabulary instruction. In M.G. McKeown & M.E. Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 37-51). Hillsdale, NJ: Erlbaum

Curtis, M.E. & Longo, A.M. (2001, November). Teaching vocabulary to adolescents to improve comprehension. *Reading Online 5*(4). Available: http://www.readingonline.org/articles/art_index.asp?HREFcurtis/index.html.

Dale, E. (1965). Vocabulary measurement: Techniques and major findings. *Elementary English, 42,* 895-901, 948.

Daneman, M. (1991). Individual differences in reading skills. In R. Barr, M. Kamil, P. Mosenthal, & P. Pearson (Eds.), *Handbook of reading research* (Vol.2, pp. 512-538). White Plains, NY: Longman.

Davis, F.B. (1944). Fundamental factors in reading comprehension, *Psychometrika, 9,* 185-197.

Davis, F.B. (1968). Research on comprehension in reading. *Reading Research Quarterly, 3,* 499-545.

Davis, F.B. (1972). Psychometric research on comprehension in reading. *Reading Research Quarterly, 7,* 628-678.

Dole, J.A., Sloan, C., & Trathen, W. (1995). Teaching vocabulary within the context of literature. *Journal of Reading, 38,* 452-460.

Drum, P.A., & Konopak, B.C. (1987). Learning word meanings from written context. In M.G. McKeown & M.E. Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 73-87). Hillsdale, NJ: Erlbaum

Duin, A.H. & Graves, M.F. (1988). Teaching vocabulary as a writing prompt. *Journal of Reading, 32,* 204-212.

Duin, A.H. & Graves, M.F. (1987). Intensive vocabulary instruction as a prewriting technique. *Reading Research Quarterly, 22,* 311-330.

Duin, A.H. & Graves, M.F. (1986). Effects of vocabulary instruction used as a prewriting technique. *Journal of Research and Development in Education, 20,* 7-13.

Dunston, P.J. (1992). A critique of graphic organizer research. *Reading Research and Instruction, 31*(2), 57-65.

Durkin, D. (1979). What classroom observations reveal about reading instruction. *Reading Research Quarterly, 14,* 481-533.

Eeds, M., & Cockrum, W.A. (1985). Teaching word meanings by expanding schemata vs. Dictionary work vs. Reading in context. *Journal of Reading, 28,* 492-497.

Flanigan, K. & Greenwood, S.C. (2007). Effective content vocabulary instruction in the middle: Matching students, purposes, words, and strategies. *Journal of Adolescent and Adult Literacy, 51,* 26-238.

Foil, C.R. & Alber, S.R. (2002). Fun and effective ways to build your students' vocabulary. *Intervention in School and Clinic, 37,* 131-139.

Foorman, B., Seals, L., Anthony, J., & Pollard-Durodola, S. (2003). A vocabulary enrichment program for third and fourth grade African-American students: Description, implementation and impact. In B. Foorman (Ed.), *Preventing and treating reading disabilities: Bringing science to scale* (pp. 419-441). Timonium, MD: York Press.

Frayer, D.A., Frederick, W.C. & Klausmeier, H.J. (1969). *A schema for testing the level of concept mastery* (Technical Report No. 16). Madison, WI: University of Wisconsin Research and Development Center for Cognitive Learning.

Gallagher, K. (2009). *Readicide: How schools are killing reading.* New York: Stenhouse.

Gillet, J.W. & Temple, C. (1982). *Understanding reading problems: Assessment and instruction.* Boston, MA: Little, Brown.

Graves, M.F. (1984). Selecting vocabulary to teach in the intermediate and secondary grades. In J. Flood (Ed.), *Promoting reading comprehension* (pp. 245-260). Newark, DE: International Reading Association.

Graves, M.F. (1987). The roles of instruction in fostering vocabulary development. In M.G. McKeown & M.E. Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 165-184). Hillsdale, NJ: Erlbaum

Graves, M.F. (2000). A vocabulary program to complement and bolster a middle-grade comprehension program. In B.M. Taylor, M.F. Graves, & P. Van Den Broek (Eds.), *Reading for meaning: Fostering comprehension in the middle grades* (pp. 116-135). Newark, DE: International Reading Association.

Graves, M.F. & Watts-Taffe, S.M. (2002). The place of word consciousness in a research-based vocabulary program. In A. Farstrup & S. Samuels (Eds.), *What research has to say about reading instruction* (pp. 140-165). Newark, DE: International Reading Association.

Greenwood, S.C. (2002). Making words matter: Vocabulary study in the content areas. *The Clearing House, 75,* 258-263.

Hart, B. & Risley, T.R. (1995). *Meaningful differences in the everyday experience of young American children.* Baltimore: Brookes.

Hayes, D.A., & Tierney, R.J. (1982). Developing readers' knowledge through analogy. *Reading Research Quarterly, 17,* 256-280.

Herman, P.A. & Dole, J. (1988). Theory and practice in vocabulary learning and instruction. *The Elementary School Journal, 89,* 43-54.

Hinton, S.E. (1967). *The Outsiders.* New York, New York: Viking Press.

Hunt, E.J. (1978). Mechanics of verbal ability. *Psychological Review, 85,* 109-130.

Jenkins, J.R., Matlock, B., & Slocum, T.A. (1989). Two approaches to vocabulary instruction: The teaching of individual word meanings and practice in deriving word meaning from context. *Reading Research Quarterly, 24,* 215-235.

Jenkins, J.R., Stein, M.L., & Wysocki, K. (1984). Learning vocabulary through reading. *American Educational Research Journal, 21,* 667-687.

Jitendra, A.K., Edwards, L.L., Sacks, G., & Jacobson, L.A. (2004). What research says about vocabulary instruction for students with learning disabilities. *Exceptional Children, 70*(3), 299-322.

Johnson, D.D., & Pearson, P.D. (1978). *Teaching reading vocabulary.* New York: Holt.

Juel, C., & Deffes, R. (2004). Making words stick. *Educational Leadership, 61*(6), 30-34.

Kamil, M.L., & Hiebert, E.H. (2005). The teaching and learning of vocabulary: Perspectives and persistent issues. In E.H. Hiebert & M.L. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research to practice (*pp. 1-23). Mahwah, NJ: Erbaum.

Kuhn, M.R. & Stahl, S.A. (1998). Teaching children to learn word meanings from context: A synthesis and some questions. *Journal of Literacy Research, 30,* 119-138.

LaFlamme, J.G. (1997). The effect of the multiple exposure vocabulary method and the target reading/writing strategy of test scores. *Journal of Adolescent & Adult Literacy, 40,* 372-381.

Levin, J.R. (1983). Pictorial strategies for school learning. In M. Pressley and J.R. Levin (Eds.), *Cognitive strategy research: Educational applications* (pp. 213-237). New York: Springer-Verlag.

Levin, J. R., Levin, M. E., Cotton, J. W., Bartholemew, S., Hasty, K., Hughes, C. & Townsend, E. A. (1990). What do college students learn from and about an innovative learning strategy?. In S. A. Biggs and T. Bullock (Eds.) *Innovative Learning Strategies* (Ninth Yearbook, 19891990). Newark, DE: International Reading Association.

Levin, J. R., Levin, M. E., Glasman, L. & Nordwell, M. B. (1992). Mnemonic vocabulary instruction: Additional effectiveness evidence. *Contemporary Educational Psychology, 17,* 156-174.

Levin, J. R., McCormick, C. B., Miller, G. E., Berry, J. K. & Pressley, M. (1982). Mnemonic versus nonmnemonic vocabulary-learning strategies for children. *American Educational Research Journal, 19*(1), 121-136.

Lowry, L. (1993). *The Giver.* New York: Bantam Press.

Manzo, A., Manzo, U., & Thomas, M. (2006). Rationale for systematic vocabulary development: Antidote for state mandates. *Journal for Adolescent & Adult Literacy, 49,* 610-619.

Maria, K. (1990). *Reading comprehension instruction: Issues and strategies.* Parkton, MD: York Press.

Marzano, R.J., & Pickering, D.J. (2005). *Building Academic Vocabulary.* Alexandria, VA: Association for Supervision of Curriculum and Development.

Mastropieri, M.A., Scruggs, T.E., Levin, J.R., Gaffney, J., & McLoone, B. (1985). Mnemonic vocabulary instruction for learning disabled students. *Learning Disability Quarterly, 8,* 57-63.

Mastropieri, M.A., Scruggs, T.E., & Mushinski-Fulk, B.J. (1990). Teaching abstract vocabulary with the Keyword method: Effects on recall and comprehension. *Journal of Learning Disabilities, 23,* 92-107.

McKeown, M.G. (1993). Creating effective definitions for young word learners. Reading *Research Quarterly, 28,* 17-31.

McKeown, M.G. & Beck, I.L. (1988). Learning vocabulary: Different ways for different goals. *Remedial and Special Education, 9,* 42-52.

McKeown, M.G. & Beck, I.L. (2004). Direct and rich vocabulary instruction. In J.F. Baumann and E.J. Kame'enui (Eds.), *Vocabulary instruction: Research to practice.* New York, NY: Guilford.

McKeown, M.G., Beck, I.L., Omanson, R.C., & Pope, M.T. (1985). Some effects of the nature and frequency of vocabulary instruction on the knowledge and use of words. *Reading Research Quarterly, 20,* 522-535.

McKeown, M.G., & Curtis, M.E. (1987). *The nature of vocabulary acquisition.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Merriam, S.B. (2002). Introduction to qualitative research. In S.B. Merriam (Ed.), *Qualitative research in practice: Examples for discussion and analysis.* San Francisco, CA: Jossey-Bass.

Miller, G.A., & Gildea, P.M. (1987). How children learn words. *Scientific American, 252*(3), 94-99.

Monroe, E.E., & Pendergrass, M. (1997). Effects of mathematical vocabulary on fourth grade students. *Reading Improvement, 34*,(3), 120-132.

Moore, D.W., & Readence, J.E. (1984). A quantitative and qualitative review of graphic organizer research. *Reading Research Quarterly, 78,* 11-17.

Nagy, W. (1988). *Teaching vocabulary to improve reading comprehension.* Newark, DE: International Reading Association.

Nagy, W. (2007). Metalinguistic awareness and the vocabulary-comprehension connection. In R.K. Wagner, A.E. Muse, & K.R. Tannenbaum, (Eds.), *Vocabulary acquisition: Implications for reading comprehension.* New York, NY: Guilford Press.

Nagy, W. & Anderson, R.C. (1984). How many words are there in printed English? *Reading Research Quarterly, 20,* 233-253.

Nagy, W., Anderson, R.C., & Herman, P.A. (1987). Learning word meanings from context during normal reading. *American Educational Research Journal, 24*, 237-270.

Nagy, W. & Herman, P.A. (1987). Breadth and depth of vocabulary knowledge: Implications for acquisition and instruction. In M.G. McKeown & M.E. Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 19-35). Hillsdale, NJ: Erlbaum

Nagy, W., Herman, P.A. & Anderson, R.C. (1985). Learning words from context. *Reading Research Quarterly, 20,* 233-253.

Nagy, W., & Scott, J. (2000). Vocabulary processes. In M.L. Kamil, P.B. Mosenthal, P.D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 269-284). Mahwah, NJ: Erlbaum.

Nation, P. (1990). Teaching and learning vocabulary. *New York: Newbury House.*

National Center on Education and the Economy (NCEE). (2003). *Reading Monograph Series—Secondary-Vocabulary.* NCEE: Washington, DC: National Center on Education and the Economy.

National Reading Panel. (2000). *Teaching children to read; An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* Washington, DC: National Institute of Child Health and Human Development.

Nist, S.L., & Olejnik, S. (1995). The role of context and dictionary definitions on varying levels of word knowledge. *Reading Research Quarterly, 30,* 173-193.

Pany, D., Jenkins, J.R., & Schreck, J. (1982). Vocabulary instruction: Effects on word knowledge and reading comprehension. *Learning Disability Quarterly, 5,* 202-215.

Pearson, P.D., Barr, R., Kamil, M.L. & Mosenthal, P. (Eds.). (1984). *Handbook of reading research.* New York: Longman.

Pearson, P.D., Hiebert, E.H., & Kamil, M.L. (2007). Vocabulary assessment: What we know and what we need to learn. *Reading Research Quarterly, 42,* 282-296.

Peters, C. (1974). A comparison between the Frayer model of concept attainment and the textbook approach of concept attainment. *Reading Research Quarterly, 2,* 252-254.

Petty, W., Herold, C., & Stoll, E. (1968). The state of the knowledge of the teaching of vocabulary (Cooperative Research Project No. 3128). Champaign, IL: National Council of Teachers of English.

Phillips, D.C., Foote, C.J., & Harper, L.J. (2008). Strategies for effective vocabulary instruction. *Reading Improvement, 45,* 62-68.

Pressley, M. (2002). Comprehension instruction: What makes sense now, what might make sense soon. *Reading Online, 5*(2), Available: http://www.readingonline.org/articles/art_index.asp?HREF=/articles/handbook/pressley/index.html.

Pressley, M., Disney, L. & Anderson, K. (2007). Landmark vocabulary instructional research and the vocabulary instructional research that makes sense now. In R.K. Wagner, A.E. Muse, & K.R. Tannenbaum, (Eds.), *Vocabulary acquisition: Implications for reading comprehension.* New York, NY: Guilford Press.

Pressley, M. & Harris, K.R. (1994). Increasing the quality of educational intervention research. *Educational Psychology Review, 6,* 191-214.

Pressley, M. Levin, J. R., Kuiper, N. A., Bryant, S. L. & Michener, S. (1982). Mnemonic versus nonmnemonic vocabulary-learning strategies: Additional comparisons. *Journal of Educational Psychology, 74*(5), 693-707.

Pressley, M. Levin, J.R., & McDaniel, M.A. (1987). Remembering versus inferring what a word means: Mnemonic and contextual approaches. In M.G. McKeown & M.E.

Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 107-128). Hillsdale, NJ Erlbaum

Raskin, E. (1979). *The Westing Game.* Boston, MA: E.P. Dutton.

Rekrut, M.D. (1996). Effective vocabulary instruction. *High School Journal, 80,* 66-74.

Rice, G. (1994). Need for explanations in graphic organizer research. *Reading Psychology: An International Quarterly, 15,* 39-67.

Robb, L. (2000). *Teaching reading in middle school.* New York: Scholastic.

Robbins, A. (1991). *Awaken the giant within.* New York, NY: Simon & Schuster.

Robbins, C. & Ehri, L. C. (1994).Reading storybooks to kindergartners helps them learn new vocabulary words. *Journal of Educational Psychology, 86*(1), 54-64.

Rosenbaum, C. (2001). A word map for middle school: A tool for effective vocabulary instruction. *Journal of Adolescent and Adult Literacy, 45,* 44-49.

Rupley, W.H., Logan, J.W., & Nichols, W.D. (1999). Vocabulary instruction in a balanced reading program. *The Reading Teacher, 52,* 336-346.

Samuels, S.J. (1978). *What research has to say about reading instruction.* Newark, DE: International Reading Association.

Schatschneider, C., Harrell, E.R., & Buck, J. (2007). An individual-differences approach to the study of reading comprehension. In R.K. Wagner, A.E. Muse, & K.R. Tannenbaum, (Eds.), *Vocabulary acquisition: Implications for reading comprehension.* New York, NY: Guilford Press.

Schatz, E.K. & Baldwin, R.S. (1986). Context clues are unreliable predictors of word meanings. *Reading Research Quarterly, 21,* 439-453.

Scott, J.A., Jones, A., Blackstone, T., Cross, S., Skobel, B. & Hayes, E. (1994). *A gift of words: Creating a context for rich language use.* Microworkshop presented at the 39th Annual Convention of the International Reading Association, New Orleans, LA.

Singer, H.A. (1965). A developmental model of speed of reading in grades 3 through 6. *Reading Research Quarterly, 1,* 29-49.

Sobolak, M.J. (2008). *Effects of amount of vocabulary instruction for low-socioeconomic students.* Unpublild doctoral dissertation, University of Pennsylvania.

Spearitt, D. (1972). Identification of subskills of reading comprehension by maximum likelihood factor analysis. *Reading Research Quarterly, 8*, 92-111.

Stahl, S. (1999). *Vocabulary Development.* From the series: From reading research to practice: a series for teachers. Ed.: J.S. Chall. University of Georgia.

Stahl, S., & Fairbanks, M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research, 56*, 72-110.

Stahl, S.A. & Stahl, K. A. D. (2004). Word wizards all! In J.F. Baumann, & E.J. Kame'enui (Eds.),*Vocabulary Instruction: Research to Practice.* New York: Guildford Press.

Stahl, S.A. & Shiel, T.G. (1999). *Teaching meaning vocabulary: productive approaches for poor readers. Read all about it! Readings to inform the profession.* Sacramento: California State Board of Education.

Stanovich, K. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21,* 360-407.

Sternberg, R.J., (1987). Most vocabulary is learned from context. In M.G. McKeown & M.E. Curtis (Eds.), *The nature of vocabulary acquisition.* Hillsdale, NJ: Erlbaum.

Thibodeau, A.L. (1963). A study of the effects of elaborative thinking and vocabulary enrichment exercises on written composition. Unpublild doctoral dissertation. Boston University.

Thorndike, E.L. (1921). *Is' word book.* New York: Teachers College Press.

Tierney, R.J. & Readence, J.E. (2005). *Reading strategies and practices: A compendium (6th Ed.).* Boston, MA: Allyn & Bacon.

Van Den Broek, P. & Kremer, K.E. (2000). The mind in action: What it means to comprehend during reading. In B.M. Taylor, M.F. Graves, & P. Van Den Broek (Eds.), *Reading for meaning: Fostering comprehension in the middle grades.* New York: Teachers College.

Wagner, R.K., Muse, A.E., & Tannenbaum, K.R. (2007). Promising avenues for better understanding implications of vocabulary development for reading comprehension. In R.K. Wagner, A.E. Muse, & K.R. Tannenbaum (Eds.), *Vocabulary acquisition: Implications for reading comprehension.* New York, NY: Guilford Press.

Watts, S.M. (1995). Vocabulary instruction during reading lessons in six classrooms. *Journal of Reading Behavior, 27,* 399-424.

Whipple, G. (1925). *The twenty-fourth yearbook of the national society for the study of education: Report of the national committee on reading.* Bloomington, IL: Public School Publishing Company.

White, T.G., Graves, M.F., & Slater, W.H. (1990). Development of recognition and reading vocabularies in diverse sociolinguistic and educational settings. *Journal of Educational Psychology, 82,* 281-290.

Wilson, P.T. & Anderson, R.C. (1986). What they don't know will hurt them: The role of prior knowledge in comprehension. In Orasanu, J. (Ed.). *Reading comprehension: From research to practice.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Zimmerman, C.B. (1997). Do reading and interactive vocabulary instruction make a difference? An empirical study. *Tesol Quarterly, 31,* 121-139.

Appendix A

List of 45Terms for The Outsiders

ornery
gingerly
scatterbrained
incredulous
aloofness
unfathomable
nonchalantly
reckless
glaring
bicker
quivering
gallant
unceasing
apprehensive
rueful
bewildering
premonition
hue
eluded
vital
doggedly
sympathetic
cunning
subsides
indignant
bawl
hysterics
mimic
contemptuous
radiates
critical
hoodlum
abrupt
aimless
agony
grimace
superiority
menace
vague
acquitted
veer
delirious

List of 30 terms for The Giver

apprehensive
chastisement
petulance
phenomenon
assuage
imploring
solace
transgression
distraught
somber
anguish
conspicuous
palpable
pondered
excruciating
exuberant
remorse
ruefully
tentatively
pondered
obsolete
relinquiId
mutilated
assimilated
ominous
warily
relentless
obscured
lethargy

List of 39 terms for The Westing Game

envy
heir
sappy
contempt
woefully
averted
fanatic
hobbled
chronic
interrogate
aviator
pompous
culprit
jittery
obsequious
vengeance
mourning
intercede
receding
defiant
plush
paranoia
grimaced
despondent
gaunt
warped
gruesome
invalid
baffled
audible
coyly
ample
relinquish
putrid
meager
morbid
loath
legitimate

Appendix B

Name _____

Vocabulary Test for The Westing Game

Match the following vocabulary words to the correct definition.

1. ample _____
2. relinquish _____
3. putrid _____
4. meager _____
5. morbid _____
6. loath _____
7. fanatic _____
8. legitimate _____
9. chronic _____
10. interrogate _____

A. gloomy, interest in death
B. hate
C. extremist
D. believable
E. give away
F. constant
G. plenty
H. small
I. decaying
J. question

Multiple Choice

Circle the letter of the best definition for the word.

11. An aviator is

a. someone who flies a plane
b. someone who studies birds
c. someone who is in nursing school
d. none of the above

12. If someone is pompous they are

a. conceited
b. generous
c. righteous
d. none of the above

13. If someone is distraught they are

a. ecstatic
b. baffled
c. thrilled
d. none of the above

14. When a person feels petrified, they feel

a. curious
b. scared
c. overwhelmed
d. none of the above

15. If a person acts in an obsequious manner, they

a. are underhanded
b. are submissive
c. are strict
d. none of the above

16. If a person says, "Vengeance is mine," what they mean is

a. They want to help someone
b. They want to get revenge
c. They want to end their pain
d. none of the above

17. If a person acts coyly, they are

a. quiet, shy
b. loud, obnoxious
c. spirited, engaged
d. none of the above

18. To intercede means

a. to overlap
b. to get involved
c. to run away
d. none of the above

19. If something is audible, it is

a. able to be read
b. able to be heard
c. able to be seen
d. none of the above

20. If someone acts defiantly, they

a. are rebellious

b. are compliant

c. are willing

d. none of the above

Write a definition for the following words:

21. interceded-

22. fanatic-

23. paranoia-

24. derisive-

25. despondent-

Write an antonym (opposite word or phrase) for the following words:

26. gaunt-

27. warped-

28. gruesome-

29. invalid-

30. baffled-