

**Effects of Teaching Vocabulary Using Various Forms of Rich Instruction in  
Thematically Versus Randomly Grouped Sets**

by

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A dissertation submitted to the Graduate Faculty of  
Auburn University  
in partial fulfillment of the  
requirements for the Degree of  
Doctor of Philosophy

Auburn, Alabama  
May 9, 2011

Keywords: vocabulary, thematic, semantic, instruction,  
rich vocabulary, word learning

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## Abstract

This study investigated the effects of teaching vocabulary words in thematically versus randomly grouped sets in the context of various forms of rich vocabulary instruction. A group of 62 fourth graders was taught 49 selected words. There were 19 students in the Frayer control group, 21 students in the Rich Mixed group and 21 in the Rich Thematic group. Each group received a form of rich vocabulary instruction. The Rich Mixed group received instruction that focused on student friendly definitions, examples and non-examples, text reading, and student discussion about word use. The Rich Thematic group received the same instruction. The Frayer control group's instruction was based on finding synonyms and antonyms and using each word in a sentence. Statistical analysis revealed that learning words in thematically grouped sets in the context of rich vocabulary instruction did not yield a statistically significant difference over learning words in a randomly grouped set in the context of rich vocabulary instruction, although students who learned words in thematically grouped sets did slightly better. All three groups showed significant growth from pretest to posttest with rich instruction and words taught randomly and thematically. The major finding was that the Rich Thematic instruction group had scores that were statistically significantly greater than the combined random instruction group.

The results indicated that teaching words in randomly grouped and thematically grouped sets is effective when both approaches are used in the context of rich vocabulary

instruction. These results contradict findings from other studies indicating that presenting words in related sets causes interference with learning words. This study adds evidence to the body of research literature showing that rich vocabulary instruction with word learning activities in which students make connections to other words and concepts does facilitate vocabulary growth. The conclusion is that rich vocabulary instruction should be a part of vocabulary instruction. The added component of grouping words for study into thematic groups can be an effective approach to teaching vocabulary words. However, the same results might be achieved without thematically grouping words. The main factor in effective vocabulary instruction is that the instruction is rich.

## Acknowledgements

The author thanks Dr. Edna Brabham for her guidance and support throughout the process of this study. Special thanks also go to Dr. Bruce Murray who has been so helpful with laying the foundation for this study. The author would like to extend special thanks to Dr. Sean Forbes for pushing me to strive for excellence.

The author would also like to thank his entire family and church family for their prayers and unwavering encouragement. And special thanks go to Mrs. Alexis Smith for all of her dedication to assisting in the formatting of this document.

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## CHAPTER I. INTRODUCTION

Authors of the National Reading Panel report (National Institute of Child Health and Human Development [NICHD], 2000) concluded that existing research on vocabulary instruction was very limited, and they stated that there was a need for vocabulary research in authentic school contexts with real teachers under real conditions. Based on their review of experimental and quasi-experimental studies of word learning, the Panel offered implications for practice such as: (a) Vocabulary should be taught directly and indirectly using repetition and multiple exposures to target words; (b) Instruction on words and meanings should take place in rich contexts that include active engagement in learning tasks; and (c) Dependence on a single vocabulary instruction method will not result in optimal learning.

The study and results reported in this dissertation examined the effects of three different formats for vocabulary instruction on students' word learning. This study was designed to follow up on the National Reading Panel's (NICHD, 2000) indirect and direct rich vocabulary instruction in authentic classroom settings. This research was done to provide practical information that teachers can use to make the most out of time they allocated for teaching vocabulary. This chapter presents a brief overview of the research on vocabulary and questions about word teaching and learning that are addressed in this dissertation.



One of the studies reviewed by the National Reading Panel was conducted by McKeown, Beck, Omanson, and Pople (1985), who found that rich contexts for vocabulary instruction significantly improved students' comprehension of texts containing taught words. Rich vocabulary learning contexts included explanations of the meanings of words along with thought provoking, playful, and interactive follow-up activities in which students engaged in conversations and writings that reuse the words. The vocabulary words in their study and others conducted by McKeown, Beck, and colleagues in the 1980s (e.g., Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983) were words taught in thematically related sets. These studies were not designed to empirically test the effectiveness of teaching words in thematic sets. In a more recent study, Durso and Coggins (1991) explored the effects of semantic organization on vocabulary acquisition and found that organizing vocabulary in sets based on meaning facilitated performance when compared with study of the same words presented in unorganized groups. A year later, Stahl, Burdge, Machuga, and Stecyk (1992) reported results indicating that teaching words in semantic groups did not appear to have an appreciably greater effect on vocabulary learning than teaching words in random groups. In these two studies with seemingly conflicting results, the effects of thematic or semantic organization may have been influenced by the richness of instruction. The study by Durso and Coggins (1991) was not done in the context of rich instruction. In the study conducted by Stahl et al. (1992), the overall instruction was rich and consisted of varied activities that included both definitional and contextual information and a great amount of classroom interactions with words. It is possible that richness of instruction in the study conducted by Stahl et al. (1992) limited the effect of

the thematic or semantic grouping of words for instruction and may even have rendered it unnecessary.

Further evidence that challenges the positive results of teaching words in semantically related sets comes from second language research conducted by Tinkham (1993). Tinkham's findings strongly suggested that students had more difficulty learning new words presented to them in semantic clusters than they did learning semantically unrelated words. In additional studies of second language vocabulary acquisition conducted by Erten and Tekin (2008) and Waring (1997), researchers tentatively concluded that presenting new vocabulary belonging to the same semantic set at the same time may cause interference due to cross-association and may even hinder vocabulary learning. All three of these studies, however, used artificial or pseudo words and word picture matches instead of definitions and discussion of real words and meanings.

Two more recent second language studies have also produced mixed results on effects of teaching words in semantically related versus unrelated sets. Hashemi and Gowdasiaei (2005) reported evidence showing that students taught with both lexically related and semantically unrelated word instruction made significant gains in their vocabulary knowledge. However, lexical set students reached a significantly higher level of vocabulary knowledge than peers taught the same words in semantically unrelated sets. Findings from second language study by Tinkham (1997) corroborated those from his earlier study (1993) and provided strong and consistent evidence that semantic clusters of words were learned with more difficulty than unrelated words taught in sets.

The conflicting results on effects of teaching words in semantic sets clearly call for further research in this area. Only a limited number of studies outside of second

language research (Durso & Coggins, 1991; Stahl et al. 1992) have specifically examined whether thematic or semantic groupings of words produce significantly different effects than random groupings of words on vocabulary learning. Even fewer studies (Stahl et al. 1992; Waring, 1997) have investigated effects of thematic or semantic grouping of words versus the random grouping of words in the context of rich vocabulary instruction. The design and results of these studies will be discussed in detail in the literature review presented in the next chapter of this dissertation.

Even this brief summary of results shows that additional research on teaching words in semantically or thematically related sets is needed to inform teaching practice. For very practical reasons, teachers need to know if grouping words thematically or semantically is worth their time especially if they are already providing rich vocabulary instruction that may make these extra efforts unnecessary. This is very important because classroom teachers have schedules with very limited time for offering instruction on all the skills they are required to teach. Teachers need to know if there are classroom practices that will allow them to teach vocabulary more effectively and efficiently in a reasonable period of time.

The results reported in this dissertation contribute to the existing body of research on vocabulary instruction by examining the effects of teaching thematically grouped words in the context of rich vocabulary instruction versus the effects of teaching the same words under the same conditions in unorganized, randomly grouped sets. In addition to investigating vocabulary learning for students in the two treatment conditions with different approaches to grouping words for instruction, this study included a control group that received the vocabulary instruction based on Frayer's in-depth study of each

word's definition and searches for synonyms and antonyms (Frayer, Frederick & Kalasmeier, 1969). The Frayer Model provided the word study format typically implemented in classrooms at this school because it was a part of the basal reading curriculum adopted by the system.

### **Statement of the Research Problem**

Research conducted by McKeown, Beck and colleagues in the 1980s produced significant gains in students' vocabulary acquisition by including extended time for vocabulary study and multiple exposures to words in a variety of instructional activities. These researchers labeled the characteristics of their approach to effective word work as rich vocabulary instruction. Another characteristic of word work in the studies by McKeown, Beck and colleagues in the 1980's was grouping words based on themes. The success of this approach led to the assumption that the grouping of words thematically, semantically, or according to other common meaning-based elements will facilitate vocabulary growth (Bauman & Kame'enui, 2004; Blachowicz & Fisher, 2002). However, there is not strong and consistent research evidence to support grouping words according to theme or meaning or to show that teaching in semantically grouped sets significantly increases vocabulary growth. In the studies done by McKeown, Beck, and colleagues, effects of thematically grouping the words taught were not examined independently of the other components of their rich vocabulary instruction.

### **Purpose of the Study**

The purpose of this study was to determine the effects of teaching or not teaching thematically grouped words within the context of rich vocabulary instruction. There are studies that support teaching words with meaning relatedness in sets (Durso & Coggins,

1991; Tinkham, 1997) and other studies that do not support grouping words in meaning-based sets for instruction (Stahl et al. 1992; Waring, 1997). This study adds to the current research on the effectiveness of grouping words in thematically versus randomly grouped sets and compares results for those treatment groups to a control group with word study procedures based on the Frayer Model that were prescribed by the school's reading curriculum.

### **Description of Groups**

The Rich Mixed group studied words presented in random order. The instructional strategies used with this group were generating student-friendly definitions in student-teacher discussions, exploring examples and non-examples of each word, using the words in partner discussions, sharing partner discussions with the whole group, and reading text with the targeted words. The Rich Thematic group was instructed on the same words as the Rich Mixed group. The instruction was the same as the Rich Mixed group also. The only difference in the Rich Mixed and the Rich Thematic groups was that the Rich Thematic group's words were presented in vocabulary lists centered on a common theme. The Frayer control group was also instructed on the same words as the experimental groups. The words for the Frayer group were presented in random order that was the same as the one for the Rich Mixed group. The instruction for the Frayer control group consisted of producing three synonyms and three antonyms for each word, and then the targeted word was used in a sentence.

### **Research Questions**

1. Will fourth graders taught thematically or randomly grouped vocabulary in a context of rich instruction make statistically significant and greater gains from pretest to

posttest on measures of vocabulary targeted for instruction than fourth graders in a control group taught the same words using instruction based on the Frayer Model?

2. To what extent are there statistically significant differences in gains from pretest to posttest for treatment and control groups who receive vocabulary instruction on the same words but differ on whether words are taught in thematically or randomly grouped sets?

### **Statement of Hypotheses**

The following null hypotheses provided the foundation for statistical tests used to analyze the data resulting from this study.

H1: There are no statistically significant differences in pretest to posttest changes in vocabulary scores for the two groups of fourth graders taught thematically or randomly grouped words in the context of rich vocabulary instruction and for fourth graders in a control group with vocabulary instruction based on the Frayer Model.

H2: There are no statistically significant differences in pretest to posttest changes in scores on measures of vocabulary knowledge for treatment and control groups of fourth grade students who receive vocabulary instruction that differ on whether words are taught in thematic or random group sets.

### **Definition of Terms**

*Thematic Grouping:* thematic groups of words are carefully selected for their association with a shared thematic concept. (Tinkham, 1997).

*Semantic Grouping:* semantic grouping of words are related words that fall under the same superordinate concept (Tinkham, 1997).

*Rich Vocabulary Instruction:* direct explanations of the meanings of words along with thought-provoking, playful, and interactive follow-up (Beck, McKeown, & Kucan, 2002).

*Fruyer Model:* A word categorization activity that helps learners to develop their understanding of concepts. Synonyms and antonyms are given for each vocabulary word and each word is used in a sentence. (Bishop & McIntosh, 2009, p. 30).

*Non-rich vocabulary:* vocabulary instruction consisting mainly of copying definitions for words from a dictionary or glossary and trying to memorize those definitions for a test (Beck, McKeown, & Kucan, 2002).

*More Rich Vocabulary Instruction:* vocabulary instruction that has all the components of rich instruction with additional time spent doing them daily and for more days (Beck & McKeown, 2007).

*Schema:* a mental structure that people use to simplify and organize information from the environment. It affects how information is interpreted and used to classify things (Cohen, 1981).

*Semantic Mapping:* connecting schematic relationships that make up concepts. It is the connecting of multiple relations between a concept and the knowledge that is associated with the concept (Pearson & Johnson, 1978).

*Socio-Constructivist Model:* a model of instruction where there are real contexts for learning, where students work to solve real problems while collaborating with each other. There is a lot of peer or group interaction. These groups share their findings with the whole group. This process is designed to promote thoughtfulness in students. At the

end of the process, there is reflection on the learning and some form of evaluation (Vygotsky, 1986).

*Lexical Access:* accessing stored semantic information in the mental lexicon and integrating this information into the proper context (Gooding, 2005).

*Extended Instruction:* directly teaching the meanings of target vocabulary words within the context of story reading. Understanding of target words is extended by providing interactive opportunities to process word meanings deeper by providing opportunities to interact with and discuss target words in varied contexts beyond those in the story (Coyne, McCoach, & Kapp, 2007).

*Embedded Instruction:* providing students with simple definitions of target words when encountered in the story and then reread the sentence and replace the target word with its definition (Coyne et al., 2007).

*Incidental Exposure:* target words are heard three times during story reading, but they are not taught or discussed (Coyne et al., 2007).

### **Scope and Limitations**

The current study was limited to fourth grade students from a school in rural Southeast Alabama. However, the results may have implications for instruction for all fourth grade students in the United States, especially those in similar communities and schools. The results of this study should also provide classroom teachers with more guidance in structuring vocabulary lists and add to the current research on the topic of vocabulary instruction.



### **Significance of the Study**

Vocabulary is a key component in a student's ability to comprehend written texts (NICHD, 2000). There are studies with results indicating that grouping vocabulary words in semantic or thematic sets can have a positive effect on vocabulary learning (Beck et al., 1982). There is also research evidence that supports the effectiveness of rich vocabulary instruction (Beck & McKeown, 2007). The research seems to be clear on the effectiveness of rich vocabulary instruction while research on the effectiveness of using thematically grouped word sets has produced mixed results that are not as conclusive. It is a time consuming process for a teacher to carefully select a group of words that fall under a common theme. Time should not be spent on constructing these lists if there is not a significant advantage given to students during vocabulary instruction. Teachers would certainly want to implement instruction that is rich if it causes gains in word knowledge regardless of how the vocabulary words for study are grouped. These are very important issues to the classroom teacher. Teachers have a limited amount of time to teach all the subject areas they are responsible for teaching in the course of a day. They need to use the most effective and efficient instructional approaches and not spend time pursuing instructional strategies that do not give them a lot of success for the time and effort they have to spend on their implementation.

## CHAPTER II. REVIEW OF LITERATURE

### **Introduction and Theory**

The literature review provided an overview of theory and research covering two main topics: principles of rich vocabulary instruction and the theoretical rationale behind recommendations for teaching vocabulary words in groups that make semantic/thematic relationships apparent to students. The following section presented an introduction of the principles of rich vocabulary instruction. The foundations for these principles were grounded in Socio-Constructivist and Schema Interactive theories of language and cognition. A single schema is a cognitive framework created through experiences with people and events in the world (Ajideh, 2003). Schemata, the plural for schema, are the cognitive organizations of networks connecting those experiences with people and the world. This process of building and connecting schema and schemata uses information from past experiences with knowledge from the present to build mental representations (Bartlett, 1932).

The principles of effective vocabulary instruction supported by Nagy (1988) in *Teaching Vocabulary to Improve Reading Comprehension* were an outgrowth of Schema theory. A general schema for learning vocabulary was finding boundaries of meaning with explanations, examples, and non-examples and then using the targeted word with other words to see relationships between the concept and other known words. The word was also used in a variety of contexts other than its original context. Students were

provided ample opportunities to use these words everyday in their speaking and writing. Nagy (1988) summarized three specific components in vocabulary instruction that are effective for increasing reading comprehension: integrating instructed words with other knowledge; sufficient repetition to make meaning quickly and easily accessible during reading; and instruction that require students to use the words rather than just state the definition of the word.

According to Nagy (1988), the process of integration gave support for teaching semantic and theme-based relationships among words to be taught. Semantic mapping was a suggested activity that promotes teacher-led discussions of how new words relate to other words and concepts familiar to the students. Nagy (1988) summarized a central purpose that semantic mapping serves. It activated prior knowledge by getting students to think about experiences that relate to their own lives and relate them to the theme that is formed by the cluster of words. In using semantic/thematic relationships between words, “any instructional method such as semantic mapping that deals with words in groups based on related meanings or relationships to a common topic should help develop knowledge of relationships among the words being taught” (Nagy, 1988, p. 14). The methods for rich vocabulary instruction that follow put Nagy’s recommendations into action and are organized into four subsections: dealing with teaching words in context, using read-alouds, teaching definitions to help students learn words, and making connections among words and meanings.

### **Principles of Rich Vocabulary Instruction and Characteristics of Rich Vocabularies**

The theoretical foundation for principles of rich vocabulary instruction was based on a Socio-Constructivist model of learning. This model supported the idea that the

individual learner constructs his or her own knowledge based on personal experiences and that instruction should allow the learners to discover knowledge individually and socially through question and answer interactions, real world experiences, and classroom exposure to skills, strategies, and knowledge by teachers who use formal and informal assessments to guide instruction (Powell & Kalina, 2008).

### **Overview of Research**

The National Reading Panel report (NICHHD, 2000) reported implications for vocabulary instruction based on trend data from their review of vocabulary studies. The Panel concluded that vocabulary should be taught both directly and indirectly. In direct instruction students are given definitions or other attributes of words to be learned. They are also given specific procedures for determining meanings of words, or they are given external cues to connect the words with meaning. Indirect instruction exposes students to words through opportunities to do a great deal of reading. Repetition and multiple exposures to vocabulary items are important. This was a trend that was strongly reflected in the database. In accordance with this finding, the Panel noted that extended and rich instruction of vocabulary (applying words to multiple contexts) was superior to less comprehensive methods. Learning in rich contexts is valuable for vocabulary learning and vocabulary tasks should be restructured, such as group learning or revising learning materials when necessary. Vocabulary learning should entail active engagement in learning tasks. When students were engaged in tasks in which they were actively using and learning vocabulary, they had larger gains. Dependence on a single vocabulary instruction method did not result in optimal learning. Effective instructional methods included multimedia aspects of learning, richness of context in which words were to be

learned, active student participation, and numerous exposures to words that learners would be taught. The age and ability effects suggested that different methods may be differentially effective for different individuals. Therefore, dependence on a single method would be a risky course of action.

Teacher practice and beliefs also have provided input into what constitutes rich vocabulary instruction. Brabham and Villaume (2002) identified five general characteristics of rich vocabularies from conversations with teachers, professional readings, and observations of student talk in classrooms. They pointed out first that individuals with rich vocabularies know a lot of words and second that a rich vocabulary embodies and reflects extensive and complex understandings of many different concepts. A third general characteristic of a rich vocabulary was having a deeply rooted, flexible understanding of the concepts that word represents. The fourth feature of a rich vocabulary was a keen ability to use context to tease out important aspects of word meaning and subtle differences in word usage. Finally, a rich vocabulary was fired by a fascination with language that creates disposition and motivation for learning words.

Many of the aforementioned principles for rich vocabulary instruction and characteristics of rich vocabularies were used in the research conducted by McKeown, Beck, and colleagues in the 1980s. In a study by Beck, Perfetti, and McKeown (1982), instructed students gave evidence both of learning word meanings taught by the program and of being able to process instructed words more efficiently in tasks that required text comprehension. The data was reported from 23-matched student pairs, one from the experimental group and one from the control group. These matched pairs were chosen to ensure comparable pretest scores. The instructional activities used in this study were

defining tasks, oral and written production tasks, and tasks that took advantage of the semantic or affective relationships between the target words and previously acquired vocabulary. Specifically the question was if the semantic processes involved in reading comprehension require accuracy (knowing word meanings), fluency (speed of lexical access), and richness (semantic network connections). If so, then attempts to improve reading comprehension by improving vocabulary may influence one, two, or all three of these processing components, and the expected effects of vocabulary training must be measured in ways that allow assessment of which components of word knowledge have been influenced. The purpose of this study was to arrange conditions that would allow observations of effects of vocabulary knowledge on lexical access and reading comprehension. The conditions were intended to improve both accuracy and fluency of semantic processes. It was speculated that the type of instruction provided would also affect the conceptual richness of word meaning.

The participants in the study conducted by Beck, Perfetti, and McKeown (1982) were all the fourth graders in one school in a small, urban public school district. The school's student body was drawn from a low socioeconomic status (SES) area and was about 70% black. One classroom of 27 students was designated as the experimental group. The remaining 39 students, comprising one full fourth-grade and the fourth graders from a third- and fourth-grade combined classroom, were designated as control students. The experimental group received a vocabulary program that included defining, sentence-generation, classification, oral and written production, game-like tasks under timed conditions, and tasks that took advantage of the semantic or affective relationships between the target words and previously acquired vocabulary. The control group

received vocabulary instruction based on the curriculum framework provided in textbooks purchased for the school's language arts program.

Following instruction, participants in the study by Beck, Perfetti, and McKeown (1982) performed tasks designed to require semantic processes ranging from single word semantic decisions to simple sentence verification and memory for connected text. On all these tasks, instructed experimental participants performed at significantly higher levels than control participants matched on pre-instruction vocabulary knowledge and comprehension. Thus, experimental participants gave evidence both of learning significantly more word meanings and of being able to process instructed words more efficiently in tasks that were aimed at measuring comprehension.

A couple of limitations to this study were acknowledged by Beck, Perfetti, and McKeown (1982). The experimental group gains in the Iowa Test of Basic Skills vocabulary and comprehension subtests could have been due to an increased awareness of word meanings, presumably directly fostered by the instructional program, or to a general improvement in academic performance fostered only indirectly by the instructional program. In addition, casual observations were that the teacher of the experimental classroom was enthusiastic about the instructional program. She implemented it with flair and dedication, and it is possible that her teaching would have produced high performance in any domain. Researchers noted that possibilities connected with specific classroom effects versus other vocabulary effects should be tested with further research. Additionally, there was the possibility that participants in the experimental group increased in vocabulary test-taking ability. This explanation would be consistent with their gains on non-instructed words and cannot be ruled out,

especially since a vocabulary test was part of each instructional cycle. The extent to which the sources of the transfer effect lie in general word learning improvement, specific classroom effects, a motivational factor, or increase in vocabulary test-taking ability were identified as important matters for further research.

A replication of this study was conducted a year later by McKeown et al. (1983). In this study, instructed children showed substantial advantage in tasks that measured accuracy of word knowledge, speed of lexical access, and comprehension of stories containing taught words. The components of this successful experimental program included repeated exposure to target words, matching words and definitions, associating a word with context, and comparing and contrasting words to discover relationships between words. This study reports a replication and refinement of the earlier investigation by Beck et al. (1982).

McKeown et al. (1983) hypothesized that vocabulary instruction with the potential to affect reading comprehension must not be limited to instructional strategies that only establish an accurate association between a word and its definition. Instead, instruction needs to consider additional aspects of semantic processing, such as fluent access to word meanings during reading and the richness of semantic network connections available to relate concepts. The researchers pointed out that maximally effective instruction could require frequent and varied encounters with the words being taught in order to positively affect semantic processing. Instruction developed for the original study in 1982 attended directly to three components of semantic processing: accuracy of word knowledge, fluency of lexical access, and richness of semantic networks. In addition, the original study examined two levels of frequency of encounters



with the new words, called *many* and *some*, both of which were considerably greater than is commonly found in vocabulary instruction. In addition, three problems were identified with the story comprehension task used in the 1982 study. The first problem was that the “some words” story was discovered to have a more complex plot structure than the others. Second, the story plots seemed overly contrived due to their construction around a large set of taught words. The third problem was the assessment measure, which was a probed recall. The use of probes to elicit recall may have forced the children to use the probe structure rather than their own structure to generate recall. This may have obscured differences in comprehension that were reflected in children’s ability to construct a plot structure with which to guide recall.

In the replication study, McKeown et al. (1983) included three refinements aimed at solving problems with stories and assessment measures in the original 1982 study. First, the stories were revised to ensure similar plot structures and shortened to contain fewer taught words, thus eliminating the more contrived aspects. Second, probed recall was replaced by a free recall task. Third, an additional measure of comprehension, a set of 25 multiple-choice questions, was added. Participants in this study were fourth-graders in two schools from a small urban public school district. The schools’ served lower SES neighborhoods and were about 70% Black. One fourth-grade class from each school was designated as part of the experimental group. The remaining three fourth-grade classrooms in the two schools were designated as parts of the control group.

Vocabulary instruction in the replication study (McKeown et al., 1983) was successful in enhancing the accuracy of the knowledge of the instructed words, thus confirming a major finding of the original study (Beck et al., 1982). The index of the

accuracy of children's knowledge of the instructed words was the multiple-choice vocabulary test on the meanings of the *many*, *some*, and *none* words given before and after the instruction. The results indicated that on the pretest, both experimental and control groups scored near chance level of .25 on each type of word. On the posttest, however, the experimental children scored higher on the *many* and *some* words (.80 and .71), than did the control children (.32). The instruction was also successful in enhancing lexical access of the instructed words, and thus a second major finding of the original study was replicated. These results indicated that the experimental children had faster categorizing reaction times with the *many* and *some* words than did the control children. The first aspect of comprehension examined was story recall. Both levels of instruction (*many* and *some*) enhanced the recall of stories containing the instructed words. Experimental children's recall of the *many* and *some* stories (.25 and .24 for total story content) was greater than that of the control children's (.11 and .13). The second index of comprehension was answers to multiple-choice questions. The results indicated that the experimental children correctly answered a greater proportion of questions about the *many* and *some* stories (.66 and .58) than did the control children (.42 and .48).

There were two limitations to this study recognized by McKeown et al. (1983). Regarding the frequency of encounters, it was noted that gains obtained by the instructed children held for both *many* and *some* conditions. This was true even though the *many* words had about twice as many encounters as the *some* (at least 10 encounters). Whether even fewer encounters would yield comprehension gains was identified as a question for further study. Moreover, researchers stated that controlling for factors such as individual

learner differences and varying levels of word learning were beyond the scope of this study and important topics of concern for future vocabulary research.

In results from additional investigations, McKeown et al. (1985) reported that rich vocabulary instruction helped students develop comprehensive knowledge of word meanings in various types of contexts that also developed semantic networks for the words they learned. The students could then use these networks to better understand a word's relationship to the context and gather meaning from the context. Again this shows the utility of using a rich form of vocabulary instruction that allows students to make meaning connections among words.

McKeown et al. (1985) designed this study to explore why previous attempts to improve reading comprehension through vocabulary instruction had not been consistently effective. The participants were 70% African American, and they were fourth-graders in four classrooms in three schools from a small urban public school district serving lower SES neighborhoods. Instruction created for this study was a vocabulary intervention designed to teach 24 difficult words in 12 lessons, each approximately 30 minutes in length, over a period of 14 days. Two frequency conditions existed: High, in which six words appeared in 12 encounters and low, in which six words appeared in 4 encounters. Of the three classrooms in which instruction occurred, one class received rich instruction, in which children explored various aspects of word meaning. In this classroom, children were asked to identify the relationship between words, respond to words affectively as well as cognitively, and apply words to various contexts. The second class received extended/rich instruction, which consisted of rich instruction combined with a motivational activity called Word Wizard that promoted students' use of words outside of

vocabulary class. The third class received traditional instruction, in which the activities called for children to make a simple association between each word and its definition or synonym.

McKeown et al. (1985) had outcome measures on tasks of definition knowledge, fluency of access to word meanings, context interpretation, and story comprehension. High frequency yielded better results on all measures. As to type of instruction, extended/rich showed an advantage over rich in fluency of access and story comprehension, while rich showed an advantage over traditional in context interpretation and story comprehension.

McKeown et al. (1985) acknowledged that activities in the extended/rich intervention involved more encounters with the words and raised a question about whether increased frequencies contributed to the advantages shown by this condition. Greater frequency increased performances across the board, while the extended/rich instruction showed advantages only in the semantic decision and story recall, those tasks that exhibited constraints on processing time. The researchers concluded that simply providing a greater number of encounters were not the primary factor in the success of this intervention.

Following up on the work of Beck et al. from the 1980s, Bryant, Goodwin, Bryant, and Higgins (2003) produced a review of research related to vocabulary instruction for students with learning disabilities. In this review, they stated that word-meaning knowledge and reading comprehension are promoted by instruction that actively engages students with memory devices and graphic depictions paired with direct instruction where students have multiple exposures to words across time.

Bryant et al. (2003) also reported that preliminary results suggesting the above-mentioned strategies work well with normally performing students as well. The purpose of Bryant et al. (2003) was to summarize the findings of vocabulary intervention research designed for students with a learning disability and to present implications for vocabulary instruction. The studies reviewed in this article were identified from special education journals from 1978-2003. There was a computer-assisted search conducted on the Psychological Abstract (PSYCLIT) and Educational Resources Information Clearinghouse (ERIC) databases. Participants had to be identified as middle or high school-aged students with an identified learning disability. Articles focusing only on participants who were identified as having mild disability and/or as being at-risk or remedial students were excluded. Finally, articles that involved students with a learning disability and students with other types of disabilities were included only if the results were disaggregated with a learning disability. Articles had to report on intervention studies with the purpose of teaching vocabulary to students with a learning disability. The dependent measure had to focus on the effects of the vocabulary intervention. Studies that included separate measures for vocabulary and reading comprehension were included and only published studies were selected.

There is also evidence that rich vocabulary instruction works well with English language learners. Carlo et al. (2004) found that a challenging curriculum improved the vocabulary acquisition and reading of ELL students. The curriculum consisted of whole group lessons that involved presentation of the English text and target words followed by identifying target words in text whose meanings could be inferred from context. This activity was followed by cloze tasks that employed the target words in the context of

meaningful sentences. The next day's activity involved word association tasks such as identifying synonyms/antonyms in semantic features analysis to chart the presence or absence of features in sets of conceptually related words.

Participants in the study conducted by Carlo et al. (2004) were 254 bilingual and monolingual children from nine fifth-grade classrooms in four schools in California, Virginia, and Massachusetts. The study employed a quasi-experimental design in which classrooms at each site were randomly assigned to the treatment and comparison conditions. This procedure resulted in the assignment of 10 classes to the treatment while 6 classrooms served as comparisons. Students in the comparison classrooms did not receive special instruction other than that normally included in the school curriculum. The intervention consisted of 15 weeks of instruction. Ten to 12 target words were introduced at the beginning of each week. Instruction was delivered for 30-45 minutes four days a week. Every fifth week was devoted to review of the previous four weeks' target words.

A prevailing aspect of rich vocabulary instruction couched in all the strategies that have been mentioned is that rich vocabulary instruction is an extension of the traditional define-the-word-in-a-dictionary approach to vocabulary instruction. Rich vocabulary instruction means that teachers go beyond definitional approaches to word study and spend more time helping students make connections among target words important to comprehension across a variety of texts and subject areas. Beck and McKeown (2007) have conducted a recent study that focused on the amount of time spent on vocabulary instruction. They found that more instruction brings about better results. Extensive rich instruction was provided for all words, but learning occurred at a much lower rate for

those words that got only rich instruction compared to both rich instruction and more rich instruction. More rich instruction was needed for optimal word learning, and even with more instruction, students learned less than 100% of the words targeted for instruction.

In a study conducted by Coyne, McCoach, and Kapp (2007) statistically significant and educationally meaningful differences were found between what researchers labeled extended instruction and incidental exposures and embedded instruction on vocabulary. Word definitions and words taught in context followed by post instruction included reading word-learning activities. Incidental exposure was just that students were exposed to the word during reading. Embedded instruction included simple definitions of words when they were encountered during reading. Incidental exposure resulted in almost no measurable word learning, and embedded instruction produced partial knowledge of word meanings. Extended instruction resulted in more full and complete word knowledge and the students in the extended instruction group also maintained many understandings of word meanings six to eight weeks after instruction without review or practice.

The next section of this literature review examined the effectiveness of individual strategies that comprised the cadre of activities that have been introduced in this discussion of characteristics and components of rich vocabulary instruction. These specific teaching activities or strategies have been proven effective for optimizing vocabulary learning and have been incorporated into the design of this study and included teaching students to use context, teaching vocabulary in read aloud and oral reading performances, developing and using definitions that help students understand and learn word meanings, making connections among synonyms and antonyms, and conceptually

working with semantic/thematic relationships among words. The latter of these components of rich vocabulary instruction, semantic/thematic grouping of words for instruction, were incorporated into the design of this study and comprise a vocabulary program that is not only rich in nature but also has two groups receiving instruction on thematically or randomly grouped words, in order to provide comparisons of degrees of rich vocabulary instruction to an intact control condition with fewer components of rich vocabulary instruction.

### **Words in Context**

Context clues are a part of several basal reading programs and teaching students to use context clues were one of the vocabulary skills assessed in high-stakes tests in various states in the United States. One of the problems with telling students to use context was that natural context clues were not usually that helpful for directing the reader to the meaning of an unfamiliar word (Nagy, 1988; Beck et al., 2002). Beck et al. (2002) cautioned and recommended that:

Because of the unreliability of natural contexts, instruction needs to be presented as a process of figuring out meaning within an individual context, rather than focusing on the product—a word's meaning; when implementing instruction, always start with asking students to explain what is going on in the portion of text being read, and then what the word might mean (p.115).

In spite of the limitations using context to figure out meanings for new words there was ample research to support the effectiveness of deriving word meanings from information in written text. Nagy, Herman, and Anderson (1985) reported that learning from context does take place when using natural texts and natural contexts within the



text, and they also reported that the amount of word learning from narrative texts was the same as that from reading expository texts. In a study by Zahar, Cobb, and Spada (2001), the authors sought to answer questions and concerns about the types of contexts that are conducive to vocabulary learning. They asked if rich, informative contexts facilitate acquisition of word meanings or divert attention from meaning and produce little vocabulary acquisition. Data from this study by Zahar et al. (2001) suggested that students learn words from a variety of context types including those that they labeled as misdirective, nondirective, general, and directive. Instruction in deriving word meaning from context has the potential for adding significantly to students' vocabulary by enhancing a students' ability to learn new words independently (Jenkins, Matlock, & Slocum, 1989).

As Beck et al. (2002) pointed out, the use of context clues by students is something that has to be taught. Students need instruction on specific ways in which to use context to aid them in deriving word meanings for unfamiliar words encountered in texts. Cain (2007) investigated whether or not explanations would facilitate students' ability to analyze story context to derive novel word meanings. The students were asked to explain the meaning of a novel word at the end of each story. The students were to base their answers on how the word was used in the story. One group had to give a rationale for the definition without any feedback from the experimenter or with some prompting from the experimenter. A second group was given feedback first and asked to explain how the experimenter knew the correct answer. The control group was just told whether their answers were right or wrong. They found that in general, all children improved in the quality of their word definitions, but the greatest gains were seen for

children who explained either their own definition or the experimenter's definition. The instruction to explain helped children to focus their attention on what the text actually said and how this related to the word meanings they derived. These results suggest that having students explain how meanings for unknown words relate to context may facilitate word learning.

Teaching words in context has also been reported to yield better gains than teaching words in an isolated definition approach. Nash and Snowling (2006) compared the two approaches and found the following:

Immediately following teaching it appeared that both groups had increased by similar amounts in terms of their knowledge of the taught words, showing that the delivery of both teaching programs was effective. However, after an interval of three months, the context group could express significantly more meanings, specifically, meanings of nouns rather than verbs. This difference emerged due to a decrease in expressive knowledge in the definitions group and a slight increase in the context group and arguably, implies that semantic representations created via the context method were more durable. (p.349)

Swanson and de Glopper (2002) found that teaching students to use context clues does not work as well with low-ability readers as it does with high-ability readers. They pointed out that a specific way of helping low-ability readers learn words is to supply them with considerate texts that provide them with the maximum opportunity to derive word meanings by making context more transparent. In addition, they recommended that the purpose for reading a text is explicitly explained and understood and that the readers

know that the derivation of the meaning of an unknown word can help them meet that purpose.

### **Read-Alouds and Reading Performances**

Storybook reading was very important to the vocabulary development of students in the primary grades and provided a foundation that facilitates word learning in the later grades. Baumann and Kame'enui (2004) stated that "Shared storybook reading involves teachers engaging children in discussion of the story by activating prior knowledge, eliciting responses about story elements, linking story themes to children's own experiences, and facilitating story recall" (p.48). Baumann and Kane'enui also emphasized that read alouds should be far more than exposition and just reading a story to students who are idle recipients of the read aloud. Engaging children in active analysis of word meanings was more effective at promoting their learning of new words than instruction that merely has children relate words to the context of a story.

Vocabulary instruction should target children's word learning at multiple levels. Ultimately, instruction should achieve the objectives of providing children with deep understandings of words important to the texts they are listening to in school and that are representative of academic or literary language used in texts throughout their school years and exposing children to many words of varying difficulty in numerous contexts throughout the school day. Teachers should read books that expose children to many more words than are taught. (Silverman, 2007, p.108)

Further results from Brabham and Lynch-Brown (2002) prompted these researchers to conclude that verbally mediated, interactional and performance reading-aloud styles are more effective for vocabulary acquisition than just reading aloud without

any discussion. Teacher explanations and student discussions were critical and beneficial to students' learning of words and concepts and construction of meaning from texts read aloud in the early elementary grades.

A study by Coyne, Simmons, Kame'enui, and Stoolmiller (2004) presented results that indicated that in comparison to students in the control group, students in the intervention group with lower receptive vocabulary skills demonstrated greater gains in explicitly taught vocabulary words than did students with higher receptive vocabulary. Their findings suggested that the explicit teaching of word meanings within storybook readings may help to narrow, or at least halt, the widening vocabulary gap among students.

Biemiller and Boote (2006) found that a substantial number of word meanings could be learned using repeated oral reading of stories combined with explanations of words and reviews of words explained. In addition, students who followed this process did not forget and lose word meanings even four weeks after instruction. In fact, there were further gains. Finally, this study showed that children could understand word meanings when tested using context sentences that were different from those in the story and used for instruction.

Read alouds were not just for children in the primary grades. Read alouds were also an effective tool for students in the upper elementary grades as well.

Fourth graders can acquire new vocabulary from listening to stories if there is a brief explanation of new words as students encounter them in the stories. Students in this study who heard the stories along with explanations of words learned the meaning of an average of three new words for each of the two books and remembered the meanings of

an average of six new words six weeks later. We did not find that oral presentation of words in the context of a story by itself resulted in increased vocabulary knowledge. (Brett, Rothlein, & Hurley 1996, p.419)

A read-aloud instructional strategy, Text Talk, created and implemented by Beck and McKeown (2001) provided greater details about the procedures a teacher needs to include in read alouds that are effective for teaching vocabulary. According to these researchers, Text Talk resulted in more effective read-aloud experiences and word learning for students if the teacher was aware of the difference between constructing meaning of ideas in a text and simply retrieving information from the text and if the teacher understood the difficulty of the task young children face in gaining meaning from decontextualized language. Beck and McKeown (2001) also found that teachers need to design questions that encourage children to talk about and connect text ideas and then to develop follow-up questions that scaffold comprehension of words and whole texts by helping students meaningfully incorporate their background knowledge and reduce the kind of surface association of knowledge that brings forth a hodgepodge of personal anecdotes. In addition, their results showed that pictures often draw students' attention away and interfere with their processing linguistic content in a text. Thus, teachers must pay attention to the timing and use of pictures and decide when to withhold them until after the text is read. They recommended that teachers take advantage of the sophisticated words found in trade books for children and use them as a source for explicit vocabulary instruction.

Oral reading performances practiced and perfected by students in Readers' Theater events are another instructional approach that has been shown to foster

vocabulary growth because of the components of rich instruction embedded in the activities. Keehn, Harmon, and Shoho (2008) found that students involved in Readers' Theater instruction showed statistically significant gains in vocabulary during six weeks of study compared to a comparison group of like-ability students who received more traditional literary and vocabulary instruction. The components of this approach were high levels of student engagement with the text and multiple exposures to the words as they practiced their parts, listened to others rehearse various roles, and participated in facilitator-led discussions about the authors' uses of the words in context.

### **Helpful Definitions**

Teaching and having students learn rather than copy definitions was useful in vocabulary instruction, but definitions alone could lead to a relatively superficial level of word knowledge. According to Nagy (1988), the first problem with definitional methods of instruction is that many definitions simply are not very good. Definitions that students read in glossaries and dictionaries were also not always appropriate to the selection being read. Even when definitions were accurate, they did not always contain enough information to allow a person to use the word correctly. This was especially true of definitions of words for concepts with which the learner was unfamiliar. Nagy (1988) cautioned that definitions as instructional devices have substantial weaknesses and limitations that must be recognized and corrected.

In planning vocabulary instruction, teachers needed to use techniques that actively involved students with newly introduced words. Learners should not be passive participants. They needed to manipulate words mentally, to see similarities and differences among them, and to consider multiple definitions and shades of meaning.

Students learn that finding meaning doesn't happen before we read, but rather as we read and after we read, reflect, and connect (Greenwood, 2002).

Even low performing students could benefit from direct instruction to improve their ability to define words with greater accuracy and precision (Nippold, 1999). Appropriate activities to facilitate reading and word definitions could be designed. Instruction in reading should have focused on helping students infer the meanings of unfamiliar words they encountered by attending closely to contextual cues that provide hints to meaning. A student who did not know the meaning of a word could be assisted in learning the meaning by analyzing how it was used in the sentence. Instruction in word definition should have focused on assisting students to actively define words in literature contexts such as expository writing for school assignments. Words should have been selected from the students' curricula and should be defined in the context of meaningful activities that have been assigned by the classroom teacher as opposed to activities that bear little relevance to real classroom expectations or real world communications and experiences.

McKeown (1993) provided guidelines for having students write definitions. First, identify the role of the word. The creation of a definition should begin with consideration of the essence of the word and its role in the language; when do speakers use this word in particular. Second, characterize the word. For a definition to be optimally helpful for developing a representation of a word's meaning, it should pinpoint the meaning by explaining its characteristic or prototypical use. Third, make meaning accessible. If a definition is to serve as an explanation of a word's meaning, it should be framed in student friendly ways that make meaning accessible for a young learner. McKeown

(1993) designed tasks to evaluate students' ability to use the dictionary and revised definitions using these guidelines. Results suggested that student-written definitions yield more effective learning than current dictionary definitions. The revised definitions helped students to understand the typical uses for the words and to avoid some of the pitfalls inherent in work with dictionary definitions.

Creating a student-friendly definition, even for words that are well known, is not an easy task. Two basic principles should be followed in developing them: (1) characterize the word and how it is typically used (2) explain the meaning in everyday language (Beck et al., 2002). Student-friendly explanations are quite a bit longer than their dictionary counterparts. The brevity of many dictionary definitions leaves too much assumed, and young learners often make incorrect assumptions or are unable to put the ideas together at all. Student-friendly explanations will often include words such as *something*, *someone*, or *describes*. These terms anchor the meaning for students so they can begin to get an idea how to use the word.

### **Making Connections**

Building understanding of language comes through developing knowledge of both the similarities and differences among words and the precise roles they can play (Beck et al., 2002). The use of synonyms and antonyms along with examples and non-examples helps students to make the connection between similarities and differences in words (Blachowicz & Fisher, 2002). Teaching new words as synonyms for known words was a common way to present vocabulary to students. The synonym approach was handy for providing a quick anchor point for a word (Beck et al., 2002). Semantic gradients that placed words along a continuum help students to discern shades of meaning among those



words (Greenwood & Flanigan, 2007). A semantic gradient was an array of related words grouped together along a continuum. Students added additional words at some point along this continuum based on discussion and consensus. This required students to think about and explain shades of meaning. This in turn deepened and broadened their understanding of these words.

Other activities that required students to make decisions by comparing and contrasting also help students to make connections with word meanings. It was helpful for students to decide if different scenarios are examples or non-examples of a word (Baumann & Kame'enui, 2004). These activities exemplified rich vocabulary instruction. Rich instruction was very open-ended; it was not some particular set of activities but rather any activity that gets students to use, think about, and become involved with words. The major concept was to provoke thought and give students information about the words, and a variety of information-examples, contexts, pictures, and relationships. Building connections between old vocabulary words and new words found in reading promoted students' understanding of relationships among words they encounter. When instruction was based on building connections, students were not just asked to supply words that fit the example, but rather to describe how words fit in the stories and informational text that they read (Rupley, Logan, & Nichols, 1999).

In research conducted by Boulware- Gooden, Carreker, Thornhill, and Joshi (2007) students whose vocabulary instruction required them to generate synonyms, antonyms, and other related words had greater increases on the vocabulary measure than students who wrote the vocabulary word and used it in a sentence. It appeared that constructing synonyms, antonyms, and other related words creates a deeper

understanding of a word, which in turn heightens the ability to recall meaning. The process of identifying synonyms and/or antonyms also built a stronger and deeper understanding of the concepts behind vocabulary words. Asking students to identify words that have similar or opposite meanings and place all of the words on a continuum from weakest to strongest helped students understand the subtle nuances in word choice (Greenwood & Flanigan, 2007; Phillips, Foote, & Harper, 2004). As students learn vocabulary, the process of categorization was a way of ordering and organizing concepts. Part of vocabulary learning was making associations. Their research found that the process of assisting students in making associations should be systematic in terms of selecting the words to be learned and in grouping words for instruction according to some criteria. Students could easily learn connections between words by categorizing using some criterion. Making these connections between words was important for all students (Blachowicz & Fisher, 2004).

### **Semantic/Thematic Relationships**

Broad, systematic, long-term training in vocabulary using an approach that organizes new vocabulary items in logical clusters had the potential to enhance student word knowledge and reading comprehension. This was important because the overall goal of vocabulary instruction should be to increase the number of words that a student can recognize automatically through long-term instruction using techniques that relates new concepts to general semantic clusters (Marzano, 1984). Children could later build on this by adding words with more specific meanings. A typical approach to introducing general vocabulary, usually in the context of a language arts course, was to introduce a list of terms that offer no discernable connections. McKenna (2004) and other researchers

and educators insisted, however, the words would be much easier to learn if their meanings were logically linked. They contended that it is better to compose weekly lists of general vocabulary words around thematic or semantic clusters because working with related words allowed one to develop complex concepts since each word was crossing the same conceptual landscape.

Research by Durso and Coggins (1991) found evidence that organizing vocabulary words during word study facilitated performance in vocabulary tasks when compared with word study of the same words presented without organization. Organization around a theme or feature improved receptive vocabulary. It also seems likely from findings by Durso and Coggins (1991) that once a field was formed in lexical memory, that field may prove useful in the acquisition of other words, even though they were not originally used to create the field. Organization into fields may prove to be valuable in allowing rapid assimilation of previously unstudied words into the field. In an earlier investigation, Durso and Coggins (1991) explored the semantic organization component of the Beck et al. (1982) intervention because this intervention had shown some effectiveness in producing vocabulary acquisition that transfers to other language tasks requiring the understanding and use of the recently learned words.

The students in the earlier study by Durso and Coggins (1991), participants were chosen from a pool of college freshman volunteers who had completed the National Achievement Test (NAT; Speer & Smith, 1966). Seventy-two members of the pool who could be matched on their NAT scores (vocabulary subscale) were chosen to participate in the experiment proper. All students were native speakers of English and averaged 21 (out of a possible 30) on the NAT vocabulary subscale. The students were matched on

NAT scores and then randomly assigned to one of the six conditions resulting from the factorial combination of organization (organized or scrambled) and scheme (narrow thesaurus, broad thesaurus, or common feature). They then participated in two phases over several days. Typically, a student spent up to an hour in the laboratory on each visit and returned on a number of nonconsecutive days. In the learning phase, students learned the definitions of 16 words (2 lists of 8 words). In the transfer phase, students took part in procedures designed to assess organizational effects on lexical access, receptive vocabulary, and expressive vocabulary.

In the list decision test, Durso and Coggins (1986) found that organization reduced the time required to encode and categorize the word. That is, words from organized lists were classified faster (Mdn = 1,264, SD = 646),  $F(1,66) = 7.21$ ,  $Mse = 339,717$ ), and there was no suggestion that the advantage of organized study was affected by the scheme used to produce the organization. Error rates were unaffected by either factor. In the sentence decision test students were asked to judge the meaningfulness of sentences that used the studied words. Students who learned the words in an organized fashion (Mdn = 4,624, SD = 1,1332) again responded more quickly than those who studied the scrambled lists (Mdn = 5,461, SD = 1,594),  $F(1,66) = 5.82$   $Mse = 2,119,048$ ), and again the effect of organization was not qualified by the organizing scheme. Therefore, Durso and Coggins (1991) found evidence that organizing vocabulary words during study could facilitate performance in subsequent tasks, even when compared with study of the same words presented without organization.

However, the Durso and Coggins (1986) study had a couple of flaws, which made its interpretation problematic. First, the type of instruction, memorizing definitions, had

not been found to be effective in improving performance on comprehension tasks. It was possible that grouping might have different effects with a richer instruction. Second, the mode of presentation (individual presentation on a computer screen) and the students (college students) may not have transferred to the target and population (classroom vocabulary instruction with elementary students).

More recent research by Hashemi and Gowdasiaei (2005) indicated that both vocabulary instruction using words grouped in a common lexical set and semantically unrelated sets led to significant vocabulary gains in both vocabulary depth and vocabulary breadth knowledge. This finding suggested that vocabulary learning can be enhanced using some conceptual framework in which words, whether semantically related or semantically unrelated, are embedded in meaningful contexts. The results also indicated that the lexical set students achieved greater gains in their vocabulary depth and vocabulary breadth knowledge than the students who learned words in semantically unrelated sets. Hashemi and Gowdasiaei (2005) concluded from these findings that presenting words in lexical sets under appropriate topics serving as advance organizers might facilitate the process of word learning. The purpose of Hashemi and Gowdasiaei (2005) was to assess the effectiveness of the lexical-set and the semantically unrelated vocabulary instruction, separately and relative to each other, and to assess the differential effects of the two methods for students of lower and upper English proficiency levels.

The design was a quasi-experimental one, called a 'non-equivalent control-group design'. Each intact class was randomly assigned to either the lexical set or the semantically unrelated treatment group. The methods of instruction were different for the lexical set and semantically unrelated treatment group. Each group received instruction

in four 45-minute sessions where 100 vocabulary items were taught. Each class was held twice a week with a three or four day interval between sessions. The two groups were taught the same vocabulary items in identical contexts. However, whereas the lexical set group received the words in lexical sets under particular topics, the semantically unrelated group received them sporadically, isolated from other members of the same lexical set. Before each lexical set was presented, the lexical set classes were provided with a topic, followed by vocabulary items belonging to the lexical set used in sentence context. After the teacher read each sentence, the students were supposed to repeat the new word and try to guess its meaning, using clues, the topic, and other members of the same lexical set. Students in the semantically unrelated method went through the same procedure. However, measures were taken to avoid presenting vocabulary items of the same lexical set at once.

Research findings showing that presenting words in semantically related sets produced more significant gains than presenting vocabulary words in unrelated sets were not without contradictory findings. The results of an experiment by Tinkham (1993) indicated that students learned three-word pairs pairing semantically related English words with artificial words more slowly than they learned three word-pairs pairing unrelated English words with artificial words even though the related and unrelated pairs were mixed together in a series of six-pair trials. Findings presented by Waring (1997) indicated that related words took significantly more time to learn than did the unrelated words. It was nearly half as difficult to learn the unrelated set as compared to the related set. The results of Waring (1997) showed that presenting new words that share a common superordinate in a set of words to learn does interfere with learning. Statistical

analysis of results from a study by Eaten and Tekin (2008) revealed that learning words in semantically unrelated sets yields better results than learning vocabulary in semantically related sets. This study by Erten and Tekin (2008) indicated that presenting new vocabulary that belongs to the same semantic set together may cause interference due to cross-association and have a negative effect on vocabulary learning.

The effects of semantic clustering have been the subject of controversy due to contrasting views and methods. Tinkham (1997) reported in two separate but parallel experiments yielding similar results. The major finding was that semantic clustering of new second language words appeared to serve as a detriment to the learning of vocabulary. In addition, students responded on a questionnaire after the instruction that learning words in semantic clusters was the most difficult of all conditions. Condition one was linguistically related 'semantic clusters' of words in the same form class (nouns), which directly descend as co-ordinates under a common superordinate concept. Condition two was linguistically unrelated sets of words in the same form class (nouns) that do not directly descend from a common superordinate concept. Condition three was cognitively associated 'thematic clusters' of words of different form classes (nouns, verbs, adjectives) that according to the author were likely to be associated with a shared thematic concept. Condition four was cognitively unassociated sets of words of different form classes (nouns, verbs, adjectives) that were judged not to be associated with a shared thematic concept.

The four conditions used in Tinkham (1997) revealed that there is a difference in semantic and thematic clusters. Semantically related words fall under the same superordinate concept. Semantically related words may also be thematically associated

in some way. Thematically related words usually would consist of words from a different word class. Some words would be nouns, some verbs, and so on. The main difference in a semantic cluster and a thematic cluster would be that thematic clusters are carefully selected for their association with a shared thematic concept. Tinkham (1997) found that word pairs comprising of thematically related sets were learned more easily than word pairs comprising unassociated sets. Thematic clustering was clearly beneficial in vocabulary acquisition.

Heppner-Page (2000) focused on the effectiveness of semantic clustering versus thematic clustering. The findings were that although not all of the results were significant, generally there was a robust pattern in favor of thematic clustering against semantic clustering. The effect of vocabulary clustering decreased as student levels of word understanding increased. Therefore, it appears more feasible to consider using thematic clustering especially to introduce new vocabulary to lower performing learners than to advanced learners.

Al-Jabri (2005) seemed to put the issue of semantic clustering versus thematic clustering into perspective. The researcher explored the benefits of two different ways of grouping vocabulary words for ESL students. Two groups of ESL students, both at the same ESL curriculum level, were given the opportunity to learn new words grouped in a thematic manner and new words grouped in a semantic manner. The researcher found that thematic cluster resulted in more words learned for one group, but not for the other, and it was beneficial to some, but not all. The group that benefited from the thematic clustering was better able to retain words over a three week time period. On the other hand, the group that benefited most from the semantic clustering retained more of these



words over time after instruction than they retained from the thematic clustering of words. The results showed both clusters were beneficial and suggested that it might be useful to consider a combination of both strategies. In this way a variety of clusters, in addition to a mixture of other strategies for teaching vocabulary, might allow each student to find a method that really helps him or her learn words well.

### **Conclusions and Questions**

This literature review provided evidence that rich vocabulary instruction has proven to be effective in aiding students with their vocabulary growth. It was evident from this review that a variety of strategies can facilitate vocabulary learning. This review also showed that the effectiveness of semantic or thematic grouping has not been clearly established. There was clearly a need for further research in this area. For example findings by Stahl et al. (1992) reported that teaching words in semantic groupings did not appear to have an appreciable effect on vocabulary learning when the overall instruction was rich in other ways. The purpose of Stahl et al. (1992) was to examine the effects of presenting words in or not in semantic groups, using rich instruction adapted from that provided by Beck et al. (1982) with fourth grade students in a classroom context. Mixed results from several different studies examining the effects of semantic or thematic grouping on vocabulary acquisition provide the foundation for research questions addressed and results reported in the next three chapters.

### CHAPTER III. METHODS AND PROCEDURES

The purpose of this study was to compare effects of rich instruction with words taught randomly or thematically. Fourth grade students were chosen because this is the grade that was used in research by McKeown et al. (1985) that reported statistically significant gains in vocabulary compared to a control group. The words in this study were presented according to themes. The particular school chosen was a school served by the author while working for the Alabama State Department of Education. This school was targeted for assistance in part because of low test scores on state mandated tests in the area of vocabulary and comprehension. The principal of the school had to write a letter of approval in order for the study to be done at the school. Then the author had to complete a research protocol review form explaining all the details and purpose of the study to the Auburn University Institutional Review Board for approval for research involving human subjects. The review board approved the research protocol. The fourth grade students at the school had to take parent permission/consent forms home to be signed by parents who agreed to let their child participate. Only students who had signed permission/consent forms were allowed to participate in the study.

There were four fourth grade regular education classes at the school. These classes included students who had learning disabilities and students who had mild mental disabilities. All students from the four intact classrooms with signed permission/consent forms were randomly assigned to three groups. There were 61 fourth-grade students who

participated in this study. This elementary school contained kindergarten through fourth grade classes and served children from predominantly low-socioeconomic status families at the time of the study. The Harcourt Brace reading series was used for reading instruction. The students from the four classes were randomly assigned to two experimental groups and the Frayer control group. The Rich/Mixed group had 22 students. The Rich/Thematic group had 21 students and the Frayer Control group had 21 students.

The participants likely were not influenced by the perception of the experiment because the experiment took place in a normal classroom situation, and students received vocabulary instruction as they normally would for a similar time period each day. There was not a novelty effect concerning what they had to do during the time they spent working on vocabulary development. The instruction was a part of the daily curriculum required by the school. The researcher conducted all lessons and followed an outlined plan of delivery for all lessons with each particular group of participants, which controlled for teacher and experimenter effects. The experimental design was developed to control for these external threats to validity. Care was also taken in the design of this study to control for internal threats to validity. The participants were given a pretest and posttest on taught words where participants had to determine the meaning of targeted words. The form of the pretest differed from the form of the posttest to try and rule out outcomes from the first test administration giving some type of advantage to the participants when taking the second administration. Participants were randomly assigned to groups to guard against selection bias. However, the design allowed for the possibility that the Frayer control group could have inadvertently benefited from recognizing words that belonged to the same theme that were presented on different days. Some students in

the random groups made mention of words that were presented in previous lessons that shared the same theme as the words they were currently studying.

All participants received a vocabulary pre-test the day before the vocabulary instruction for all groups in this study started. Students had to match target words with their definitions. Four lists of ten words and one list of nine words were paired with definitions and statements related to the words in the list. The students had to choose which word went with the correct corresponding definition or statement. Two experimental groups received vocabulary instruction on seven words a day for seven days on passages from the Comprehension Literacy Tool Kit (Harvey & Goudvis, 2005), a program of reading instruction used in the state of Alabama for upper elementary classes. The Rich Thematic group's words were delivered in a daily list that was organized by themes. The same words were presented to the Rich Mixed group randomly. Instruction for each day with these two experimental groups included having students work with meanings for all words that were phrased in ways that made them understandable for fourth graders. For instance, the dictionary definition for the word memorial is "serving to preserve remembrance" (Webster's Ninth New Collegiate Dictionary, 1987, p.740). The definition was changed to "something that keeps a memory alive." Starting with the formal definition and then having a whole class discussion about how to make the meaning more comprehensible constructed these types of definitions. Then students were provided with opportunities to recognize examples and non-examples of the words. The teacher would make statements that were either an example of the word or a non-example. The students gave signals if they thought the statement was an example and another signal if they thought that it was a non-example. Next, pairs of students

discussed ways to use the words and then shared their discussions with the whole group. The researcher confirmed word uses and clarified meanings as needed during this time. Finally, students independently read a portion of the text “Titanic” passage from the Comprehension Toolkit for the first five days of instruction and the instructor read portions of the text to the students for the last two days of instruction. The Frayer Model control group was instructed using an abbreviated version of the Frayer, Frederick, & Klausmeier Model (1969) of vocabulary instruction in which students generated a list of three synonyms and three antonyms for each vocabulary word. Each vocabulary word was also used in a sentence. Students in this group were also allowed to ask questions to help clarify word meanings. These students were also exposed to seven words a day for seven days. These were the same words used in the Rich/Thematic and Rich/Random groups and the words were taught in a randomly ordered list. This group was not exposed to any text related to the words they studied. Experimental groups and the Frayer control group were given a post-test on all the same words as the pretest after the seven days of instruction. The post-test was a multiple-choice test of definitions and statements related to the target word. The word was given with three definitions/statements to choose as the correct answer. A test of test reliability was done based on Cronbach’s Alpha based on standardized items. The test yielded a high reliability for pre and posttest with a score of .813 for 77 valid cases. A non-treated control group was added to this analysis account for the stability of the reliability test.

## CHAPTER IV. RESULTS

A factorial ANOVA was performed to determine the effect of treatment on the experimental groups and the control group. Tests of statistical significance were performed at the .05 levels. The Null hypotheses were: Students given rich instruction with words in theme based categories will not have scores that are statistically different on measures of word definition than students who received the same instruction on the same words organized randomly.

The descriptive statistics, as depicted in Table 1, showed that the highest mean was produced for the Rich Thematic group (36.124) and means for the Frayer control (32.6316) and Rich Mixed (32.0476) groups were very similar.

Table 1

*Descriptive Statistics for Pre- and Posttest Scores for Treatment and Control Groups*

	Treatment	M	SD	N
Pretest	Frayer	24.63	9.24	19
	Rich Mixed	23.33	9.86	21
	Rich Thematic	24.95	10.45	21
Posttest	Frayer	32.63	6.10	19
	Rich Mixed	32.05	6.95	21
	Rich Thematic	36.14	6.81	21

A repeated measures test of within-subjects analysis of results shown in Table 1 showed that the probability of the results occurring by chance is very small  $f(109.189)$ ,  $p < .000$ ). Pairwise comparisons shown in Table 2 reported some comparisons that were not statistically significant. All treatment groups had scores that were relatively similar to the Frayer control group. The Frayer control versus Rich Mixed had a mean difference of .941 with the probability of this difference occurring as 1.000. Frayer versus Rich Thematic had a mean difference of  $-1.916$  with the probability of this difference occurring as 1.000. Lastly, Rich Mixed vs. Rich Thematic had a mean difference of  $-2.857$  with the probability of this difference occurring as 1.000. These mean scores are based on estimated marginal means with adjustment for multiple comparisons made by a Bonferroni post hoc multiple comparison tests.

Table 2

*Pairwise Comparisons of Mean Differences for Treatment and Control Groups*

(I) Treatment	(J) Treatment	MD	Std. E	Sig
Frayer	Rich Mixed	.94	2.26	1.000
	Rich Thematic	-1.91	2.26	1.000
Rich Mixed	Frayer	-.94	2.26	1.000
	Rich Thematic	-2.86	2.20	1.000
Rich Thematic	Frayer	1.92	2.26	1.000
	Rich Mixed	2.86	2.20	1.000

*\*The mean difference is significant at the .05 level.*

In addition, a Univariate test of the effect of treatment based on the linearly independent pairwise comparisons among the estimated marginal means reported in

Table 3, reported that the effect of treatment was statistically significant with ( $f = 11.086$ ,  $p < .000$ ). This means that when combined pre to posttest gains are measured for all groups that the overall effect of instruction for all groups was statistically significant. This supports the use of rich vocabulary since this was a component for all three groups.

Table 3

*Univariate Test of the Effect of Treatment*

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	1692.605	3	564.20	11.086	.000
Error	3715.096	73	50.89		.000

The F tests the effect of treatment. This test is based on the linearly independent pair-wise comparisons among the estimated marginal means. A multivariate test of between-subjects effects showed that all the thematic instruction produced a statistically significant effect for treatment over all random instruction. There was not a statistically significant difference between the random and thematic instruction groups at pretest with a significance level of .71. The Random Group (n=30), which is a combination of the Frayer Control and Rich Mixed Groups, had a group mean from 23.95 at pretest to 32.33 at posttest. The Thematic group (n=21) had a mean gain from 24.95 at pretest to 36.14 at posttest. The gain by the Thematic Group proved to be a statistically significant greater gain than the random group at posttest with a significance level of .04.



## CHAPTER V. DISCUSSION

The findings of the study reported here provided information that is relevant to daily classroom implementation of vocabulary instruction in the upper elementary grades. One such finding was that word lists, whether presented in thematic or randomly grouped sets, when presented in the context of rich instruction (i.e., repeated exposure, word connections, student discussion, and studying words in the context of literature) yielded growth from pretest to posttest. These findings were strongly supported by the findings of other studies that have focused on the effects of rich instruction (Coyne, McCoach & Kapp; 2007; McKeown, 1993; Mckeown et al., 1985). The approach to vocabulary instruction that is supported by (NICHD, 2000) was instruction that included a variety of direct and indirect methods of vocabulary instruction. This certainly seemed sensible considering that students bring their own individual experiences to the learning situation and different levels of knowledge about individual words. This would suggest that different students would probably need to approach the learning of words in various ways, thus supporting the idea of a varied instructional approach to vocabulary instruction. The implication of this finding for daily vocabulary instruction was that regardless of the way word lists might be grouped, they should be taught in the context of rich instruction in order to capitalize on a component of vocabulary instruction that has been proven to be successful in this and other studies of vocabulary teaching and learning.

Another finding was that there seems to be a degree of utility in teaching words in thematically grouped sets. Although the differences in the Thematic Group and the two random groups that received rich vocabulary instruction were not statistically significant, the thematic group did have a higher mean score than the other groups. This finding further supported findings by (Tinkham, 1997) who reported that thematic clusters are learned more easily than unassociated sets. The finding of the present study and the finding of the study by (Tinkham, 1997) showed positive effects of thematic grouping of words for vocabulary instruction. Results from these two studies contradict findings of other second language studies (Erten & Teken, 2008; Waring, 1997) that suggested thematically grouping words actually interferes with the learning of words. The students in the thematic groups studied by Hippner-Page (2000) and Al-Jabri (2005) were not confused or hindered by the thematic relatedness of the words. Moreover, there was ample support from practitioners' studies for grouping words in related sets to facilitate vocabulary learning (Blachowicz & Fisher, 2004; McKenna, 2004; McKeown et al., 1983; McKeown et al., 1985). The implication for classroom instruction related to this finding was that thematically grouped words could to some degree facilitate the learning of vocabulary words. Thematically grouping words can be one of the tools that elementary teachers can choose from to increase effectiveness and efficiency of vocabulary instruction.

Another finding was that there was a statistically significant difference in pretest to posttest gains made by the thematic group over all random instruction. This finding seems to support using thematic grouping of word over random grouping of word in the context of rich vocabulary instruction. When the Frayer instruction group and the Mixed

Rich group were grouped together, there was the combination of instruction that added synonym and antonym use to the equation. One possible reason for this particular finding is that the Thematic Group did not have any students who had a decline in scores from pretest to posttest. There was a total of seven scores that declined from pretest to posttest in the total Random Instruction Group. There were a total of three declining scores in the Rich Mixed Group and one score that remained the same. There were four declining scores in the Frayer Control Group. This finding provides further support for the use of thematically grouped words for effective and efficient vocabulary instruction.

In the first chapter, some general limitations to this study were listed, but there were some additional limitations to this study that must be mentioned. First, it was evident that students who received rich instruction with randomly grouped words also made connections with other words taught in previous lessons on their own. It was not clear whether the students in the random groups benefited from thematic relationships even though their particular word lists were random. There was need for a design that had the randomly grouped words presented where there is not a strong likelihood that the students would make connections with words from previous lessons to form some type of thematic relationship among them. This could be accomplished by having vocabulary taught in a week's time over a longer period instead of every other day or so. In addition, the number of students in each group compared with the number of dependent variables in this study yielded small effect sizes for the results that have been reported.

Another important limitation was that this was not a total vocabulary instruction program. Seven words were taught in the span of thirty to forty-five minutes. Essentially the words were merely introduced. A full vocabulary instruction program would have

had students interact with the same words for at least four days of instruction before any type of formal assessment was done. However, the results did suggest that the approaches used in this study would be an effective and efficient way to introduce vocabulary words. A question that remains is how much more gains might have been made if the vocabulary instructional approaches used in this study were implemented with a group of words over several days.

In spite of these limitations, the results of this study indicated that thematically grouped words might be a very helpful strategy for increasing students' vocabulary. The element of rich instruction should be a common thread in all vocabulary instruction. Data from this study and others (e.g., Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983) clearly support a variety of methods for direct vocabulary instruction that makes teaching an effective complement to indirect methods for word learning.

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## Appendix 1

### Word Groupings

#### Random Word Groupings

Day 1	Day 2	Day 3	Day 4
Submerged	voyage	explore	navigation
Iceberg	symbol	compartments	invention
Mandatory	incredible	investigation	eliminated
Arrogance	humility	complaints	confidence
Doomed	frantic	confusion	unreliable
Professional	competitors	famous	hero
Luxurious	wealth	poverty	grand
Day 5	Day 6	Day 7	
Immigration	vibration	retrieved	
Memorial	vessel	harbor	
Subside	frigid	routine	
Curious	vow	approval	
Unsanitary	disaster	tragedy	
Designer	ancestors	crew	
Opulent	accommodations	fortune	

#### Thematic Word Grouping

Day 1	Day 2	Day 3	Day 4
Moving	things	situations	attitudes
Submerged	iceberg	mandatory	arrogance
Voyage	symbol	incredible	humility
Explore	compartments	investigation	complaints
Navigation	inventions	eliminated	confidence
Immigration	memorial	subsided	curious
Vibration	vessel	frigid	vow
Retrieve	harbor	routine	approval
Day 5	Day 6	Day 7	
Trouble	people	money	
Doomed	professional	luxurious	
Frantic	competitors	wealth	
Confusion	famous	poverty	

Unreliable  
Unsanitary  
Disaster  
Tragedy

hero  
designer  
ancestors  
crew

grand  
opulent  
accommodations  
fortune

## Appendix 2

### Educational Tests

#### Pre-Test

Match the word with its definition by placing the letter of the definition by the correct word.

#### Section A

1. fortune \_\_\_\_\_
2. humility \_\_\_\_\_
3. vessel \_\_\_\_\_
4. harbor \_\_\_\_\_
5. confidence \_\_\_\_\_
6. incredible \_\_\_\_\_
7. grand \_\_\_\_\_
8. memorial \_\_\_\_\_
9. symbol \_\_\_\_\_
10. retrieve \_\_\_\_\_

- a. a place where ships park
- b. something that keeps a memory alive
- c. material goods in abundance
- d. to get and bring back
- e. a structure made to travel on air or in water
- f. to believe you can do something
- g. not thinking too highly of yourself
- h. an object that represents something
- i. large and impressive
- j. hard to believe

#### Section B

1. crew \_\_\_\_\_
2. disaster \_\_\_\_\_
3. complaints \_\_\_\_\_
4. poverty \_\_\_\_\_
5. arrogance \_\_\_\_\_
6. curious \_\_\_\_\_
7. eliminated \_\_\_\_\_

8. hero\_\_\_\_\_
9. navigation\_\_\_\_\_
10. frantic\_\_\_\_\_

- a. to say you are not satisfied
- b. an event that has great damage
- c. lacking needed money
- d. a group of people working on the same job
- e. thinking too much of yourself
- f. out of control emotions
- g. to get rid of something
- h. wanting to know something
- i. driving a ship from place to place
- j. a person admired for something they did

### Section C

1. iceberg\_\_\_\_\_
2. competitors\_\_\_\_\_
3. confusion\_\_\_\_\_
4. routine\_\_\_\_\_
5. explore\_\_\_\_\_
6. invention\_\_\_\_\_
7. approval\_\_\_\_\_
8. mandatory\_\_\_\_\_
9. accommodations\_\_\_\_\_
10. vibration\_\_\_\_\_

- a. family members who lived long ago
- b. to look at closely
- c. to take a trip
- d. sure failure
- e. to make a promise
- f. widely known and popular
- g. a person who makes new things
- h. a person who participates in an activity for money
- i. the finest and richest kind of things
- j. a small room

### Section E

1. tragedy\_\_\_\_\_
2. unsanitary\_\_\_\_\_
3. subsided\_\_\_\_\_
4. immigration\_\_\_\_\_
5. submerged\_\_\_\_\_

6. opulent\_\_\_\_\_

7. wealth\_\_\_\_\_

8. frigid\_\_\_\_\_

9. unreliable\_\_\_\_\_

- a. not clean
- b. a damaging event with loss of life
- c. to sink to the bottom
- d. an abundance of things
- e. to move down under water
- f. having a lot of valuable things
- g. extremely cold
- h. not dependable
- i. to move from place to place



## Posttest

Directions: choose the correct answer for each word by circling the correct definition.

Unreliable

- a. hardly ever doing what you should
- b. lazy
- c. a slow worker

frigid

- a. ice water
- b. water that's freezing
- c. cold water

wealth

- a. having a nice car
- b. having a lot of high priced things
- c. \$20.00

opulent

- a. having almost everything you need
- b. sharing resources with others
- c. having money in the bank

submerged

- a. a ship on water
- b. a rock thrown in the water
- c. to swim under water

immigration

- a. to travel to another country
- b. to move permanently to a new country
- c. to leave your home

subsided

- a. a ship on water
- b. a rock thrown in the water
- c. to swim under water

unsanitary

- a. very clean
- b. needs to be cleaned
- c. a person who cleans

tragedy

- a. a bad accident
- b. an accident where someone dies
- c. when people get hurt real bad

doomed

- a. a loud sound
- b. a bad situation
- c. you fail

designer

- a. a genius
- b. a person who repairs things
- c. makes new things

luxurious

- a. the finest you can buy
- b. things that look real nice
- c. jewelry

investigation

- a. something is lost
- b. to find something
- c. to search real hard

compartment

- a. real nice rooms
- b. small rooms
- c. large rooms

professional

- a. playing basketball
- b. a softball player
- c. a player who makes money playing

vow

- a. to say something
- b. to promise something
- c. to say something and really mean it

voyage

- a. a far away place
- b. a long trip
- c. to plan a trip

famous

- a. a popular person
- b. a person who makes a lot of money
- c. a real nice person

ancestors

- a. all old people
- b. people in your family from long ago
- c. family members

vibration

- a. to move
- b. to tremble
- c. to wave from side to side

accommodations

- a. things that make you comfortable
- b. having a lot of people around
- c. a party

mandatory

- a. you have to do it
- b. a lot of rules
- c. being bossy

approval

- a. to say no
- b. to think about it
- c. to say yes

invention

- a. a person who makes things
- b. something that has been repaired
- c. a brand new item

explore

- a. to travel to new places
- b. to travel to any place
- c. to travel to distant places

routine

- a. reading the newspaper
- b. reading the newspaper every morning
- c. reading the newspaper sometimes

confusion

- a. when everything is OK
- b. when everything is out of order
- c. when you are having a good time

competitors

- a. playing a basketball game
- b. watching a game
- c. buying a video game

iceberg

- a. ice
- b. a chunk of floating
- c. a snow storm

frantic

- a. when people panic
- b. in trouble with the police
- c. committing a crim

navigation

- a. steering from place to place
- b. living in different places
- c. getting lost

hero

- a. to really like someone
- b. to be looked up to for something you did
- c. popular

eliminated

- a. to hide something
- b. to get rid of something
- c. to find something

curious

- a. to want to know
- b. to know a lot
- c. to find a lot of things

arrogance

- a. nice
- b. mean
- c. prideful

poverty

- a. rich
- b. need money
- c. to steal

complaints

- a. to say you don't like something
- b. to like something
- c. to change things around

disaster

- a. a storm
- b. a lot of damage
- c. a sickness

crew

- a. to work together
- b. to have a job
- c. to work in the same place

retrieve

- a. to throw
- b. to bring
- c. to lose something

symbol

- a. it gives a definition
- b. it looks like something else
- c. it represents

memorial

- a. in memory
- b. a picture
- c. a meeting

grand

- a. a lot of money
- b. very impressive
- c. a big building

incredible

- a. hard to believe
- b. easy to believe
- c. to believe anything

confidence

- a. you know you can't
- b. you think it's hard
- c. you know you can

harbor

- a. the beach
- b. a place for ships
- c. a large ship

vessel

- a. something you travel in
- b. something you make
- c. something you put food in

humility

- a. very scary
- b. very brave
- c. very simple

fortunes

- a. a lot of goods
- b. to be lucky
- c. to tell the future

## Appendix 3

### Permission Letter

**Date goes here**

Institutional Review Board  
c/o Office of Human Subjects Research  
307 Samford Hall  
Auburn University, AL 36849

Dear IRB Members,

After reviewing the proposed study, “Effects of teaching vocabulary using rich versus less rich instruction in thematically versus randomly grouped sets”, presented by Mr. Michael O. King, a graduate student at Auburn University, I have granted permission for the study to be conducted at Central Elementary School in Coosa County.

The purpose of the study is to determine if teaching vocabulary words in thematic groups adds to the effectiveness of rich instruction. The primary activity will be teaching individual words either in thematic or random lists using rich instruction and using the school’s regular approach to teaching vocabulary. Only students in the fourth grade are eligible to participate.

I understand that this vocabulary instruction will occur for seven days during normal classroom instruction, and during student's regularly scheduled Social Studies instruction. This is a daily event, with lessons lasting from 30-45 minutes. I expect that this project will end not later than December 18, 2007.

I understand that Mr. Michael O. King will receive parental/guardian consent for all participants, and have confirmed that he has the cooperation of the classroom teachers. Mr. Michael O. King has agreed to provide to my office a copy of all Auburn University IRB-approved, stamped consent documents before he recruits participants on campus. Any data collected by Mr. Michael O. King will be kept confidential and will be stored in a locked filing cabinet in his AU advisor's office.

If the IRB has any concerns about the permission being granted by this letter, please contact me at the phone number listed above.

Sincerely,

Mrs. Jennifer Gill, Principal  
Central Elementary School

**NOTE: DO NOT AGREE TO PARTICIPATE UNLESS AN APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)**

**PARENTAL PERMISSION/CHILD ASSENT**

**For a Research Study entitled**

**"Effects of teaching vocabulary using rich versus less rich instruction in thematically versus randomly grouped sets"**

**Your child is invited to participate in a research study to:** provide evidence for what makes for an efficient and effective approach to teaching vocabulary; provide evidence that grouping words thematically does or does not aid vocabulary teaching and learning; expose two groups of students and teachers to the benefits or rich vocabulary instruction which other researchers found to increase students' word learning more than copying and studying definitions, an approach commonly used by U.S. schools; compare effects of rich instruction with words taught randomly or thematically and the vocabulary instruction currently used by teachers in this school. The study is being conducted by Mr. Michael O. King, a graduate student, under the direction of Dr. Edna Brabham, Professor, in the Auburn University Department of Curriculum and Teaching. Your child was selected as a possible participant because he or she is a fourth grade student who is regularly enrolled in the Social Studies classes at the school. Since your child is age 18 or younger we must have your permission to include him/her in the study.

**What will be involved if your child participates?** If you decide to allow your child to participate in this research study, your child will be asked to take a matching pre test on forty-nine vocabulary words that will be taught during the study. He or she will receive instruction on seven words a day for seven days from a text from the "Tool Kit," a program of reading instruction used in the state of Alabama for upper elementary classes. He/she will receive one of three types of instruction: (1) Student friendly definitions for all words, opportunities to recognize examples and non examples of the words, opportunities to discuss ways to use the words with a peer, and then an opportunity to share their discussion with the whole class on words taught in thematic groups. The researcher will clarify word uses as needed. Then students will read independently a portion of the text "The Titanic" containing the vocabulary words or (2) The same instruction mentioned above with words taught in random groups or (3) The vocabulary instruction currently used at the school which includes providing three synonyms and three antonyms for each word and then provide a sentence for each word. Your child will also be asked take a multiple choice post-test on all the vocabulary words and sort words that relate to each other into categories. Four weeks after the post-test your child will be asked to take a delayed post-test where he/she will have to provide a definition for all of the same words and sort related words into categories and label the categories. Your child's total time commitment will be approximately 45 minutes a day for 10 days.



Parent/Guardian Initials \_\_\_\_\_

**Are there any risks or discomforts?** The risks associated with participating in this study are the normal risks in a regular school day and he/she will not be subjected to any additional risks. Conditions, lessons, materials, and all methods and procedures for this study have been carefully selected to correspond to ordinary and routine school experiences for these fourth graders in order to eliminate or reduce all risks.

**Are there any benefits to your child or others?** If your child participates in this study, your child can expect to be exposed to rich vocabulary instruction that has proven to be effective for a number of other controlled studies if he/she is placed in one of the two experimental groups. If your child is in the control group he/she will be exposed on far more vocabulary words than he/she would in the normal instruction. We/I cannot promise you that your child will receive any or all of the benefits described.

**Will you or your child receive compensation for participating?** No compensation will be given.

**Are there any costs?** If you decide to allow your child to participate, there won't be any cost.

**If you (or your child) change your mind about your child's participation,** your child can be withdrawn from the study at any time. Your child's participation is completely voluntary. If you choose to withdraw your child, your child's data can be withdrawn as long as it is identifiable. Your decision about whether or not to allow your child to participate or to stop participating will not jeopardize you or your child's future relations with Auburn University, the Department of Curriculum and Teaching or Central Elementary School.

**Your child's privacy will be protected.** Any information obtained in connection with this study will remain confidential. Storing it under lock and key in the principal's office in my file cabinet while the study is going on at the school site will protect the data collected. Information obtained through your child's participation may be used to fulfill an educational requirement and published in a professional journal.

**If you (or your child) have questions about this study,** *please ask them now* or contact Mr. Michael O. King at 334-727-6055 or Dr. Edna Brabham at 334-844-6793. A copy of this document will be given to you to keep.

**If you have questions about your child's rights as a research participant,** you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail <sup>at</sup> [hsubjec@auburn.edu](mailto:hsubjec@auburn.edu)

**HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH FOR YOUR CHILD TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO ALLOW YOUR CHILD TO PARTICIPATE. YOUR CHILD'S SIGNATURE INDICATES HIS/HER WILLINGNESS TO PARTICIPATE.**

Participant's signature                      Date                      Investigator obtaining consent                      Date

Printed Name

Printed Name

Parent/Guardian Signature Date

Printed Name