The Effects of Rich Vocabulary Instruction on Students' Expository Writing

by

Lisa Marie Yonek

Bachelor of Science, California University of Pennsylvania, 1991
Master's in Reading, California University of Pennsylvania, 1993

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This dissertation was presented

by

Lisa Marie Yonek

It was defended on

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and approved by

Dr. Rita Bean, Professor, Instruction and Learning

Dr. Linda Kucan, Assistant Professor, Instruction and Learning

Dr. Elaine Rubinstein, Assistant Professor, School of Health and Rehabilitative Sciences

Dissertation Advisor: Dr. Isabel Beck, Professor Emeritus, Instruction and Learning

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Lisa Marie Yonek, Ed.D

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Two approaches to vocabulary instruction, rich instruction and traditional instruction were examined to compare their effectiveness in assisting students in developing word knowledge and transfer of that knowledge to use of target words in expository writing. Fourth grade students in an urban school district were taught twelve Tier Two words over the course of five days using either rich instruction or traditional instruction. Rich instruction consisted of exposing students to both definitional and contextual information, multiple exposures and active or deep processing of each word. Traditional methods included dictionary definitions, matching activities, cloze sentence activities and sentence writing. Outcomes were measured on tasks of word meanings, depth of word knowledge, writing quality and number of target words used in writing. There were no differences between groups on knowledge of word meanings but students who received the rich instruction outperformed students who received the traditional instruction on all other measures suggesting that rich instruction is more effective in helping students to deepen word knowledge and utilize newly learned words in complex literacy acts such as writing. Interpretations and implications are discussed.

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PREFACE

I would like to thank my family and friends for their constant support and encouragement throughout this process and dedicate this to the memory of my father and his passion for reading, writing, and acquisition of a *robust vocabulary*.

1.0 INTRODUCTION

> "*People with an impoverished vocabulary live an impoverished emotional life; people with rich vocabularies have a multihued palette of colors with which to paint their experience, not only for others, but for themselves as well*." (Robinns, 1991).

Vocabulary knowledge has been linked to intelligence, academic success, and identified as one of the five essential components of reading (NICHD Report of the National Reading Panel, 2000). Even though students may successfully decode and read fluently, knowing the meanings of words contained in text that they encounter is critical to comprehension, thus making vocabulary a crucial part of the reading process. The National Reading Panel (2002) has referred to vocabulary as the 'important middle ground in learning how to read'.

Widely connected to reading is writing. Written language, because it is decontextualized, usually contains richer vocabulary than oral language (Hayes & Ahrens, 1988) so comprehension is heavily reliant upon word knowledge. Therefore, vocabulary knowledge is equally important to the writer as it is to the reader.

The problems associated with helping students increase their oral and reading vocabularies are complex. One problem is the prevailing language gap that exists between children from different socio economic backgrounds. Hart and Risley (1995) found that children

from advantaged or professional homes had receptive vocabularies as much as five times larger than children from welfare homes, and that these early differences influenced reading performance throughout the years. Stanovich (1986) has labeled this pattern as the Matthews effect, the rich get richer and the poor get poorer, i.e., the more words you know, the more words you learn.

Adding to the problem is the large number of words that need to be taught and learned during the course of a school year. Confounding this issue is the complexity of word knowledge. Beck, McKeown, & Omanson (1987) describe word knowledge as a continuum that ranges from:

- *no knowledge,*
- *general knowledge,*
- *narrow or context bound knowledge,*
- *having knowledge but not enough to recall it and use it readily in appropriate situations,*
- *rich and decontextualized knowledge of a word's meaning.*

Evidence from many studies (Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983; McKeown, Beck, Omanson & Pople, 1985) prove that the rich and decontexualized word knowledge is what readers require for comprehension of text containing newly learned words. Thus it is hypothesized that deep word knowledge is also necessary for use in expressive communication.

What is the implication of this on students, specifically those who suffer from the language gap? Current research shows that during the course of a school day, less than 6% of instructional time is spent on vocabulary instruction (Scott, Jamieson- Noel, & Asselin, 2003). Of the instructional time devoted to vocabulary learning, most is in the form of traditional

methods, such as memorizing dictionary definitions and relying on context, both of which are problematic (Beck, McKeown, Kucan, 2002,; Scott, et al, 2003; Stahl & Nagy, 2006). Closing the language gap and helping all students increase their vocabularies with deep word knowledge is not possible if traditional methods prevail.

1.1 THEORETICAL PERSPECTIVE

Because of the problems associated with learning word meanings through context, indirect methods of learning vocabulary through wide reading are not reliable, especially for poor or struggling readers. For this reason, this study is based on the assumption that direct instruction, specifically, *rich instruction*, can affect students' vocabulary growth in a way that facilitates word knowledge deep enough to be actively used in their expressive language.

This belief is based on research about the features of vocabulary instruction that positively influenced text comprehension. Mezinski (1983) and Stahl and Fairbanks (1986) concluded that vocabulary instruction needed to include: (1) both definitional and contextual information for breadth of knowledge; (2) multiple exposures; and (3) active or deep processing of words. *Rich vocabulary instruction* (Beck, McKeown, & Kucan, 2002) an approach to learning robust information about words and their uses through frequent and various active opportunities, contains the features identified by Mezinski (1983) and Stahl and Fairbanks (1986) for effective vocabulary instruction. If rich instruction can positively influence comprehension, a complex cognitive process, it is hypothesized that it can have the same effect on writing, an equally complex process.

1.2 PURPOSE OF THE STUDY

The purpose of this quasi experimental study was to compare the effects of two instructional vocabulary approaches, rich vocabulary instruction and traditional vocabulary instruction on students' knowledge of Tier Two words and their abilities to use the target words in expository writing. The study compared students' knowledge of target words through the use of two instruments: a multiple choice assessment designed to measure basic knowledge of target words, and an open ended assessment designed to measure precision of word knowledge. Additionally, the study investigated whether rich vocabulary instruction had any effect on the quantity of target words used as well as the quality of student writing when presented with a persuasive writing task.

1.3 RESEARCH QUESTIONS

1. Do students given rich vocabulary instruction increase in their knowledge of words in comparison to students who receive traditional instruction?
2. Does rich vocabulary instruction improve the quality of students' persuasive writing in comparison to students who receive traditional instruction?

2.0 REVIEW OF LITERATURE

It is widely recognized that vocabulary knowledge is an indicator of academic success and education. Much research has been dedicated to understanding the relationship between vocabulary knowledge and reading comprehension including the instructional methods that promote word learning as well as effect comprehension. As a result, a strong correlation between vocabulary knowledge and reading comprehension has been established. Despite the linguistic and cognitive similarities between reading and writing, little attention has been given to the relationship between vocabulary knowledge and writing.

The first section of this review will explore the connection between reading and writing. The next section will examine the relationship between vocabulary and reading comprehension followed by effective instructional methods. The fourth section will review research regarding the role of vocabulary knowledge and oral language in writing and the remainder will be devoted to investigating the small body of research around the relationship between vocabulary instruction and writing including the study that prompted the current study.

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2.1 THE READING AND WRITING CONNECTION

Reading and writing are connected communicative acts that rely on knowledge of and application of language. Along with speaking and listening, they are the major components of language. Moderate correlations between reading and writing have been established and range from .20 to .50 (Tierney & Shanahan, 1991) suggesting a relationship between the two.

2.1.1 The Historical View of Reading and Writing

Historically, reading and writing have been defined as contrasting processes with reading being identified as a receptive process and writing an expressive process (Duin & Graves, 1987). This separation existed partly because reading and writing originated from different traditions, backgrounds, training and scholars (Langer & Flihan, 2000). With the explosion of research from the cognitive revolution, new insights and understanding about reading and writing grew. Reading emerged from a passive, bottom up activity to a constructive process in which readers actively engage in text to create meaning. Writing emerged from a focus on the product to a process of interactions between the writer and knowledge of language, topic and audience (Applebee, 1982). With cognitive and constructivist theories surfacing in both reading and writing, the metaphor of a reader composing a text in his mind (Tierney & Pearson, 1983) encouraged greater focus and attention to the linguistic and cognitive similarities of reading and writing, and researchers began to examine the relationship between the two (Fitzgerald & Shanahan, 2000).

The research into the reading – writing connection has taken three different orientations (Tierney & Shanahan, 1991): rhetorical procedures, procedural connections, and shared knowledge. The

approach that has been the focus of the most research to date is the analysis of the shared knowledge and cognitive process between reading and writing. This research begins with the principle that reading and writing are "constellations of cognitive processes that depend on knowledge representations at various linguistic levels" (Fitzgerald and Shanahan, 2000). According to this view, reading and writing are connected because they rely on analogous knowledge and language representations, cognitive process and contextual constraints.

2.1.2 Shared Knowledge and Language Competencies Between Reading and Writing

Four essential types of knowledge that readers and writers share have been established (Fitzgerald & Shanahan, 2000): metaknowledge, knowledge about universal text features, procedural knowledge and skill to negotiate reading and writing, and finally, domain knowledge These knowledge categories are linked to four broad domains of oral language research and theory, specifically pragmatics, phonology, syntactics and semantics, (Fitzgerald & Shanahan, 2000).

Research has demonstrated that successful readers and writers require metacognitive and pragmatic knowledge (Langer, 1986). Metaknowledge includes knowing about functions and purposes of reading and writing, awareness of the interactions between readers and writers, metacognitive skills during reading and writing, and motivational factors related to success in reading and writing (Fitzgerald & Shanahan, 2000). Pragmatics studies how people comprehend and produce a communicative act. The ability to comprehend and produce a communicative act is referred to as pragmatic competence which often includes one's social knowledge about the speakers involved, the cultural knowledge such as politeness, and explicit and implicit linguistic knowledge Several studies have shown the reciprocity involved in reading and writing: being a

writer positively influences the reading process and being a reader positively influences the writing process. Both processes are influenced by an awareness of and an appreciation for the other (Tierney & Shanahan, 1991).

Knowledge and application of universal text features is another category of shared knowledge between reading and writing (Shanahan, 2000). Researchers have found significant correlations between linguistic features in reading and writing, including phonemic, morphological, orthographic, lexical and syntactic features (Berninger, 2000; Shanahan, 1984). In addition, it has been suggested that the linguistic features of reading and writing seem to be bi-directional (Berninger, Abbot, Abbot, Graham, & Richards, 2000; Shanahan & Lomax, 1986). For example, not only does word recognition in reading affect spelling of written composition, but learning to spell has an effect on students' word recognition in reading.

Procedural knowledge and skill is the third area of shared knowledge between reading and writing. "This refers to knowing how to access, use and generate knowledge in any of the areas previously mentioned, as well as the ability to instantiate smooth integration of various processes" (Fitzgerald & Shanahan, 2000, p. 40). Both automatic and intentional strategies such as prediction, questioning, summarizing, and recalling relevant information are included in this area.

Fitzgerald and Shanahan (2000) identify domain knowledge and semantics as another shared area between reading and writing. This refers to prior information and background knowledge that a reader or writer brings to the experience, or the new knowledge that is generated through a reading or writing experience. Domain knowledge plays a role in reading and understanding at the word, sentence and text level as well as underlying the ability to organize, infer and remember information (Spivey, 1997). In regard to writing Flower & Hays

(1984) assert that content and domain knowledge are important to writers. Domain knowledge is directly related to vocabulary knowledge which has been shown to influence both reading and writing

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2.1.3 Evidence of Shared Knowledge and Processes in Reading and Writing

The research into the shared knowledge and language structures between reading and writing has been the focus of many extensive reviews and studies. These studies have attempted to estimate the amount of similarity in reading and writing, usually through correlational techniques relating two general measures of reading and writing ability (Tierney & Shanahan, 1991).

Stotsky (1983) published a review of studies covering fifty years of research. Correlational studies showed "better writers tend to be better readers (of their own writing as well as other reading material), better writers tend to read more than poor writers, and that better readers produce more syntactically mature writing than poorer readers" (p. 636). Loban (1963) conducted a longitudinal study of students' reading and writing developments across the grades, measuring results of reading and writing test scores. He concluded that "those who read well also write well; those who read poorly also write poorly" (p. 75). However, there were many good readers / poor writers and poor readers/ good writers in his sample. Loban reported on the same students in grade 9 and found that the relationship between reading and writing became more prominent as the years passed.

Some research suggest that Loban's conclusions may be a little misleading and simplistic (Tierney & Shanahan, 1996). Case-study data from six children aged 12 to 14 years (Martin, 1977) concluded "reading and writing are intertwined, but in ways that are not easily

predictable" (Martin, 1977, p. 52). Four subjects in this study showed little consistency in measures of reading and writing, often scoring high in one area and low in another. Tierney (1983) had similar findings; identifying students who performed well in one area but poorly in another.

More recent studies attempted to be more precise with regard to the types of knowledge and language skills shared across reading and writing and how the relationship might vary across age and proficiency levels. A study conducted by Shanahan (1984) and Shanahan and Lomax (1986), is one example. Their study examined 256 second and fifth grade students. They found that for beginning readers, phonics and spelling ability accounted for most of the variance between reading and writing. As proficiency among students increased, vocabulary diversity and story structure accounted for most of the variance. Similar findings have been reported (Abbot & Berninger 1993).

2.1.4 Differences in Reading and Writing

Results of cited research illustrate the complexities involved in knowledge sharing between reading and writing. Reading and writing draw on common linguistic features but the shared knowledge is not symmetrical and it may be used in different ways in reading and writing (Tierney & Shanahan, 1991). Langer (1986) concluded from her analysis that reading and writing were highly similar but had inherently different cognitive starting points that did not allow them to be more closely aligned. This conclusion was supported by others as they attempted to understand similarities between reading and writing (Shanahan, 2000). As language users mature and become more competent, skills in reading and writing become automatic.

2.1.5 Summary of the Reading and Writing Connection

The research on the reading and writing relationship has made some strides but still should be considered in infancy. The work thus far indicates that reading and writing are related activities of language and thought that are shaped through use (Langer & Flihan, 2000). Shared knowledge, language skills, and processes are common between readers and writers yet they are accessed differently in reading and writing depending upon development, proficiency, and situation. Evidence has shown that across development and proficiency levels, specific areas of language play a role in accounting for the differences between readers and writers.

2.2 VOCABULARY KNOWLEDGE AND READING COMPREHENSION

A strong relationship between vocabulary knowledge and reading comprehension has been established through the years. Factor analyses (Davis, 1944; Spearitt, 1972), correlational studies (Carver, 2003) and readability research (Chall, 1958) have reported strong relationships between words in a text and comprehension. Research has shown that teaching vocabulary knowledge increases reading performance (Coleman, 1971). Though high correlations between vocabulary knowledge and reading comprehension exist, the relationship between the two is complex.

2.2.1 Theoretical Hypothesis Underlying the Vocabulary – Reading Comprehension Relationship

Anderson and Freebody (1981) presented a framework for initial understanding of the strong relationship between vocabulary knowledge and comprehension in the form of three hypotheses; the instrumentalist hypothesis, the aptitude hypothesis and the knowledge hypothesis. According to Anderson and Freebody (1981) the hypotheses are not mutually exclusive. Current research has shown that all three hypothesis have some plausibility and in some instances, empirical evidence (Nagy, 2005).

The instrumentalist hypothesis (Anderson and Freebody, 1981) is the commonsense model of the vocabulary – reading comprehension connection. This model suggests that knowing more words makes one a better reader; therefore, to improve comprehension, vocabulary words should be taught. Evidence for this hypothesis has varied. Several studies have demonstrated that teaching words can lead to improved comprehension of text (Beck & McKeown, 1991), while other studies showed little or no reliable effect on reading comprehension (Mezinski, 1983; Stahl & Fairbanks 1986). Though some findings seem to support the instrumentalist model, one cannot conclude that vocabulary instruction will lead to gains in comprehension. It is clear that there is a relationship between vocabulary and comprehension of text, but the instrumentalist hypotheses can not stand alone; it is only one aspect of the vocabulary – reading comprehension relationship.

The second hypothesis proposed by Anderson and Freebody (1981) is the knowledge hypothesis which emphasizes the influence of the readers' background knowledge on comprehension. It is more than knowing the meaning of words that causes a reader to comprehend text, but knowledge of the concepts that the words represent. This hypothesis

implies that word meanings do not exist in isolation but are part of a larger knowledge structure and if instruction is to affect comprehension, vocabulary should be taught in combination with concepts and content (Nagy, 2005). The work of Stahl (1986) and Beck, McKeown & Kucan (2002) support the ideas presented in the knowledge hypothesis; teaching semantically related words and assisting learners in making connections between new words and prior knowledge are effective attributes of vocabulary instruction. The knowledge hypothesis proposes a link between knowledge and comprehension, though vocabulary knowledge is only part of the knowledge structure that plays a role in reading comprehension, thus adding to the complexity of the vocabulary – comprehension relationship.

The aptitude hypothesis (Anderson and Freebody, 1981) is the third theory presented in the Anderson and Freebody framework. This theory suggests that the relationships between vocabulary and comprehension are affected by a third factor; a general underlying verbal aptitude. According to this model, individuals with high verbal abilities will learn new words easier, possess larger vocabularies and will be better at understanding written text than those with lower verbal abilities. The general, quick thinking ability, or "mental agility" enables one to acquire word meanings incidentally and intentionally and is a skill involved in text comprehension (Mezynski, 1983). Though these individuals will likely score high on vocabulary and comprehension assessments, a direct link between reading comprehension and vocabulary is not logically necessary (Stahl & Nagy, 2006).

Mezynski (1983) offers a fourth explanation to the vocabulary – reading comprehension connection, the access hypothesis. This hypothesis suggests that if vocabulary is to impact comprehension, new words must be accessed quickly and efficiently by the reader. Practice becomes an important instructional implication in this model and is supported by the findings of

studies (McKeown, Beck, Omanson, & Pople, 1985) which show students need as many as 12 encounters with a word before they know if well enough to improve their comprehension.

2.3 EFFECTIVE VOCABULARY INSTRUCTION AND COMPREHENSION

Efforts to improve reading comprehension through vocabulary instruction have been inconsistent throughout the years. Many studies have been successful at increasing word knowledge of the words taught but unsuccessful in transferring that knowledge to comprehension measures (Beck & McKeown, 1991). Recent meta-analyses (Mezynski, 1983 & Stahl, et al, 1986) and additional studies (McKeown, Beck, Omanson & Pople. 1985) have uncovered promising findings related to the search to reveal an effect on comprehension from vocabulary instruction. These studies have also shown what works and what doesn't work when it comes to instructional methods for improving comprehension.

From the research reviewed in the Stahl and Fairbanks (1986) and Mezynksi (1983) meta-analyses, it can be concluded that vocabulary instruction does seem to have an effect on comprehension. The Stahl and Fairbanks (1986) analysis reviewed comprehension effects on passages containing taught words and on standardized test passages not designed to contain the taught words. Significant effects were found for both. A mean effect size of .97 was found for passages containing taught words and a mean effect size of .30 was found for the standardized passages.

The Mezynski (1983) meta-analysis reviewed eight vocabulary training studies designed to influence reading performance. Half of the studies used a "direct transfer" model in which words taught were contained in tested passages while the other half measured a more general kind of transfer. The goal of the latter studies was to increase students' general word knowledge using standardized reading and vocabulary tests which may or may not have included targeted words. All eight of the studies showed gains in overall word knowledge but not all were able to transfer this information to reading comprehension. The three studies that used a general transfer design were those that successfully influenced comprehension.

Looking closely at the results from both analyses provides some positive information related to the effects of vocabulary growth on comprehension and effective instructional methods. Stahl (1986) suggests that the effects found on the standardized measures are probably closer to the actual effects than those of the passage specific measures, and that these findings might be considered an estimate of the long term effects of vocabulary instruction. He concludes that these results suggest that vocabulary instruction generally facilitates growth in reading comprehension even on measures not containing taught words. One theory offered (Beck, Perfetti & McKeown, 1982) is that increasing student knowledge and interest in learning new words can lead to word awareness, and word awareness may enhance general word knowledge and comprehension. This is significant information for those arguing the futility of vocabulary instruction.

2.3.1 Instructional Implications

Of the studies that showed favorable gains in reading comprehension, some instructional implications can be drawn about the degree of word knowledge necessary to impact

comprehension. Mezynski (1983) has identified three variables: (1) amount of practice of the targeted words, (2) *breadth of word knowledge* about the words, and (3) the use of active processing. Similar conclusions were drawn by Stahl and Fairbanks (1986) as they confirmed the findings of Mezynski. In particular, Stahl and Fairbanks determined that methods that had the strongest effect on comprehension were those that included (1) both definitional and contextual information about the words, (2) multiple exposures to each word and (3) deeper processing of the words. The National Reading Panel (2000) has supported these findings. This type of instruction has been labeled as *intensive or rich vocabulary and or robust vocabulary instruction.* Each of the features will be discussed below.

2.3.2 Automaticity and Multiple Exposures to Words

Both Mezynski (1983) and Stahl & Fairbanks (1986) conclude that amount of practice on target words is a critical factor in influencing comprehension. In the eight studies analyzed by Mezynski the study that showed the largest effect on comprehension was the study by Beck, Perfetti & McKeown (1982). Mezynski concludes that "the instructional design used in this study was influenced heavily by the notion of automaticity of lexical access" and that "manipulation of the amount of practice affected how well the instructed words were learned and used" (p. 273). Other studies failed to incorporate practice into their instruction which may explain why students failed to use "known" words on measures that assessed comprehension (Mezynski). Additional studies (McKeown, Beck, Omanson, & Perfetti, 1983; McKeown, Beck, Omasnson & Pople, 1985) that included frequent encounters with words had similar results in

speed of access and comprehension measures, as found in Beck et al. (1982). LaBerge and Samuels (1974) presented a theoretical framework for emphasizing the importance of rapid access or 'automaticity' of accessing word knowledge in the reading process. If students can quickly recognize words and their meanings, cognitive resources can be freed for higher order processing, such as overall meaning in a text. Text processing can be compromised if reading is frequently interrupted by encounters with unknown words.

2.3.3 Degree of Word Knowledge

Both Stahl & Fairbanks (1986) and Mezynski (1983) conclude that vocabulary instruction that affected comprehension required students to learn words in deep and meaningful ways. Mezynski states that breadth of word knowledge is an important characteristic of successful vocabulary instruction and assessment. Breadth of knowledge refers to the varying degree of word knowledge necessary to fully know a word. "To assess the effects of vocabulary knowledge on reading comprehension, training should ensure that students have the breadth of word knowledge needed to comprehend the words as they occur in the text passage (p. 265). Training methods designed to teach students in a traditional manner and using only a definitional approach fail to provide learners with sufficient breadth of knowledge needed to understand words when encountered in text (Mezynski, 1983). Stahl & Fairbanks suggest that that a person really only knows a word when they know both definitional and contextual information about that word. McKeown & Beck (2005) clarify this by pointing out that "It is not the case that any definition and context will fit the bill. What is called for is a definition that explains and contextual information that reveals how a word is used" (p. 8). Beck, McKeown, & Kucan

(2002) in their recent publication, *Bringing Words to Life; Robust Vocabulary Instruction*, give detailed information on how to introduce words using *student friendly definitions*. Two guiding principles underlying the process include characterizing the word and its typical use, and using familiar language to explain the meaning.

Mezynski (1983) points to the training by Beck, Perfetti & McKeown (1982) as successfully providing students with breadth of word knowledge. In this rich vocabulary study, students were taught words that were grouped in semantically related categories. Instruction required students to contrast examples with non-examples of concepts being taught and to engage in classification exercises of new concepts. Using semantically related words and building relationships between them helps students bridge meanings of words and acquire a broader understanding of meaning (Mezynski). Examples of instructional methods used in Beck et al. (1982) and their subsequent studies that helped students acquire breadth of knowledge about target words include*: word association activities, sentence generation tasks, generating contexts* or *situations around the target words,* and *motivational devices*. Descriptions and examples for each will be provided below.

Word association activities (Beck, McKeown, Kucan, 2002) require students to make connections / relationships between target words and known words. This is followed by explanations for the association selected. Explanations may vary among students but will provide evidence as to the level of understanding of the target word. *Sentence generation tasks* involve completing a sentence stem that includes the target word (Beck, et al. 2002). Reflection on the students' completion allows the instructor to determine level of understanding of new words. An example of a sentence stem for the target word *glum* might be, "My friend felt very *glum* after…."

Asking students to answer questions about target words, explain examples about target words and create examples of target words are all activities designed to help students interact with various contexts or situations around a target word. These exercises help students expand word knowledge beyond context in which it was originally encountered (Beck, McKeown, Kucan, 2002). An example using the word i*mpress* includes asking "What is something you could do to *impress* your teacher? Why? What is something you could do that might *impress* your mother?" (p. 56).

2.3.4 Active and Deep Processing of Words

The third conclusion shared by Mezinski (1983) and Stahl & Fairbanks (1986) in regard to vocabulary instruction that impacts comprehension is the importance of active and deep processing of words. The theory underlying the importance of deep processing during vocabulary instruction is based on the idea that learning requires integration of new information with existing information to build semantic networks. Deep processing requires cognitive operations which improve retention of new information (Beck & McKeown, 1991). The Beck, Perfetti, & McKeown (1982) activities, as described above, were designed to require active and deep processing of new word meanings. Presenting activities in a five day cycle ensured interaction and processing daily. The study was replicated and the results showed students learned meanings of the words, accessed words more quickly and had improved comprehension of text (Beck & McKeown, 1991).

2.3.5 Motivational Techniques

A feature designed by the researchers in the Beck, Perfetti & McKeown (1982) study is the *Word Wizard* program. The intent of the word wizard program is to encourage students to notice words outside of the classroom and to maintain word knowledge of previously taught words. Incentives are provided when students show evidence of interaction with a target word outside of the classroom. Beck et al. (1982) speculate that motivation may have been an influencing factor in the overall success of the program.

2.3.6 Selection of Words to Teach

Helping students acquire an extensive and productive vocabulary is most certainly a goal of rich vocabulary instruction. Stahl and Nagy (2006) report that students need to learn between 2000 and 3000 words per year and that teaching 10 – 12 new words per week seems to be the norm in American schools. Selection of which words to teach is described by Beck, McKeown, & Kucan (2002). They classify words into a three tiered system. Tier One words include basic words such as *lamp, desk* and *wall*. Tier Three words are content specific words such as *Celsius* and *barometer* and Tier Two words are high frequency words used by mature language users such as *fortunate* and exha*ustion.* Beck et al. (2002) suggest tier two words as words selected for direct instruction. Additional criteria in selecting Tier Two words include: "importance and utility, instructional potential and conceptual understanding" (p.19). Once the Tier Two words have been selected, instruction should be guided by the principles identified by Stahl & Fairbanks (1986) to ensure that students learn words to a high degree of word knowledge.

2.3.7 Summary of the Relationship Between Reading and Vocabulary

Research has demonstrated that rich instruction of vocabulary can positively influence comprehension. Three guiding principles identified from the research serve as the basis for effective instructional methods designed to increase word knowledge to a degree that can affect comprehension. Descriptions and examples of such methods have been provided. Words selected for direct instruction should be Tier Two words; words that have high utility, instructional potential and are used by mature language users.

2.4 VOCABULARY KNOWLEDGE AND WRITING

It is well understood that words and language play a critical role in writing. Moderate correlations have been shown between verbal IQ and writing (Shanahan, 2006). Significant research has been conducted on the effects of vocabulary instruction on reading performance but studies investigating vocabulary instruction and writing are few (Duin & Graves, 1987). Despite the correlations between verbal ability and writing, the nature of the relationship between the two is less certain (Shanahan).

2.4.1 Hypothesis Underlying the Relationship between Language and Writing

"A rich vocabulary allows a writer to get a richness of thought onto paper. However, the writer's real pleasure comes not from using an exotic word but from using the right word" (Fletcher, 1993).

In their cognitive process theory of writing model (Flower and Hayes, 1994) word selection is significant during all three phases of the writing processes: planning, translating and reviewing. According to Flower and Hayes, during text production, writers produce text in sentence parts, pause, evaluate text based on syntax and semantics and then reject or accept the text. When a sentence part is accepted, writers search for an appropriate meaning for the next part of their sentence. During pausing, working memory demands are high. Flower and Hayes hypothesize that writers who have more language produce sentence parts at a quicker rate, are more cohesive, and longer in length than those with less language. Experience with language reduces the amount of memory necessary for sentence construction. Long term memory is equally as important as working memory as this is where writers store their knowledge of vocabulary as well as grammar, topic, genre, audience and other important elements in the writing process (Hays, 1996).

In other cited research, effective writing has also been shown to be reliant upon verbal working memory (McCutchen, 1996; Swanson & Berninger, 1996). These studies show that students who had difficulty producing well written compositions suffer from underdeveloped oral proficiency levels. Further research shows that verbal memory limitations impact both quantity and quality of writing (Bereiter & Scardamalia, 1987; Cox, Shanahan, & Tinzman, 1991; McCutchen, 1987).

In a study of fourth and fifth grade writers, verbal IQ was linked to composition quality of both narrative and expository writing with correlations of .35 in narrative and .42 in expository (Berninger, Cartwright, Yates, Swanson, & Abbot, 1994). Maloney (1967) found that superior ninth grade writers scored much higher than their counterparts on tests that measured reading comprehension as well as vocabulary, implying that those with larger vocabularies are at an advantage.

From the cited studies above, it is suggested that individuals who have large oral vocabularies are cognitively better equipped during the writing process than individuals with poor oral vocabularies. Cognitive demands on the writer are high and those with an abundance of words in their verbal working memory seem to be at an advantage.

The second theory underlying the connection between vocabulary, language and writing is based on the quality of language produced by the writer. Writing that contains mature vocabulary has been consistently viewed of better quality than writing with less mature vocabulary (Duin & Graves, 1987).

In a study comparing writing of tenth grade students, writers of high rated essays were shown to use more words in their writing than those who produced low rated essays (Stotsky, 1986). In comparison, the low rated essays contained an average of 82 words and 54 different words while the high rated essays contained an average of 145 words and 84 different words. The writers of the low rated essays were also found to use very common words with an extremely high proportion of pronouns in their writing.

Similar findings have been cited in other literature (Grobe, 1981; Halliday & Hasan, 1976; Lunsford, 1980).

In summary, it has been suggested that both the quantity and quality of language readily available to a writer are critical to producing well written text. Stephen Kucer (1985) sums it up efficiently, "*In writing, selecting is the process of placing the propositions being formulated within short – term memory into a surface representation. The writer must find the appropriate language and syntactic structure that captures the meaning of each proposition" (p. 331).*

2.4.2 Effects of Vocabulary Instruction on Writing

Efforts to improve writing performance through vocabulary instruction have been limited making generalizations about the role of vocabulary instruction unwarranted (Graves, 1986; Johnson, 2000). However, a few studies examining the effects of vocabulary instruction on writing reveal some promising findings between the two.

A recent vocabulary project entitled "The Gift of Words" (Henry, Scott, Wells, Skobel, Jones, Cross & Blackston, 1999; Scott, 2004) explored ways to develop word consciousness and vocabulary knowledge for the purpose of assisting students in transferring words encountered in text into their writing. Teachers immersed students in rich literature and examined word use by authors. The notion was that such a process would help students to value the power of words in writing, leading to wider vocabulary use, and improved writing by the students. Quantitative and qualitative data showed significant improvement in the students' overall writing and attitudes as compared to classes in the same school. Teachers were most impressed by increased student awareness and appreciation for words as well as a willingness to experiment with words in writing.

Teachers in the study adhered to the following principles relating to vocabulary development: valuing words is critical to student learning, wide reading and direct instruction are critical components to vocabulary learning, and modeling word consciousness with a focus on language use encouraged students to pay attention to words (Henry, Scott, Wells, Skobel, Jones, Cross & Blackston, 1999).

Ann Duin and Michael Graves (1986, 1987, 1988) investigated the effects of teaching vocabulary during prewriting on students' quality of writing as well as the use of target words in their writing. In their 1987 study, Duin and Graves taught 13 sophisticated words related to the theme 'space' to seventh grade students. Three treatment groups were established. The first group utilized *rich vocabulary instruction* modeled after the work of Beck and her colleagues, along with specific writing activities and tasks designed to assist students in using the new words in writing. The second group was identical to the first in regard to the *rich vocabulary instruction*, but did not include writing activities. The third group was taught using traditional vocabulary instruction without any writing activities.

Results showed that students who received the rich instruction out performed those who received traditional instruction on all measures with students in the first group doing best. Students in the rich vocabulary groups increased significantly from pretest to posttest on all measures including the number of target words used in writing, overall quality of writing, and on measures of vocabulary knowledge. Students in the traditional group performed lower on all post tests.

Duin and Graves (1987) provide some possible explanations for the effectiveness of the groups receiving rich instruction: words selected were chosen for and taught around a common topic, students were encouraged to notice and use words outside of class, vocabulary instruction

provided both contextual and definitional information about the word's meaning and students had multiple exposures to words that required deep and active processing.

Explanations provided by Duin and Graves (1987) align with current research based implications regarding effective vocabulary instruction related to growth in reading comprehension as found in numerous vocabulary studies employing principles of rich vocabulary instruction (Beck, Perfetti & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983; McKeown, Beck, Omasnson & Pople, 1985). From their work, Duin and Graves conclude that it is possible to improve the quality of student writing by teaching vocabulary in the same manner in which it has been shown to impact reading performance.

2.4.3 Summary of the Vocabulary and Writing Relationship

Cited research suggests that having a large and sophisticated vocabulary helps a writer produce quality text by limiting the cognitive demands during a writing task. Though research connecting effective vocabulary instruction and writing is limited, some studies suggest that rich vocabulary instruction and developing word consciousness can positively influence writing (Duin & Graves, 1987; Henry, Scott, Wells, Skobel, Jones, Cross & Blackston, 1999; Scott, 2004).

The work of Duin and Graves in their 1987 study provides some insight into the possible connection between rich vocabulary instruction and the effects on writing. Since then, interest in vocabulary development has increased and vocabulary has been identified as one of the major components of reading instruction by the National Reading Panel (2000). Principles identified from the research relating to generalized effects in comprehension as a result of vocabulary

instruction may serve as the basis for effective instructional methods designed to increase word knowledge to a degree that can affect writing. More studies of this kind are needed to further investigate this theory. The present study will take on these issues.

3.0 OVERVIEW OF THE METHODS

The purpose of this study was to compare the effects of two instructional vocabulary approaches, rich vocabulary instruction and traditional vocabulary instruction on students' knowledge of Tier Two words and their abilities to use the target words in expository writing. Both approaches include methods for introducing meanings of new words along with activities designed to promote frequent encounters with the target words. The same target words were used with each approach and numbers of encounters with each word were consistent. Both traditional and rich instruction have been found to increase simple definitional word knowledge with rich instruction yielding deeper word knowledge, affecting comprehension, and promoting rapid access of words (Beck, McKewon, and Omanson, 1987). Too few studies have been conducted to be able to generalize the effects of vocabulary instruction on writing (Graves, 1986; Johnson, 2000). The present study will take on this issue.

Rich vocabulary instruction (Beck, McKeown, and Kucan, 2002) includes introducing new words through the use of student friendly explanations, providing multiple contexts and examples for each word, and activities designed to promote deep processing of words. Traditional instruction includes introducing new words through the use of a student dictionary, providing exposures to the words through instructional activities such as synonym and antonym matching, cloze sentence activities, sentence writing and other traditional activities found in basal reading and language arts programs used in the majority of elementary schools.

3.1 PARTICIPANTS

Participants in this study were fourth-grade students from an urban school district in southwestern Pennsylvania. Intermediate grade students were selected for the study due to the following factors. First, intermediate students were chosen over primary students because they are typically more fluent readers and more able to write expressively in different forms using conventional spelling, diverse vocabulary and more complex sentences (International Reading Association & National Association for the Education of Young Children, 1998). Additionally, instruction in the intermediate grades in the school district in which the study was implemented focuses on persuasive writing in their core language arts program, and also in preparation for assessment on the state writing test administered in grade five. This attention to instruction in persuasive writing suggests that the current study aligns with expectations and outcomes at the intermediate grade levels.

The district used in this study has twenty elementary schools that service Pre-Kindergarten through fifth grade students and nineteen K-8 schools. 72.9% of the elementary students in the district are eligible for free or reduced price lunch. The percentage of current fourth grade students in the district considered proficient as measured by performance on the 2006 - 2007 Pennsylvania System of School Assessment (PSSA) reading assessment is 59%.

In the specific school being used in the study, 51.61% of the students are eligible for free or reduced lunch and 70% of fourth graders were considered proficient as measured by results of the 2006-2007 PSSA reading scores. 33% of students in the school are African-American, 64.75% White and 2.1% other. The school has a daily attendance rate of 96.2%. Permission was granted from the district's IRB office to conduct the research at this site.

Both fourth grade reading classes in the school were used for the study. Classes remained intact for the duration of the study. Each group had a different reading teacher and followed the same core curriculum. Both classes had 18 students but only 16 from each group were granted permission to participate in the study. PSSA results from 2006 – 2007 were obtained and students were scored using a four point rubric which rated reading performance on a scale from 1(below basic) to 4 (advanced). A one way analysis of variance (ANOVA) was conducted to establish if conditions were equal between the two classes. After running the analysis, it was determined that the reading proficiency of the two groups was not significantly different at baseline ($F(1, 30) = .00$, $p = 1.00$). The information is presented in Table 1.

Table 1. Mean Level of Reading Proficiency at Baseline for Experimental and Control Groups

Condition	n	Mean (SD)	F	p
Experimental	16	2.75 (1.00)	.000	1.00
Control	16	2.75 (.683)		

3.2 MEASURES

Three dependent measures were included in the study: (1) a 12-item multiple choice vocabulary pretest and posttest; (2) a 12-item depth of word knowledge vocabulary pretest and posttest task; and (3) a pretreatment and post treatment writing assignment for a persuasive essay about the importance of keeping community parks clean. Scoring procedures for each are described in detail. All pretests and posttests can be found in Appendix B.

3.2.1 Multiple Choice Pre and Post Test

The 12-item pretest designed by the researcher contained the 12 target words to be taught, randomly ordered. Each item consisted of a stem including the target word, followed by five options consisting of the correct answers and four distracters. Five options for each stem were given to reduce the chance of guessing. The posttest contained the same items organized in a different random order.

The multiple choice pre and post test were administered to both groups by the researcher in a whole group setting. The directions and items were read orally to all students in an attempt to control for decoding issues that might interfere with word knowledge. The pretest was administered prior to the start of the study and the posttest administered on the first day after instruction was completed. The multiple choice pretests and posttests were scored by the researcher and checked for accuracy by an independent rater.

3.2.2 Depth of Word Knowledge Vocabulary Assessment

In addition to assessing word knowledge using a traditional multiple choice format, a depth of word knowledge assessment was administered. It is generally agreed that correctly answering multiple choice items may not require precision of word meanings, thus providing little or no information on depth of word knowledge on words they have been answered correctly (Cronbach, 1943, Curtis, 1987, Graves, 1986). To gather more information related to depth of word knowledge, this assessment was designed by the experimenter to be used as a pre and post assessment.

The 12-item assessment contained 12 open ended sentence starters, randomly ordered. Each item consisted of a sentence stem including a target word. Students were instructed to complete each sentence in order to demonstrate depth of word knowledge. For example, the word *imperative* was assessed in the following manner: *Something* ***imperative*** *for a teacher is* _____ *because*____. Responses were judged using a rubric developed by the researcher and rated word knowledge on a continuum according to the following scale: *full word knowledge, partial word knowledge, vague word knowledge and no word knowledge* (see Table 2).

The depth of word knowledge assessment was administered to both groups by the researcher in a whole group setting for both the pre and post test. The directions and stems were read orally to both groups during both administrations. The pretest was administered prior to the study and the posttest, in which the items were presented in a different order, was administered following the treatment.

The depth of word knowledge assessments were scored by the researcher and an independent rater using the four point rubric developed by the researcher rating word knowledge on a continuum according to the following scale: *full word knowledge, partial word knowledge,*

vague word knowledge and no word knowledge. Full word knowledge scores were given a rating of 3, partial word knowledge a 2, vague word knowledge a 1, and no word knowledge a rating of 0. These were scored by the researcher and an independent rater on separate sheets of paper and ratings were compared. Interrater reliability was .84 for this measure. The rubric and a sample item are shown in Table 2.

Table 2. Degree of Word Knowledge Rubric

Category	Sample Item
Full Word Knowledge Response demonstrates full understanding and use of the word.	Something *imperative* to a teacher is a chalkboard because she needs it to write important stuff on so that we can see how to do new things like math problems and learn how to spell new words.
Partial Word Knowledge Response demonstrates a limited understanding and use of the word.	Something *imperative* to a teacher is a chalkboard because she needs it to write on.
Vague Word Knowledge Response demonstrates an ambiguous, doubtful or uncertain understanding and use of the word.	Something *imperative* to a teacher is a chalkboard because it is fun to write on the board. Something *imperative* to a teacher is a chalkboard because_____
No Word Knowledge Response indicates no understanding of the word or its use.	Something imperative to a teacher is a pet because teachers should have fun with pets when they are home. Something imperative to a teacher is _____ because _____. (Blank response)

3.2.3 Pre and Post Treatment Writing Assignment

To measure the efficacy of the vocabulary instruction on students' abilities to learn new words and apply them to their writing, a writing assignment was administered to students. The writing assignment used in the study was a persuasive essay about the importance of keeping community parks clean, and was taken from the fourth grade *Macmillan McGraw – Hill Treasures Reading / Language Arts Program, 2006* being used by the students in the study. The writing assignment prompt is shown below:

> *Write an editorial for you local paper in which you tell readers why you think it is important to keep you city parks clean. Be sure you support ideas with persuasive language. Your editorial should be at least three paragraphs long.*

This writing assignment was administered to all fourth grade students in the school and district being used for this study, following five weeks of writing instruction focusing on the genre of persuasive writing. All students were given a copy of the *Pennsylvania Persuasive Writing Rubric* while writing the essay to serve as criteria for proficient writing subsequent to specific instruction on the individual domains of the writing rubric: *focus, style, organization, content,* and *conventions.* The assignment was read by the classroom teacher and the students completed the essays independently. The rubric can be found in Appendix C.

In the current study, the essays produced by the students as part of the district's grading requirements served as the pretreatment, baseline writing assignment. As part of the post measures, the same writing assignment was administered to the students following the treatment. An effort was made to replicate the conditions of the prewriting essay: the post writing was

administered whole group, the students had the use of the *Pennsylvania Persuasive Writing Rubric*, the assignment was read aloud, and students completed the essays independently. The only difference that occurred was during the post writing in which all students were cued to attempt to use the new words in their writing and target words were made visible to students through the use of the word wall posted in both classrooms.

The pre and post writing essays were scored for overall quality of writing using the four point Pennsylvania Rubric for Persuasive Writing. The following scale was used: advanced, proficient, basic, and below basic. Advanced scores were given a rating of 4, proficient a 3, basic a 2, and below basic a rating of 1. Essays were read by the researcher and an independent rater at separate times. Scores were recorded on separate sheets of paper and compared for accuracy. Interrater reliability was computed at .89. The number of target words used in each essay was also counted and compared.

3.3 SELECTION OF VOCABULARY WORDS

As learning vocabulary words play a significant role in the experiment, selecting the appropriate words was essential. Two criteria were established to choose words for the study: 1) words in which fourth grade students were likely to have little word knowledge; and 2) words that could be applied to the persuasive writing assignment being given to students as a part of the pre and post assessment. Based on these criteria, along with the time allotted for the study, 12 words were ultimately chosen.

The first criteria for selecting words was to choose words that were likely to be unknown by fourth grade students. To find such words, Beck and McKeown's (1985) framework of tiers was used. The framework was developed as a way to identify target words which would be valuable to teach to students for the purpose of increasing their vocabularies. In the framework, words are classified into one of three tiers based on the following: importance and utility, instructional potential, and conceptual understanding (Beck, McKeown, & Kucan, 2002). Tier One words are basic words such as *table* or *mad,* and require little or no instructional time. Tier Three words are words that are specific to a domain such as *barometer* and are considered low frequency in everyday usage. Tier Two words are words that children already have conceptual understanding of, are characteristic of mature language users as well as written language, and have high utility across many domains.

The second criteria for selecting words was to find words appropriate and relevant to the writing assignment being used in the study about the importance of keeping community parks clean. To identity Tier Two words that could be used in this context, the researcher collected and read sample essays from two fourth grade classrooms using the same persuasive writing assignment about the importance of keeping community parks clean. The sample essays came from classrooms within the same school district being used in study.

The purpose of reading the essays was to find common themes and words used by the students that could be linked to Tier Two words for use in the current study. Words and concepts were counted and tallied and then related to Tier Two words which did not appear in any of the sample essays. For example, a large number of students wrote about how dangerous littering in parks could be to animals, children and adults. *Hazardous,* a Tier Two word was determined to be an appropriate match for that particular concept. In another instance, a large

proportion of student essays voiced concern that littering would cause their parks to be dirty and run down. The Tier Two word *deteriorat*e was linked to that particular idea. In reading and examining the content of the student essays, it was determined that nine Tier Two words could be selected in this manner.

Three additional Tier Two words that could be applied to a global persuasive writing essay were added to increase the number of words being used to 12. An example of such a word is *imperative*, a Tier Two word intended to take the place of *important*, a commonly used word by students in persuasive writing.

To make certain that the Tier Two words selected by the researcher were above the fourth grade level, *The Living Word Vocabulary Book* (Dale & O'Rourke, 1981) was consulted. All 12 words selected were indexed at either the sixth, eighth, or twelfth grade level. The concepts collected from the sample essays and Tier Two words used in the current study are found in Tables 3 and 4.

Table 3. Themes from Student Essays and Tier Two Words Selected

Concepts from Student Essays	Connected Tier Two Words
Kids can get hurt Animals can get hurt Adults can get hurt Cigarettes and drugs are dangerous	***hazardous***
Parks will close down There will be nowhere for kids to play	***unfortunate*** ***deprived***
Parks will be dirty No one will want to visit the parks	***deteriorate***
We should have a nice place to play and visit	***appealing*** ***environment,*** ***recreation***
People should be responsible and help keep the parks clean	***accountable,***
Keep the parks clean, Save the earth	***maintain***

Table 4. Additional Tier Two Words Selected

Global Concepts for Persuasive Writing	**Tier Two Connections**
Important	***imperative***
Persuade	***sway***
Many (reasons)	***numerous***

3.4 GENERAL PROCEDURES

General procedures for both conditions will be described in the following section including information about schedules, instructional activities, and materials.

The two fourth grade classrooms used in the study were randomly assigned to one of the treatment groups by flipping a coin. The instructor for both groups was the researcher. Both groups were taught the same 12 words in the same order and sequence. Table 5 shows the order in which the words were introduced to both groups.

Table 5. Sequence of Words Introduced

Day 1: hazardous, imperative, numerous, environment, recreation, deteriorate
Day 3: appealing, sway, maintain, accountable, unfortunate, deprived

On Days 1 and 3, students in both groups were introduced to six words, and activities were provided for immediate interactions with the words. Days 2 and 4 were designed to provide additional opportunities and encounters with the new words. Day 5 of the study was planned to provide a review of all 12 words. Table 6 illustrates the instructional schedule utilized.

Table 6. Instructional Schedule for Both Conditions

Day 1. Introduce first set of six words; interact with first set
Day 2. Continue activities to interact with first set of four words
Day 3: Introduce second set of six words; interact with second set
Day 4: Continue activities to interact with second set of words
Day 5: Review of all 12 words

Instruction and activities for both groups were completed in approximately forty-five minutes. At the end of the lesson, the researcher directed the students to put away their vocabulary notebooks and the classroom teacher resumed control of the class

3.4.1 Materials

Students in both groups received a vocabulary notebook, prepared by the researcher that contained worksheets for daily lessons and activities. Worksheets differed for each group. Instructor materials included overhead transparencies and lesson scripts. Lesson materials for the first day of instruction are found in Appendix D.

Vocabulary words were presented to all students on card stock and posted in the room on a vocabulary bulletin board. Words remained posted on the bulletin board during the duration of the study.

3.5 TRADITIONAL CONDITIONS

The prevalent method of vocabulary instruction in elementary classrooms includes presenting students with a dictionary definition of the word, possibly a context sentence, and may include providing labels such as synonyms and antonyms for new words (Scott, Jamieson-Noel & Asselin, 2003; Watts, 1995). Whole class instruction followed by independent seat work is the dominant modes for vocabulary instruction in elementary classrooms (Scott, et al, 2003).

3.5.1 Traditional Instruction and Procedures Followed

Traditional instruction designed by the researcher was presented to students in the comparison group and consisted of five days of instruction and activities designed to teach 12 Tier Two words. Multiple exposures to each target word, not a characteristic of traditional instruction, were included to equalize the number of exposures that were encountered by the students in the Rich Instruction group. Multiple exposures have been found to be a valuable component of a vocabulary program (Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Pople, 1985; Stahl & Fairbanks, 1986). As such, traditional instruction in this study can be described as 'extensive'.

Traditional lessons throughout the study followed a similar format of introducing students to dictionary definitions of target words followed by traditional interactions and activities to promote word learning.

3.5.2 Traditional Instruction Days 1 and 3: Introducing and Defining Target Words

As previously stated, target words were introduced and defined to students on Days 1 and 3 of the study. The steps for introducing words in the traditional approach were as follows:

1. Introducing the Word: Lessons began with the instructor introducing each word to the students orally. Each word was presented on card stock and posted on a vocabulary bulletin board. The spelling and parts of speech were noted by the instructor.

2. Defining the Word*:* A dictionary definition was read aloud by the instructor from a transparency visible to all students. Definitions for words were obtained from *Merriam Webster's Online Children's Dictionary.* As the instructor read the definition aloud, students copied the definition onto a worksheet in their vocabulary notebook. For example, the word *hazardous,* an adjective, was defined as *marked by danger; risky.*

3. Cloze Sentence Activity: After copying the definition, the students were prompted to complete a cloze sentence that required them to fill in the target word. The purpose of this activity was for students to use target words correctly in context.

3.5.3 Initial Activities to Reinforce Words

Following the initial introduction of the target words, traditional activities were provided to immediately reinforce the meanings of the new words. All activities, with the exception of the concentration game, were conducted in a whole group and students recorded answers in their vocabulary notebooks. The researcher read and explained all directions to the class. Activities and procedures were as follows:

1. Unscrambling Vocabulary Words: A list of scrambled vocabulary words was included in the student vocabulary notebook. Students were instructed to unscramble the words to correctly spell the new target words. A recent study conducted in 23 elementary schools showed that attending to spelling of new vocabulary words is a practice used in many classrooms (Scott, Jamieson-Noel & Asselin, 2003; Watts, 1995). Students chorally spelled each word before moving to the next.

2. Word Bank Activity: In the second activity, students were given a word bank containing the new words and a list of sentences with a missing word. Students read each sentence and determined which vocabulary word fit into each sentence.

3. Matching Activity: A matching activity designed to match target words with synonyms was presented to students as the third activity in the lesson. For example, the word *hazardous* was matched with the word *harmful*.

4. Concentration: To increase motivation, a game was included in the first day of instruction. Students were put into pairs for this activity. Half of the cards contained the new words and the other half contained the definition of each word and a synonym for each word. Students were instructed to match each new word with its definition and synonym. Students were encouraged to use their notebooks for clarification of unknown definitions or synonyms.

5. Sentence Generation: For the final activity of the day, students were asked to construct a sentence using each new word in their vocabulary notebook. Students were encouraged to do this independently and then the instructor called on a few students to read their sentences aloud. In the case where a student misused a word, the instructor provided corrective feedback to model correct usage of the word.

3.5.4 Traditional Instruction, Days 2 and 4

Days 2, and 4 of the study were designed for the purpose of affording students additional practice and exposures to the words introduced the previous day. All activities were conducted whole group and students recorded answers in their vocabulary notebooks. The researcher read and explained all directions to the class. Activities and procedures used were as follows:

1. Review of Words: The instructor asked the students to orally read the words and definitions introduced the previous day from their notebooks.
2. Synonym Practice: Students were given phrases that contained a bold faced word and asked to replace the bold faced word with a vocabulary word that is the same or most nearly the same in meaning. For example, *a dangerous situation* was replaced with *hazardous.*
3. Sentence Completion: Students selected the correct vocabulary word to complete sentences. Two choices were given for each sentence.
4. Antonym Practice: Students were given phrases that contained a bold faced word and asked to replace that word with a vocabulary word that is most nearly opposite in meaning. For example, *a safe drive in the county* was replaced with *hazardous*.
5. Sentence Generation: Students were asked to create a sentence for each new word and recorded sentences in their vocabulary notebook. The instructor allowed various students to read their sentences aloud to the class.
6. Word Search: Students completed a word search containing their new words. Students were permitted to work in partners to complete the activity.

3.5.5 Traditional Instruction Day 5

Day 5 of the study was designed to be a review day for all 12 words. All work was corrected by the researcher at the end of the session. The following activities and procedures were as follows:

1. Review of Definitions: Instructor conducted an oral review of all words and definitions by pointing to each vocabulary word on the bulletin board and eliciting a response from students.
2. Matching: Students independently completed a matching activity in the vocabulary notebooks in which they matched target words with both synonyms and antonyms.
3. Crossword Puzzle: Students worked independently to complete a crossword puzzle containing all 12 words.
4. Sentence Completion: Students selected the correct vocabulary word to complete sentences. Two choices were given for each sentence.
5. Unscrambling Vocabulary Words: A list of scrambled vocabulary words was included in the student vocabulary notebook. Students were instructed to unscramble the words to correctly spell the new words.
6. Sentence Generation Game: Students partnered with each other to complete sentences using each vocabulary word. Students were encouraged to combine words to create sentences. A prize was awarded to the pair of students who created the least amount of sentences.
7. Concentration: Students continued working in pairs and played concentration with all 12 words, matching words with definitions. A total of twenty-four cards were given to each pair.

3.6 RICH INSTRUCTION

In his meta-analysis, Stahl identified three features of 'good' vocabulary instruction for teaching specific words. These include: (1) teaching both definitional and contextual information about the words, (2) providing multiple exposures to each word and (3) active or deep processing of the words (Stahl, 2006). This type of instruction has been labeled as *rich instruction*. The goal of rich instruction is to engage students in active thinking about word meanings, thinking about how words may be used in different situations, and examining relationships among and between words. Research has shown that rich vocabulary instruction can strengthen vocabulary knowledge and have an effect on comprehension (Beck, Perfetti & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983; McKeown, Beck, Omasnson & Pople, 1985).

3.6.1 Rich Instruction Procedures Followed

Rich instruction, modeled after research and lessons developed by leaders in the field (Beck, McKeown & Kucan, 2002; Beck, Perfetti & McKeown, 1982) was designed by the researcher and was presented to students in the experimental group. Instruction consisted of five days of lessons and activities developed to teach 12 words relevant to the topic of keeping community parks clean. The number of encounters for each word was consistent with encounters in the comparison group.

Lessons throughout the study followed a similar format of introducing students to revised definitions of target words followed by interactions and activities purposefully designed to promote active and deep processing of words.

3.6.2 Rich Instruction Days 1 and 3: Developing Initial Word Meanings and Interacting with Words

As mentioned, six new words were introduced and defined to students on days 1 and 3 of the study. *Student friendly explanations,* a technique developed by Isabel Beck and Margaret McKeown (2001) was used with the experimental group. In this technique, definitions were rewritten for students using clear and comprehensible language. These have been found to be superior to dictionary definitions (McKewon, 1993).

The following steps were part of the instructional sequence for introducing words using student friendly explanations as illustrated in *Bringing Words to Life* (Beck, McKeown, & Kucan, 2002):

1. Introduce Words: The instructor read a short story to the students that contained the new words to be introduced. The story was displayed on a transparency that was visible to all students and target words appeared in bold type. The story was written by the researcher.
2. Contextualize the word: Each target word was contextualized within the story. For example, when contextualizing the word hazardous, the instructor said: *"In the story, Madeline was worried that she was in a* **hazardous** *situation. Another way of saying that is she worried she was in a dangerous situation."*
3. Say the Word: The instructor prompted the students to say the word orally.
4. Provide a student-friendly explanation: The instructor read an explanation of the word, written in everyday language that was easily understood by the children. An example of a student-friendly explanation for hazardous: *If something is* **hazardous**, *it is dangerous to your health or safety. For example, smoking cigarettes is*

considered **hazardou**s *to your health.* After the explanation was read, the instructor asked the students to write it in the vocabulary notebooks.

Following the initial introduction of words, engaging activities were provided that required students to deal with the meanings of words and assisted with processing of new meanings. Activities replicated those found in rich vocabulary instruction research (Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983; McKeowon, Beck, Omanson, & Pople, 1985) as found in *Bringing Words to Life* (2002).

Activities were conducted in a whole group setting and students recorded responses in vocabulary notebooks. Activities that were used in the instructional cycle are described below:

1. Making Choices: Students were presented with a list of words and phrases and decided if each described an example of the target word. For the word *numerous*, the instructor read the following to the class:
   a. *people in the world*
   b. *snowy days in October*
   c. *raindrops during a storm*
   d. *books in a library*
   e. *American Idol winners*

   Students responded to each item and then explained why they answered as such.
2. Examples / Non Examples: Students were presented with various scenarios and had to select which one was a better example of the target word and then explain why. For the word *imperative*, students were given: *Listening to your coach as he describes the new play or listening to your favorite song you just downloaded on your Ipod?*

3. Idea Completions*:* Students were provided with sentence stems that required them to incorporate a word's meaning into a new context in an effort to explain a given circumstance. An example of a sentence stem that was used for the word *hazardous*: *A day at the swimming pool might become hazardous if….* Sentences were shared whole group.
4. *Single Context:* A single context was created in order for students to apply understanding of newly learned words. For example, the context of 'home' was given and students answered the following: *In my home…*
    a. I have *numerous.*……
    b. I am *accountabl*e for….
    c. Something *hazardous* might be….
    d. It is *imperative* to keep the .....clean because…….
    e. I prefer to study in an *environment* that is ……
    f. It would be *unfortunate* if…

3.6.3 Rich Instruction Days 2 and 4

Days 2 and 4 were designed to provide students with additional opportunities for actively engaging with the target words in a variety of contexts, exploring facets of word meanings and considering the relationships among the new words. Activities were conducted in a whole group format. Daily instruction began with a review of the target words followed by a minimum of three activities. Instructional activities used were as follows:

1. Review of Student Friendly Explanation: The researcher pointed to the words on the word wall and read the student friendly explanation to the class. Students followed along in their notebooks.
2. Examples / Non Examples (described above)
3. Physical Reactions**:** Students were prompted to act out a physical response to a target word. For example, "Show how you would act in following environments…a basketball game? A church?
4. Activities to explore relationships between words: Two of the newly learned words were paired and students had to reflect on how the meanings related in order to answer the questions and then explain why. For example, the words *appealing* and *recreation* were used in the following manner:

   *What type of **recreation** would be **appealing** to:*

   - A senior citizen?
   - A baby?
   - A dog?
   - A professional football player?

5. Single Context (described above)
6. Idea Completion (described above)
7. Word Association: Students were asked to associate a newly learned word with a known word or phrase and tell why they associated the two together. For example:

   a. Which goes with potholes in a road? (*deteriorate*)
   b. Which goes with voting for class president? (*sway*)
   c. Which goes with a tropical vacation? (*appealing*)
   d. Which goes with skating? (*recreation*)

8. Making Choices (described above)

3.6.4 Rich Instruction: Day 5

Day 5 of the study was designed as a review day and provided opportunities for students to interact with all of the new words. Principles of rich instruction were followed. The following activities, already described above, were used in the final review:

1. Student Friendly Explanation Review
2. Examples / Non Examples
3. Exploring Relationships between words
4. Providing a single context for words
5. Idea Completion
6. Word Association

3.6.5 Summary

Following the instructional cycle and post test period, pre and post test data were collected and analyzed. Results and discussion will be described in the following chapters.

4.0 RESULTS

The purpose of this study was to compare the effects of two instructional vocabulary approaches, rich vocabulary instruction and traditional vocabulary instruction, on students' knowledge of Tier Two words and their abilities to use these target words in expository writing.

Data from pretest and posttest assessments were statistically analyzed from three measures including a multiple choice assessment, a degree of word knowledge assessment and a writing essay to compare results from both methods. In addition, item analyses were completed on the multiple choice assessment, the degree of word knowledge assessment and the writing sample to analyze student performance on individual words as well as trends among the words taught and learned between both groups. Data analysis served as a means to examine and compare which instructional method was more effective in facilitating depth of word knowledge, improving student writing quality and usage of tier two words in writing.

4.1 MEASURES OF WORD KNOWLEDGE

To determine whether there were differences in word knowledge achieved by students as a result of the instructional condition, two assessments were administered. The multiple choice test was intended to measure basic word knowledge while the degree of word knowledge assessment was designed to measure precision and depth of word knowledge. The data were analyzed with a two- way, repeated measures ANOVA. Results for both are described below.

4.1.1 Multiple Choice Measure

Table 7. Mean Scores and Standard Deviations from Multiple Choice Pre and Post Test by Condition

Condition	n	Pre-test		Post-test	
		Mean	(SD)	Mean	(SD)
Experimental	16	5.78	(2.13)	11.33	(1.45)
Control	16	5.81	(1.72)	10.87	(1.78)

On the multiple choice measure, as shown in Table 7, the interaction between time and condition was not significant ($F(1,30) = 2.26$, $p = .143$) indicating that the mean change from pre to post test was not significantly different across conditions. However, there was a significant main

effect of time ($F(1,30) = 168.27$. $p < .001$) demonstrating that regardless of condition, there was a significant score increase from pre to post test demonstrating that students in both conditions increased in word knowledge of the Tier Two words presented for instruction.

4.1.2 Degree of Word Knowledge Measure

Table 8. Mean Scores and Standard Deviations from Degree of Word Knowledge Pre and Post Test by Condition

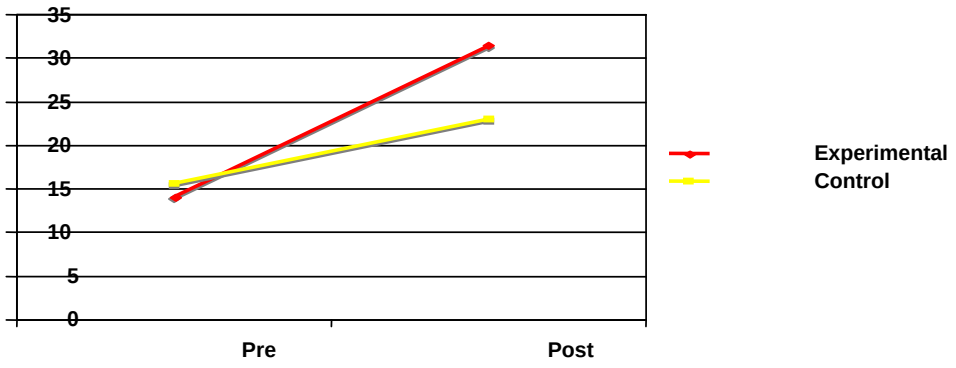
Condition	n	Pre-test		Post-test	
		Mean	(SD)	Mean	(SD)
Experimental	16	14.19	(6.78)	31.50	(2.07)
Control	16	15.63	(6.97)	23.00	(8.35)

The degree of word knowledge measure was intended to assess precision and depth of word knowledge that was not possible to evaluate in the typical multiple choice assessment. Students were asked to respond to sentence stems in an effort to rate their knowledge and understanding of the words. A four point rubric ranging from no word knowledge to full word knowledge was used to score responses; thus 36 points were possible.

The data presented in Table 8 shows that the interaction between time and condition was significant ($F (1, 30) = 43.121$, $p<.001$) indicating that the amount of improvement from pre to post test was dependent on which instructional condition the student was in. As seen in Table 2,

students in the experimental condition had a greater increase than the students in the control group with students in the experimental group increasing their mean score by about 17 points while students in the control group increased their mean score by about 7 points. The graph below (Figure 1) illustrates this difference. This difference in performance suggests that traditional instruction is not as effective as rich instruction in helping learners with depth of word knowledge. There was also a significant main effect of time overall ($F(1,30) = 252.62$, $p < .001$) indicating that all students increased their scores from pre to post test, without regard to condition, suggesting that both approaches can have a positive effect. However, as described above, the increase was significantly larger for the experimental group.

Figure 1. Mean Scores from the Degree of Word Knowledge Pre and Post Test by Condition



4.1.3 Comparison of Results from the Two Vocabulary Measures

Comparing post results of the two vocabulary measures, the degree of word knowledge post test and the multiple choice post test is of interest. Take for instance the word *deprived.* Students in both groups scored 100% correct on this item in their post multiple choice test as shown in Table 13 (forthcoming) however the results of the item analysis of the degree of word knowledge assessment, shown in Table 14 (forthcoming) gives a much different message about the students' understanding of that word. To provide a sense of students' responses from each category, two examples from each category of the degree of knowledge rubric are shown in Table 9.

Table 9. Examples of Student Responses to the Degree of Word Knowledge Assessment by Category

You might be ***deprived*** of going on a field trip if…	
Full Word Knowledge	*You don't follow directions because if you do not follow directions you do not deserve a field trip* *Your class is loud and could not be seen in public*
Partial word knowledge	*You were doing something bad* *You disobey*
Vague word knowledge	*You are not redy* *Your money got tooken away*
No Word Knowledge	*You don't take your toy back* *There is something els you want too do*

As seen in Table 3, there is a discrepancy between the responses given by students to the prompt in the degree of word knowledge assessment about the word *deprived.* Though 100% of students were able to answer the item about *deprived* correctly on the multiple choice posttest, it is evident by the open ended responses that there is a range of understanding among the students regarding the word. The same finding holds true with other words such as *numerou*s and *environmen*t with 100% of students answering these questions correctly on their multiple choice post assessment yet not reaching 100% full word knowledge on the open ended post assessment. As such, the suggestion is that a multiple choice test is not as precise and accurate in measuring word knowledge as is an assessment that requires deeper processing such as the degree of word knowledge assessment given in this study.

4.2 THE EFECTS OF VOCABULARY INSTRUCTION ON WRITING

To determine whether there were differences in the quality of writing achieved by students as a result of the instructional condition, a writing essay was administered to students in both groups as a pre and post measure. Number of target words used in writing and quality of writing were assessed and the data were analyzed with a two-way, repeated measure ANOVA.

4.2.1 Number of Target Words Used in Writing

Table 10. Mean number of target words used in Pre- and Post-test by Condition

Condition	n	Pre-test		Post-test	
		Mean	(SD)	Mean	(SD)
Experimental	16	.063	(.250)	7.5	(3.33)
Control	16	.125	(.342)	3.94	(3.36)

The data for the number of words students used in their essays, as presented in Table 10 shows that the interaction between time and condition was significant ($F (1, 30) = 9.49$, $p = .004$) which indicates that the amount of improvement from pre- to post assessment was related to what condition the student was in with students in the experimental group making larger gains. There was also a significant main effect of time ($F (1, 30) = 91.38$, $p < .001$) demonstrating that regardless of condition, there was a significant score increase from pre to post test. However, as stated above, this increase was larger for the experimental group with a mean score of 7.5 words used in the post writing as compared to the control group's mean score of 3.94.

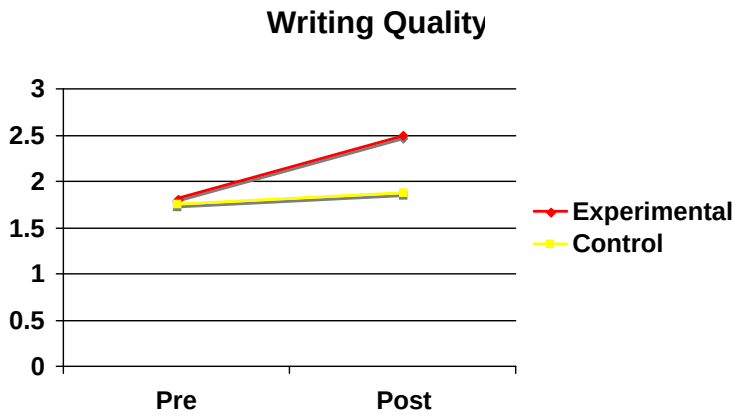
4.2.2 Quality of Writing

Table 11. Pre- and Post-test Mean Scores and Standard Deviations on Writing Quality by Conditions

Condition	n	Pre-test		Post-test	
		Mean	(SD)	Mean	(SD)
Experimental	16	1.81	(.543)	2.5	(.632)
Control	16	1.75	(.683)	1.88	(.806)

A four point scale, ranging from *below basic* to *advanced*, was used to rate the quality of each pre and post writing essay. When measuring writing quality, the interaction between time and condition was significant ($F(1, 30) = 5.76$, $p = .023$) indicating that the amount of improvement from pre to post test was dependent on what condition the student was in with students in the experimental group improving their mean score by .69 as compared to the control group's improvement of .13. The data are presented in Figure 2. There was a also a significant main effect of time ($F(1,30) = 12.01$, $p = .002$) demonstrating that regardless of condition, there was a significant score increase from pre to post test, however, as stated above this increase was larger for the experimental group. Mean scores and standard deviations from pre and post essays are shown in Table 11.

Figure 2. Mean Scores from the Writing Quality Assessment Pre and Post Test by Conditon



4.2.3 Analysis of the Quality of Writing

Pre writing in both conditions showed that the majority of students in both groups performed below proficiency with only 6.25% of students in the experimental group and 12.5% of students in the control group receiving a proficient score. Post writing scores increased for both groups with 43.75% of students in the experimental compared to 25% of students in the control group receiving proficient scores. Experimental students who scored below basic on pre writing increased to the basic category but the number of students in the control group who scored below basic on the prewriting remained in that category on the post writing (see Table 12).

Table 12. Percentages of student scores on writing task by condition

Condition	N	Level	Pre Test	Post Test
Experimental	16	Advanced	0	6.25
		Proficient	6.25	37.5
		Basic	68.75	56.25
		Below Basic	25	0
Control	16	Advanced	0	0
		Proficient	12.5	25
		Basic	50	37.5
		Below Basic	37.5	37.5

4.2.4 Student Examples of Pre and Post Writings

To provide a sense of growth following rich instruction, a comparison of three experimental students' pre and post writings are included below. In the prompt students were asked to write a persuasive essay to their local paper about the importance of keeping community parks clean. In the examples that follow, the rationale for the score is presented and the students' essay follows.

4.2.4.1 Experimental Student #12

Analysis of Pre Writing – Scored as Basic

This pre essay was scored as *Basic* mainly because it was lacking in content. Notice that the writer only forms one argument for the importance of keeping the parks

clean, the idea about keeping parks clean so that people can enjoy the activities at the park. There is no evidence of Tier Two language though the writing does have style and tone as the writer appears to have a natural 'voice' however, it is the lack of content that deems this a *basic* persuasive writing.

Pre Writing (Basic)

> Do you like walking in a garbage dump? Some parks are garbage dumps. Get involved! Clean up you local parks. I know kids love parks. Adults like parks to, they can relax and have picnics. At parks, kids like the parties and Adults like the kids out the way. All of the sports and activities are awesome! There are lots more than you think. You can swim, play ball, sled, and play with your pet at the park. Get involved! Clean up your park and have a place to enjoy.

Analysis of the Post Writing – Scored as Proficient

In contrast to the pre essay, the focus and content of the post essay is much more developed. In the post essay, the student is able to present two arguments, first the idea about litter being hazardous to animals and the second about keeping the parks clean so that people can enjoy recreation. The writer also presents a consequence for not keeping the park clean which strengthens the argument presented. Notice that the Tier Two words used in the essay (*appealing recreation, imperative,* etc) make the writing much more characteristic of mature writing and also demonstrates understanding of the words as they are used in the correct context. It almost seems as if the Tier Two words gave the writer focus and content that she didn't have when writing the pre essay. Because of the developed content and focus, the writing moved up one level from *basic* to *proficient.*

Post Writing (Proficient)

You should clean your park today because if you don't, it would be dirty. Each day *numerous* dogs come into the park and it could be *hazardous* if the dogs eat some trash.

Think of it this way, you don't want your *environment* to be dirty so you should be *accountable* to *sway* your friends to *maintain* the cleanliness of your parks. Know if you keep your parks clean, there is so much *appealing recreation* you could do. So please today, clean your parks up because if you don't then it would be so *unfortunate* to be *deprived* from the park. How? It would *deteriorate.* So please keep it clean it's *imperative**!***

4.2.4.2 Experimental Student #18

Analysis of the Pre Writing- Scored as Basic

The pre writing below was scored as *basic* mainly because of a lack of content and focus which makes for a weak argument. The writer gives consequences for not keeping the park clean but fails to give reasons why keeping parks clean would be beneficial.

Pre Writing – Basic

> Do you enjoy going to a park full of dirtballs? If not, help today! Do you want your kids to play in a dump? Well if you don't, help pick up trash from 2-4 pm. The park will be sparkling clean.
> Do you like graphetti on your equitment? Then what are you waiting for, do something about it. Your children will repeat everything they've seen.
> Many people complain about dog business on the ground. All you have to do is buy a pooper scooper. The park will be as good as new. Help now!, and get involved.

Analysis of Post Writing - Scored as Advanced

In contrast to the pre essay, the student's post essay is more developed and provides a more coherent argument about the importance of keeping community parks clean. Notice in the post essay the student still mentions the consequences of not keeping parks clean, as he did in the pre essay, but adds other ideas such as how keeping the park clean and a*ppealing* will attract more people, and the idea about the clean up

team being a*ccountable* for *maintaining* the park. The language in the post essay is clearly more mature than the pre essay due to the addition of the target words which gives the writing an overall better style and tone and clearly adds to the content. Because of these reasons, the post essay was scored as *advanced* and the student moved up two levels from *basic* to *proficient.*

Post Writing – Advanced

> It would be *unfortunate* if the *environment* in which your park is is nasty, so help clean it up! That is a place where you can do almost any *recreation*.
> You should have *numerous* garbage and recycling cans. It would *hazardous* if a baby was playing and it got cut by a piece of glass.
> Also, try to s*way* the parks owner to have a clean up team so they can *maintain* the parks cleanleness. They would be held *accountable* if there was any trash on the ground. If the park is clean then it might be *appealing* to other people that never ben there before. Kids will be *deprived* of playtime if it is dirty. So that's why you should help keep the parks clean.

4.2.4.3 Experimental Student #3

Analysis of Pre Writing – Scored as Below Basic

In looking at the student's pre writing, it is clear that the essay contains minimal content and the student seems to almost lack understanding of the purpose of the writing task as evidenced by the opening statement in which the writer asked the readers to clean the park. The lack of content, focus, and style contribute to this writing being scored a *Below Basic.*

Pre Writing -Below Basic:

> Hey all you people, don't you want to clean up the park. I mean come on.
> There are litter, dog business, and a lot of other messy things. Would you want to step in or slip and fall on litter? It would be so much better if we all worked together and clean up our park. You wouldn't step or slip and fall on litter or go

down dirty slides. It would be so much better if we all worked together and cleaned up the park. So if you do not want a dirty park and you want a nice clean park, lets all clean up the park!

Analysis of Post Writing – Scored as Basic

The post writing below is judged to be more on task and contains more content than the pre writing, though the content remains a bit vague. The Tier Two words used by the writer seem to give the writer some ideas to write about, but at times he seems to get in trouble by attempting to use too many of the words which makes the writing seem contrived and unnatural. It is apparent that the student has some understating of the words, but needs to elaborate on the ideas in order to further develop the content. With that being said, the post writing is still an improvement from the pre writing and the student moved up one level from the *below basic* to the *basic* category.

Post Writing –Basic:

It's very *imperative* to keep our park clean because litter it's *hazardous* to the animals. Also, who would want to come to A park with *numerous* pieces of trash. It would look so d*eteriorated* and it would feel so *unfortunate* to the people who like the park but can't go in it because it looks *deteriorated.* They would feel so d*eprived*. So that's why it's *imperative* to keep the park clean. Now you're *accountable* for keeping the park clean!! We need to *maintain* it. Just go down to the park and pick up that nasty *numerous* pieces of garbage. If you don't that will hurt the *environment.*

4.3 SUMMARY OF DATA

From the pre-test data above, students in both groups were similar in their word knowledge of the 12 Tier Two words presented for instruction in the study. It is also apparent that students in both groups made gains in word knowledge as assessed on multiple choice tests. Thus some word knowledge can be acquired through either traditional or rich instruction, indicated by results of the multiple choice tests. However when precision or depth of word knowledge is the goal of instruction, students who received rich instruction were found to have greater depth of word knowledge than students who received the traditional instruction. The suggestion then is that rich vocabulary instruction is more effective than traditional vocabulary instruction on a more open ended task that requires constructing a response.

Pre test data also showed that students in both conditions were similar in writing ability at the beginning of the study. Performance increased in this area for both groups but statistical data demonstrated that students who received the experimental treatment improved significantly more on all measures as compared to their counterparts in the control group. Thus the suggestion is that rich vocabulary instruction is more effective than traditional instruction in improving writing quality, a higher level constructive task.

4.4 ITEM ANALYSIS

In order to explore student performance on each of the target words, an item analysis of performance on each word for the multiple choice and degree of word knowledge assessment

was performed. The percentage of correct responses on the pre and post tests for each condition was calculated for each measure.

4.4.1 Item Analysis of Multiple Choice Measures

Table 13. Pre and Post Percentages for Multiple Choice Assessments by Condition

	Experimental Pre	Experimental Post	Traditional Pre	Traditional Post
Target Words				
imperative	25	93.75	18.75	87.50
hazardous	87.50	100	62.50	93.75
unfortunate	56.25	93.75	56.25	87.50
deprived	6.25	100	6.25	100
deteriorate	37.50	100	50	93.75
appealing	81.25	100	50	93.75
environment	62.50	100	37.50	100
recreation	6.25	100	0	87.50
numerous	93.75	100	93.75	100
sway	62.50	100	50	93.75
maintain	62.50	100	62.50	93.75
accountable	37.50	94	43.75	87.50

Note. n = 16 for each group

As shown on Table 13, all words showed large improvement following instruction in both conditions with posttest scores between 87.5% to 100% correct for all words. Table 7 also indicates that students had high knowledge of several words prior to any instruction, for example, the word *numerous* was commonly known by students in both conditions prior to instruction with 93.75% or 15 out of 16 responding correctly.

The words least commonly known by students in both conditions on the pretest were *deprived* (6.25% correct in both groups) *imperative* (25% correct in the rich instruction group and 18.75% correct in the traditional group) and *recreation* (6.25% correct in the rich instruction group and 0 correct in the traditional group). During analysis of the items, it was discovered that there was likely a confound in the item for the word recreation. 100% of students in the traditional group and 93.75% of students in the rich instruction group responded incorrectly to this word on the pretest. The source of these extremely low scores was that one of the distracters for recreation was *a new creation* which was the answer selected by many. Students in both groups had recently learned the word *recreate* as part of their language arts program and were most likely confused by the distracter given.

As mentioned, all 12 of the Tier Two words appear to have been learned by most of the students in both conditions following instruction as observed by the high percentages achieved on the posttest. This result suggests that traditional instruction was effective in helping students gain sufficient word knowledge to learn words well enough to perform at a high level on a multiple choice measure.

4.4.2 Item Analysis on Degree of Word Knowledge

In contrast to the results on the multiple choice assessment, when deeper knowledge was assessed, the story changes. Degree of word knowledge was measured on a four point scale from no word knowledge to full word knowledge. As can be derived from Table 14 and consistent with the degree of word knowledge findings (Table 8) there was growth from pre to post by students in both conditions, but the growth was significantly larger for students in the experimental group.

Table 14. Percentage of Degree of Word Knowledge for Each Word Pre and Post Tests by Condition

	Rich Pre	Rich Post	Traditional Pre	Traditional Post
imperative				
Full	0	62.50	18.75	37.50
partial	6.25	37.50	18.75	31.25
vague	12.5	0	18.75	6.25
none	81.25	0	43.75	25
hazardous				
Full	68.75	93.75	43.75	68.75
partial	25	6.25	0	12.50
vague	0	0	25	12.50
none	6.25	0	31.25	6.25
unfortunate				
Full	18.75	68.75	12.50	25
partial	25	18.75	25	12.50
vague	31.25	12.50	31.25	31.25
none	25	0	31.25	31.25
deprived				
Full	6.25	81.25	25	43.75
partial	0	12.50	6.25	18.75
vague	0	6.25	0	12.50
none	93.75	0	68.75	25.00

deteriorate				
Full	12.50	75	12.50	37.50
partial	12.50	25	12.50	37.50
vague	37.50	0.00	25	12.50
none	37.50	0.00	50	12.50
appealing				
Full	50	56.25	37.50	56.25
partial	18.75	43.75	12.50	18.75
vague	6.25	0	18.75	6.25
none	25	0	31.25	18.75
environment				
Full	18.75	31.25	18.75	6.25
partial	31.25	68.75	37.50	68.75
vague	25	0	31.25	18.75
none	25	0	12.50	6.25
recreation				
Full	25	81.25	18.75	37.50
partial	25	18.75	6.25	18.75
vague	6.25	0	18.75	31.25
none	43.75	0	56.25	12.50
numerous				
Full	12.50	75	18.75	43.75
partial	25	12.50	31.25	31.25

vague	37.50	12.50	25	12.50
none	25	0.00	25	12.50
sway				
full	31.25	87.50	25	62.50
partial	31.25	6.25	37.50	25
vague	25	6.25	6.25	0
none	12.50	0.00	31.25	12.50
maintain				
full	12.50	56.25	25	56.25
partial	43.75	43.75	31.25	25
vague	18.75	0.00	18.75	12.50
none	25	0.00	25	6.25
accountable				
full	18.75	25	18.75	12.50
partial	37.50	68.75	31.25	43.75
vague	37.50	6.25	31.25	31.25
none	6.25	0	18.75	12.50

Note. n = 16 for each group

Another way to think about what was learned is to compare scores on the least known words for both groups. The three words in which students had the least amount of knowledge prior to instruction were *deprived*; *imperative* and *recreation* (see Tables 13 and 14). Based on

the pre scores from both measures, it would seem likely to conclude that these words were words in which *all* students had little or no knowledge of prior to their participation in the study.

However, following instruction, students in the rich instruction group showed more word knowledge on *deprived*, *imperative* and *recreation* than did their counterparts in the traditional group suggesting the advantage for rich vocabulary instruction. Table 15 shows the amount of word knowledge on these three words by condition following instruction.

Table 15. Post Test Percentages of Degree of Word Knowledge of the Three Least Known Words by Condition.

	Imperative		**Deprived**		**Recreation**	
	Experimental	Control	Experimental	Control	Experimental	Control
Full	62.50	37.50	81.25	43.75	81.25	37.50
Partial	37.50	31.25	12.50	18.75	18.75	18.75
Vague	0	6.25	6.25	12.50	0	31.25
None	0	25	0	25	0	12.50

Note. n = 16 for each group

Another finding from the item analysis of the degree of word knowledge assessment suggests that students in the experimental group deepened their knowledge of all 12 Tier Two target words more than the students in the control group as indicated on Table 14. To elaborate, on the degree of word knowledge post test no students from the Rich Group scored in the *no*

word knowledge category for any of the words. So it can be said that for all the words presented to students in the rich group, all students gained some word knowledge of each word. Students in the traditional group did not have similar results with 6.25% to 31.25% of students scoring in the *no word knowledge* category across the 12 words. In other words, there was not one word presented for instruction to the traditional group in which all students were judged to have some word knowledge after instruction.

4.4.3 Item Analysis of Target Words used in Writing

Table 16. No. of Words Used in Post Writing by Condition

	Experimental	Control
Hazardous	14	11
Imperative	14	5
Numerous	8	7
Environment	13	6
Recreation	9	5
Deteriorate	11	3
Appealing	8	1
Sway	8	6
Maintain	11	5
Accountable	9	10
Unfortunate	10	3
Deprive	6	1
	121	63

Note. n = 16 for each group

An analysis was completed to examine the specific words used by students in their post writing essays. Results of the item analysis, in which target words were counted only once in an essay, are found in Table 16. Words are ordered by their introduction to students in the study. (It can be noted that in the prewriting, the only target word used by students was the word

environment. It was used by one student in the Rich group and two students in the Traditional group).

Students in the rich group used almost twice the number of target words in their essays as compared to the students in the traditional group with 121 to 63 words. On all but one word (accountable), students in the rich instruction group used the target words more times than the students in the traditional group. Moreover, the words that were judged to have the least amount of word knowledge prior to instruction by both groups (*imperative, recreation and deprived*) showed up more in the rich instruction groups' post essays (see Table 17) suggesting stronger knowledge as measured by application in writing. The word for which students in both groups had the most knowledge prior to instruction (hazardous) was also the word used most by students in both groups in their post essays.

Results of the item analysis measuring number of target words used in writing confirm the findings and conclusions drawn from the item analysis of degree of word knowledge post test in which students in the rich group demonstrated more word knowledge of the target words than the students in the traditional group. More importantly these results suggest that when higher level processing of the new words was required, students who received the rich instruction were more able than students in the traditional group to use the words in a complex task such as writing.

Table 17. **Number of time Most Unfamiliar Words at pre instruction were used in Post Writing by condition**

	Imperative		Deprived		Recreation	
	Experimental	Control	Experimental	Control	Experimental	Control
Post Writing	14	4	6	1	9	5

Note. n = 16 for each group

4.4.4 Summary of the Item Analysis

The item analysis data presented detailed information about the degree of word knowledge of each of the 12 target words, pre and post instruction on the two vocabulary measures, as well as the transfer of those words to the writing task. It also provided a way to look for similarities and differences in the knowledge gained as a result of the two instructional conditions.

Results of the item analysis data indicated that students in both groups had similarities in word knowledge prior to instruction. Post test analysis and results showed differences in increases suggesting that students who received the rich instruction increased significantly in their word knowledge as compared to students receiving traditional instruction. Finally, students who received the rich instruction were also more able to use the target words in their writing

suggesting that when students are engaged in a complex literacy task, such as writing, rich instruction is superior to traditional instruction.

5.0 CONCLUSIONS

This chapter will discuss the findings of this study, the instructional implications of these findings, and conclude with a discussion of implications for future research.

5.1 MAJOR FINDINGS

The quantitative data described in Chapter 4 reveals three major findings regarding vocabulary instruction and learning. These three key findings are:

1. Direct instruction of Tier Two vocabulary words in both rich and traditional instruction is effective in helping students learn meanings of unfamiliar words.
2. Rich instruction is superior to traditional instruction in facilitating depth of word knowledge.
3. Rich instruction is superior to traditional instruction in the application of newly learned words to the expressive domain of writing.

5.1.1 Direct instruction of Tier Two vocabulary words is effective in helping students learn meanings of unfamiliar words

As shown in this study and validated by previous research (Beck & McKeown, 1991) direct instruction of vocabulary words is effective in helping students learn the meanings of unfamiliar words whether it is traditional or rich instruction. Data analysis in this study showed that students in both conditions, the rich instruction group and the traditional group, increased in learning meanings of unfamiliar words from pre to post assessments on the multiple choice measure, in which basic word knowledge was measured. Students in both conditions significantly increased in their word knowledge of the Tier Two words from pre to post assessment demonstrating that direct instruction, even in its traditional form, is effective in helping students gain simple word level knowledge as can be measured in a multiple choice format.

Important to this finding is the discussion concerning the control group and the traditional instruction that occurred. During this study, students in the control group received five days of vocabulary instruction for 45 minutes per day. Though this was labeled as 'traditional instruction', the time spent daily on developing word meanings is not typical in everyday language arts instruction. Current research shows that during the course of a school day, less than 6% of time is spent on vocabulary instruction (Scott, Jamieson-Noel, & Asselin, 2003), yet in the current study over 14% of each instructional day was dedicated to vocabulary instruction and learning just by participation in this study. Though the instructional methods that the traditional group engaged in were typical of traditional instruction, the investigator noticed that students were eager to engage in lessons, very well behaved and motivated by the guest teacher, special materials and cooperative activities. In addition, students in the control group were

exposed to the words as many times as their peers in the rich group were, as multiple exposures have been found to be a necessary feature of rich instruction, but not a typical feature of traditional instruction. Thus the traditional instruction in this study should be considered extended traditional.

Consequently, with the increased time spent on traditional instruction, the multiple exposures to the words, and an unusual and motivating routine for the students, it is not surprising that students in the traditional group significantly increased in their word knowledge from pre to post test on the multiple choice assessment.

As stated by Beck and McKeown (1991):

> The paramount issue, however, is that increasing students' word knowledge to the level of their being able to match word and definition is not an end in itself. Such a limited goal may produce inert knowledge, that is, knowledge that has a low probability of being activated in appropriate situations. Instead it seems reasonable to suggest that the goal of vocabulary instruction is to enhance students' ability to engage in complex language situations" (p. 805).

5.1.2 Rich instruction is superior to traditional instruction in facilitating depth of word knowledge

As previously described, rich instruction has been found to be superior to traditional instruction in facilitating depth of word knowledge (Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983; McKeown, Beck, Omanson, & Pople, 1985; Mezynski, 1983. Stahl & Faribanks, 1986). In the current study, consistent results were found to be true as students in the rich instruction group significantly out performed students in the traditional group on the degree of word knowledge assessment.

The theory that a word can be known at various levels has been well accepted in the field but what has not been so widely agreed upon are the methodologies on how to best assess and capture the features that distinguish the degrees of word knowledge from one level to the next (Baumann, Kame'enui, & Ash, 2003). In the present study, this was taken on by the use of a degree of word knowledge assessment in which word knowledge was assessed on a continuum from no word knowledge to full word knowledge. Examples of student responses on this assessment were analyzed and described in chapter 4.

As stated in chapter 4, comparing the results from the multiple choice assessment to the degree of word knowledge assessment was theoretically fascinating because results on the multiple choice post assessment indicated that students in both conditions scored 87.5% correct or higher on all items, that was not the case in regard to the results on the degree of word knowledge post assessment. Specifically for the students who received the traditional instruction there was not one word presented to the traditional group in which all students were judged to have at least 'vague', the third out of four levels of word knowledge. In contrast, students in the rich instruction group were found to have increased in their depth of word knowledge on each word presented for study.

These finding suggests that the activities and instructional routines that were incorporated into the rich instruction better enabled students to deepen their knowledge of the words more so than did students who received the traditional instruction. A comparison of activities, as well as student responses and behaviors from both groups can help illustrate the different experiences between the two. Keep in mind that in both conditions, the number of encounters with each word was the same, however it was the types of encounters that encouraged the active processing that seems to have made the difference.

Consider the use of the word *'imperative'* with both groups. Recall this word was one for which students had very little knowledge of prior to their participation in the study. Sample activities using this word throughout the five day cycle with the traditional group are shown in Table 18. Notice how in each activity, there is limited engagement for students, restricted or closed responses, and no opportunities for elaboration, discussion or thinking about words.

Table 18. Sample Activities for Traditional Group Using *Imperative*

Sentence Completion; Vocabulary Review - Students were asked which word (*imperative, hazardous, numerous, environment)* fits in the sentence below: • Something dangerous might be _____. • It is _____to get to school each day. • I live in a busy _____. • There are _____ reasons why I love my mom.
Matching Activities - Students were asked to match the word *imperative* to a synonym; in this case the synonym presented was *necessary*.
Word Search - Students were given a word search that contained the target words.
Sentence Writing - Students were asked to write a sentence using the word *imperative.*
Antonym Matching – Students were given a phrase and had to decide which vocabulary word was most nearly opposite in meaning to the bold faced word. In this example, *an **unimportant** character* was given as the antonym for *imperative.*

The activities described above were facilitated by the researcher in a whole group format and students were allowed at times to work with a partner to complete activities. Observations indicated that all students were evaluated to be on task, eager to participate, and clearly enthusiastic about learning the words. With their apparent desire to learn, it was often difficult for the researcher to limit her instruction to that of traditional methods but in keeping true to the design, that was done. For example, when students answered questions or gave an incomplete sentence during the sentence writing task, the researcher only gave corrective feedback and did not ask students to clarify or tell why they answered as they did. Talk was limited in this group to mainly teacher to student and did not encourage student to student discussions. It should also be mentioned that students rarely needed the 45 minutes that was allotted each day for the instruction, instead, there was often a few minutes left over in each session in which the students would sit with their partners and use the highlighters provided by the researcher to decorate their word journals and talk quietly until the bell rang.

In contrast to the traditional activities provided to students in the control group, activities which are considered rich instruction, following the work of Beck and her colleagues, were provided daily to students in the experimental group. These activities were characteristic of rich instruction as they provided both definitional and contextual information about words, required active processing of the words and encouraged students to understand relationships between and among words.

Notice in the sample activities provided below that there were multiple opportunities for student engagement though elaboration, discussion and deliberate occasions for students to make their thinking pubic and defend their responses. Table 19 contains sample activities for

interacting with the word *imperative* as used by the students in the rich instruction group throughout the five days of instruction.

Table 19. Sample Activities of Rich Instruction Using the Word *Imperative*

Questions to explore relationships between words- Students were asked to answer each question and then explain why.

- Is it **imperative** for a child to have **numerous** toys? Why?
- Is it **imperative** for an athlete to practice in an outdoor **environment**? Why?

Example / Non Example: Students were asked which scenario was a better example of *imperative* and then had to explain why they thought so. They were also told to use the word *imperative* in their explanation

Imperative

- Being on time for school every day or being the first one to line up for lunch? Why?
- Taking your baby to the doctor when she has a fever of 101 degrees or taking your baby to the doctor because she has started to cry? Why?
- Studying for a test you have next week or finishing your homework that is due tomorrow morning? Why?

Listening to your coach as he describes the new play or listening to the new song on your I pod? Why?

Shared Context for All New Words- The context of a restaurant was given and students had to answer question about their new words and explain their thinking for responding as they did: *At my favorite restaurant……..*

- It would be **imperative** for the kitchen to have **numerous**
- The **environmen**t can be described as?
- Things could turn **hazardous** if?
-

Categorization – Students were given four target words and asked to place them in the appropriate category and then explain why they made those choices:

- Categories –ants at a picnic, garbage can, park, wasps
- Target Words - *Imperative, Numerous, Hazardous, Environment*

Just as was the case for the traditional group, all activities were facilitated by the researcher. The researcher observed that the students in this group were also eager and enthusiastic, and on task at all times as were the students in the control group. The classroom environment for the rich group was noisy and lively and the amount of student to student talk was noticeably higher in this group. Student participation was high among all students and they seemed upset when they were not permitted to share their responses with the group due to time constraints. In contrast to the control group, the 45 minutes was always needed and the researcher often had to rush through certain activities.

Students caught on quickly to the notion that there was not always a 'right' answer to the questions posed to them and went to great lengths in constructing their responses to defend and explain their choices when a not so obvious response was given. A few examples are listed below.

Question: *Which would be **imperative** for a school to have? Papers, pencils and books or cake, candy and ice cream*? Why?

Student Response: *Cake, candy and ice cream because if the school had lots of computers and technology then there wouldn't be a need for paper, pencils and books because we could do everything on the computer and so it would be necessary to have candy, cake and ice cream because kids love eating that stuff and having it would make them happy and much more able to learn and do their work.*

Question: *Would it be **unfortunate** for a fourth grade student to spend their lunch time mopping the floor? Why or why not?*

Student Response*: It would not be unfortunate if the student was a bully or trouble maker and usually beat up other kids during lunch. If he had to mop the floors then he wouldn't be able to keep beating kids up and we could eat our lunch in peace*.

Question: *What is something you wish you could* ***sway*** *the President of the United States to do?*

Student Response: *Quit his job and let Obama take over cause he's not doing a very good job.*

To sum up, the kind of instruction presented in the rich instruction group as compared to that in the traditional instruction group provided students with numerous opportunities to interact with the words in ways that challenged their thinking, promoted opportunities for exploring facets of word meanings and encouraged deeper processing of new words. With this type of instruction occurring over the course of the study, coupled with the students' enthusiasm for learning about words, it is no wonder that students in the rich instruction group outperformed the students in the control group in deepening their word knowledge of the 12 words.

5.1.3 Rich instruction is superior to traditional instruction in the application of newly learned words to the expressive domain of writing

A major goal of this study was to determine whether rich vocabulary instruction would have the same affect on writing that it has been shown to have on comprehension. As previously referenced in this study, vocabulary instruction has been found to influence comprehension when it included (1) both definitional and contextual information for breadth of knowledge; (2) multiple exposures; and (3) active or deep processing of words (Mezynski, 1939; Stahl & Fairbanks, 1986). Rich vocabulary instruction (Beck, McKeown, & Kucan, 2002) contains these

features and has been shown to positively influence comprehension. The current study was based on the assumption that rich instruction can affect students' vocabulary growth in a way that would facilitate word knowledge deep enough to be actively used when students were engaged in expressive language.

As revealed in the results of this study, rich vocabulary instruction was found to be superior to traditional instruction in the application of newly learned words to student writing. Students in the rich group were found to use more words in their post writing (a mean score of 7.5 words for the rich group as compared to a mean score of 3.94 words for the traditional group) as well as improve in the quality of their writing by a mean score of .69 as compared to a .13 mean score for the control group.

Why did the students in the rich group use so many more words in their post writing than did their peers in the traditional group? Studies have shown that individuals with larger vocabularies are better equipped during the writing process to deal with the cognitive demands on the writer because they have stronger representations of words in memory (Flowers and Hays, 1994; McCutuchen, 1996; Swanson & Berninger, 1996).

As described above in section 5.2.2 the rich vocabulary activities promoted active and deep processing of words which led to deep word knowledge while the traditional vocabulary activities merely provided students with low level word knowledge. This lower level knowledge did not enable students to access many of the newly learned words during the complex task of writing to the degree of success that the students in the rich group were. Being that the students in the rich group were found to have greater depth of word knowledge than the students in the traditional group suggests that when faced with a writing task, these students had the advantage in verbal memory during the writing process.

The second question to consider is why the students in the rich group improved more in their quality of writing than did the students in the control group? It has been suggested that writing that contains more mature vocabulary has been consistently viewed as better quality than writing with less mature vocabulary (Duin & Graves, 1987). Again, it is suggested that the depth of word knowledge of the 12 Tier Two words acquired by the students in the rich group seems to have given them the advantage in this area.

To elaborate, in reviewing the student writing examples and analyses in section 4.2.4.1 – 4.2.4.3 of this study, it is evident that students in the rich group improved in writing quality, specifically in their content, focus and language from the pre to post essays while students in the traditional group did not see improvements in these areas. It is suggested that the tier two words, learned in a deep manner by the students in the rich group, provided them with content, ideas and language necessary to produce better writing. Recall that selection of vocabulary words for this study was based on two criteria: 1) Tier Two words that fourth graders were likely to have little knowledge of; and 2) words that could be applied to the writing assignment used in the study. Also recall that students in the rich group used doubled the number of target words in their post essays as compared to the students in the traditional group.

When reviewing the number of words used by students in their post writing by condition (Table 10), it appears that the students in the rich group had more ease in accessing and using the target words in their writing which in turn improved the quality of the writing by providing the writers with appropriate ideas, themes, content and language to produce better writing. Rich vocabulary instruction provided students with the fluency of access to word meanings which assisted in word selection during writing, a significant part of the writing process as described by Flowers and Hays (1994) in their cognitive process theory of writing model.

5.2 IMPLICATIONS

From these findings, implications for both instructional practices and future research emerge. Both will be discussed in the following sections.

5.2.1 Implications for Instruction

The findings of this study support the need for quality vocabulary instruction in schools as a means of increasing students' word knowledge for enhancing both their expressive and productive vocabularies.

At the very least, it is paramount that educators at every level become sensitive to the issues surrounding vocabulary knowledge and learning. As a starting point, teachers need to be aware of the many benefits of vocabulary instruction for their students if they are ever to take on the task of incorporating rich instruction into their practice. It is believed that if teachers are aware, specifically educators who deal with students from lower socio economic backgrounds, they will be up to the challenge of providing the rich instruction for their students. The awareness level must be followed by teacher education as rich instruction is not commonly found in basal reading series and knowing which words to teach and how to teach them effectively is crucial.

This leads to the stubborn problem that arises from this study and others like it, that of time and amount. Rich instruction is time consuming and comes at a high price. In the current study, students received vocabulary instruction for five days in 45 minute periods. Twelve Tier Two words were presented to the students and every minute of time was needed in order for students to have the meaningful exposures that facilitate the necessary deep processing of words. It is unrealistic to expect that teachers could teach 12 new Tier Two words to students each week, maintain those words in subsequent weeks and cover all of the other content that is necessary for their particular grade level. So the question then becomes how many words are considered enough especially when dealing with students from the poorer homes? Should the number of words change depending on the socio economic status of the students? Do we take the findings from Hart and Risely (1995) and those that show the payoff in comprehension (Beck, Perfetti & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983; McKeown, Beck, Omasnson & Pople, 1985) and put high level vocabulary instruction at the forefront of reading instruction? These questions need addressed as we recall the recent grave findings from Scott, Jamieson-Noel, & Asselin, 2003, in which vocabulary instruction was found to be less than 6% of total instructional time and of that time devoted to vocabulary instruction, the activities were mostly traditional and low level in nature.

5.2.2 Implications for Further Research

From this study two major issues emerge that need more attention. First is the problem with current vocabulary assessments and the other is related to the need for more research between vocabulary and the effects on writing.

One of the important findings from this study was that which showed the contrast in the control groups' performance on the multiple choice measure to that of the degree of word knowledge measure. This finding validated the body of research that suggests multiple choice assessments are not precise in measuring word knowledge (Cronbach, 1943, Curtis, 1987, Graves, 1986). Despite this information, multiple choice assessments remain the dominant measure of vocabulary knowledge today. More precise measures are needed to adequately determine degree of word knowledge as this information is valuable in assessing student learning. Relying on the typical multiple choice tests can be misleading to educators and learners as high performance on these assessments may not lead to higher levels of usage in language and literacy.

The second implication from this study evolves from the finding that rich vocabulary had on student writing as compared to that of the traditional instruction. This finding suggests that rich vocabulary instruction can positively impact student writing just as it has been found to enhance comprehension. The small body of research supporting vocabulary instruction and it's affect on writing (Duin & Graves, 1987; Henry, Scott, Wells, Skobel, Jones, Cross & Blackston, 1999; Scott, 2004) is one that needs more consideration and research if the findings are to be generalized. With more importance being placed on writing in today's schools and the obvious abyss that the role of vocabulary has played in writing development (Greenway, Perrsky,

Campbell, & Mazzeo, 1999) vocabulary instruction should play a significant role in future instructional implications related to writing performance.

APPENDIX A

University of Pittsburgh
Institutional Review Board

3500 Fifth Avenue
Ground Level
Pittsburgh, PA 15213
(412) 383-1480
(412) 383-1508 (fax)
http://www.irb.pitt.edu

Memorandum

To: LISA YONEK

From: CHRISTOPHER RYAN PHD, Vice Chair

Date: 2/27/2008

IRB#: PRO08010378

Subject: The effects of rich vocabulary instruction on students' expository writing.

Your research study has received expedited review and approval from the Institutional Review Board under 45 CFR 110.(7) characteristics/behaviors.

Please note the following information:

Approval Date: 2/27/2008

Expiration Date: 2/26/2009

Please note that it is the investigator's responsibility to report to the IRB any unanticipated problems involving risks to subjects or others [see 45 CFR 46.103(b)(5) and 21 CFR 56.108(b)]. The IRB Reference Manual (Chapter 3, Section 3.3) describes the reporting requirements for unanticipated problems which include, but are not limited to, adverse events. If you have any questions about this process, please contact the Adverse Events Coordinator at 412-383-1480.

The protocol and consent forms, along with a brief progress report must be resubmitted at least **one month** prior to the renewal date noted above as required by FWA00006790 (University of Pittsburgh), FWA00006735 (University of Pittsburgh Medical Center), FWA00000600 (Children's Hospital of Pittsburgh), FWA00003567 (Magee-Womens Health Corporation), FWA00003338 (University of Pittsburgh Medical Center Cancer Institute).

Please be advised that your research study may be audited periodically by the University of Pittsburgh Research Conduct and Compliance Office.

APPENDIX B

The following pre and posts are found in this section:

B.1 VOCABULARY MULTIPLE CHOICE TEST

B.2 DEGREE OF WOR DEGREE OF WORD KNOWLEDGE TEST

B.3 PERSUASIVE WRITING TASK

Appendix B1

Vocabulary Multiple Choice Pre and Posttests

1. **Hazardous** things are:

a. very complicated
b. dangerous to be around
c. always shocking
d. safe for children
e. challenging to complete

2. Which of these best describes the word **environment:**

a. cleaning chores
b. the study of plants and animals
c. events and holidays
d. the life cycle
e. your surroundings and conditions

3. **Unfortunate** means:

a. something unfair that happened
b. extremely wealthy
c. noisy and chaotic
d. always enthusiastic
e. for the best

4. If you **sway** someone that means you

a. pretend to be their friend
b. treat them with disrespect
c. persuade them to change
d. challenge them to a competition
e. listen to them talk

5.. Something that is **appealing** is:

a. boring beyond belief
b. louder than necessary
c. able to be peeled
d. pleasing and attractive
e. old and tattered

6. If something is **imperative** that means it is:

a. very necessary
b. always improving
c. changing a lot
d. impolite to others
e. difficult to do

7. **Numerous** means

a. always accurate
b. a large number of something
c. new and improved
d. not having enough
e. unnecessary to have

8. To **deprive** means to

a. describe in detail
b. help someone out
c. take something away
d. finish in a hurry
e. change your mind

9. Which of these describes the word **recreation**:

a. a funny story
b. a new creation
c. hard work
d. a happy memory
e. an enjoyable activity

10. If someone is **accountable** for something that means they are:

a. skilled in doing something
b. scared to do something
c. held responsible for doing something
d. helpful in doing something
e. forced to do something

11. To **maintain** something means to:

a. ignore it
b. take it apart
c. destroy it
d. keep it in good condition
e. change the appearance of it

12. If something **deteriorates** that means it

a changes for the better
b. becomes worse over time
c. becomes stronger
d. moves at a faster rate
e. develops slowly

Appendix B2

Degree of Word Knowledge Assessment

Complete each item below.

1. Something ***imperative*** for a teacher to have might be_____

_____ because_____

_____.

2. Something that might be ***hazardous*** to a baby is _____

_____ because _____

_____.

3. It would be ***unfortunate*** for a football player to _____

_____ because _____

_____.

4. You might be ***deprived*** of going on a field trip if _____

_____

_____.

5. Why might your tennis shoes begin to ***deteriorate***? _____

_____

How would you tell?_____

_____

6. Something ***appealing*** to a puppy might be _____

_____ because_____

_____.

7. The ***environment*** in a library should be _____

_____because _____

_____.

8. A form of ***recreation*** that your grandparent might enjoy is _____

_____because _____

_____.

9. It might be important for a hospital to have ***numerous*** _____

_____ because _____

_____.

10. It might be difficult to ***sway*** your best friend to _____

_____ because _____

_____.

11. Something that your parents might expect you to ***maintain*** is _____

_____because_____

_____.

12. The principal at school should be ***accountable*** for _____

_____because_____

_____.

Appendix B3

Writing Task

Persuasive Writing Task

Write an editorial for you local paper in which you tell readers why you think it is important to keep you city parks clean. Be sure you support ideas with persuasive language. Your editorial should be at least three paragraphs long.

APPENDIX C

Pennsylvania System of School Assessment Writing Rubric

WRITING

PSSA Persuasive Scoring Guideline

4	Focus	Sharp, distinct controlling point presented as a position and made convincing through a clear, thoughtful, and substantiated argument with evident awareness of task and audience.
	Content Development	Substantial, relevant, and illustrative content that demonstrates a clear understanding of the purpose. Thoroughly elaborated argument that includes a clear position consistently supported with precise and relevant evidence. Rhetorical (persuasive) strategies are evident.
	Organization	Effective organizational strategies and structures, such as logical order and transitions, to develop a position supported with a purposeful presentation of content.
	Style	Precise control of language, stylistic techniques, and sentence structures that creates a consistent and effective tone.
3	Focus	Clear controlling point presented as a position and made convincing through a credible and substantiated argument with general awareness of task and audience.
	Content Development	Adequate, specific and/or illustrative content that demonstrates an understanding of the purpose. Sufficiently elaborated argument that includes a clear position supported with some relevant evidence. Rhetorical (persuasive) strategies may be evident.
	Organization	Organizational strategies and structures, such as logical order and transitions, to develop a position supported with sufficient presentation of content.
	Style	Appropriate control of language, stylistic techniques, and sentence structures that creates a consistent tone.
2	Focus	Vague evidence of a controlling point presented as a position that may lack a credible and/or substantiated argument with an inconsistent awareness of task and audience.
	Content Development	Inadequate, vague content that demonstrates a weak understanding of the purpose. Insufficiently elaborated argument that includes an underdeveloped position supported with little evidence.
	Organization	Inconsistent organizational strategies and structures, such as logical order and transitions, to develop a position with inadequate presentation of content.
	Style	Limited control of language and sentence structures that creates interference with tone.
1	Focus	Little or no evidence of a controlling point presented as a position that lacks a credible and/or substantiated argument with minimal awareness of task and audience.
	Content Development	Minimal evidence of content that demonstrates a lack of understanding of the purpose. Unelaborated argument that includes an undeveloped position supported with minimal or no evidence.
	Organization	Little or no evidence of organizational strategies and structures, such as logical order and transitions, to develop a position with insufficient presentation of content.
	Style	Minimal control of language and sentence structures that creates an inconsistent tone.

APPENDIX D

This section will contain the following:

D1: Experimental Lesson #1

D2: Traditional Lesson #1

Appendix D1

Experimental l Lesson #1

hazardous

Definition: If something is **hazardous**, it is dangerous to your health or safety. For example, smoking cigarettes is considered hazardous to your health.

Is it **hazardous** or not??????

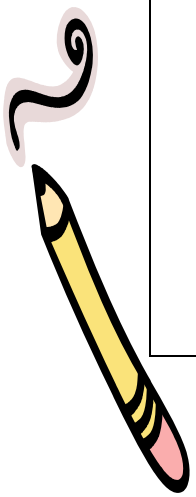
Drugs

Strangers

Fruit

Matches

Water



A day at the swimming pool might become **hazardous** if ……..

Petting a tray dog can be **hazardous** because**…….**

environment

Definition: Someone's environment is their surroundings or the place in which they live, grow up, play or work. For example, your classroom is the environment you are currently in.

Is it an **environment** or not???

A library?

A bike?

A football field?

The washing machine?

A playground?

A computer?

*Describe the following **environment**:*

- A fish's environment:

- The environment in a library:

numerous

Definition: If something is **numerous**, that means there are very many of them. For example, there are **numerous** stars in the sky and **numerous** activities that you participate in during the school year.

Is it an example of **numerous** or not????????

People in the world??

Snowy days in October??

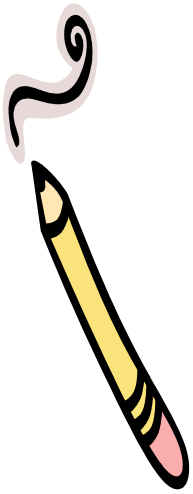
Raindrops during a storm???

Books in a library????

American Idol Winners???

At Sandcastles, I saw **numerous:**

-
-
-



In our school there are **numerous:**

-
-
-

imperative

Definition: If you say something is **imperative** that means it is necessary and must be done. For example, your parents might say that it is imperative that you brush your teeth everyday to avoid getting cavities.

Which of these things might be **imperative?** Why?

- Taking your baby to the doctor when she has a fever of 101 degrees?

or

- Taking your baby to the doctor because she started to cry?

- Studying for a test that you have next week?

OR

- Finishing your homework that is due tomorrow?

- Listening to your coach as he describes the new play?

OR

- Listening to the new song on your I Pod?

The doctor said it was imperative that my grandmother……..

accountable

Definition: If someone is **accountable** for something that means they are responsible for doing it. For example, your teachers are held **accountable** for teaching you to read and write and you are **accountable** for completing your homework each night.

*Which of these things can a fourth grader be held **accountable** for doing?? Tell Why.*

- Cooking breakfast, lunch and dinner for the family?

OR

- Emptying the dishwasher at night?

- Keeping their room clean?

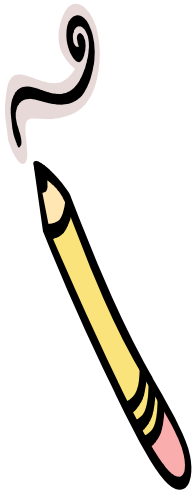
OR

- Fixing the car when it breaks down?

- Studying for a spelling test each week?

OR

- Shopping for groceries for the family each week?

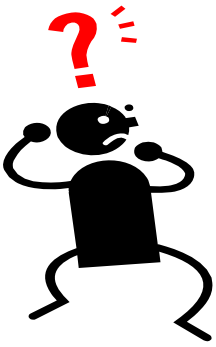


Something that policemen are held **accountable** for is…….

unfortunate

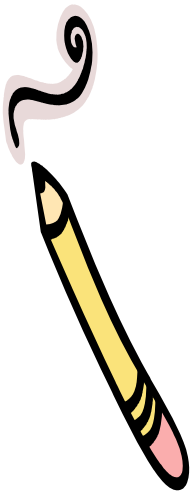
Definition: If something is **unfortunate**, that means that it is unlucky or a shame that it has happened. For example, if it rains during your day at Kennywood, you might say that it was **unfortunate** that it rained that day.

Which of these things could be considered **unfortunate**? Tell Why.



- Breaking your leg the day before summer vacation or breaking your pencil during math class? Why?
- Losing at a game of Monopoly or losing your new game boy? Why?
- Someone destroying the school playground or not being able to use the playground for a week because it is getting repainted? Why?

Something **unfortunate** that happened to my best friend was……



Word Review:

In my home……..

I have **numerous**

It is **imperative** to keep the _____ clean because

I am **accountable** for…….

I prefer to study in an **environment** that is…..

Something **hazardous** might be…..

It would be **unfortunate** if……

Appendix D2

Traditional Lesson #1

Traditional Vocabulary Exercises Day 1

Hazardous, Environment, Numerous, Imperative, Accountable, Unfortunate

Definitions. Read each definition below. Note the spelling, and parts of speech and definition of each of the following words. Then write the word in the blank space(s) in the sentences following.

1. **Hazardous** – *adj.* *Marked by danger; risky*

   - Smoking cigarettes is _____ to your health.

2. **Environment** – *n.* The circumstances or conditions that surround one: surroundings.

   - The classroom is my _____during the day.

3. **Numerous** – *adj.* Amounting to a large number; many.

   - There are _____stars in the sky.

4. **Imperative** – *adj.* *Not to be avoided or evaded; necessary.*

   - It was _____that I study for my spelling test.

5. **Accountable** – *adj. Responsible for giving an account of one's acts.*
    - My mother held me _____ for making my bed each day.

6. **Unfortunate** – *Not fortunate: unlucky, resulting in a bad situation.*
    - *It was _____ when it rained during our picnic.*

Word scramble: *Unscramble the following to spell one of your new words:*

PEEVITARMI _____

SHUAOZDRA _____

SMUORNEU _____

REEIOTNNNMV _____

CCAUONBTALE_____

ETANUTFRONU_____

Use a vocabulary word from the box to complete each sentence.

hazardous	environment	numerous	imperative	accountable
unfortunate				

- There are _____ fish in the ocean.
- It is _____to get to school each day.
- A flat tire could be _____ _____when riding a bike.
- It would be _____ if it rained every day during summer break.
- My favorite _____to read is one that is quiet and peaceful.
- The president is _____for helping our country improve.

Sentence Writing: *Write a sentence for each of your new vocabulary words.*

- Hazardous:

- Environment:

- Numerous:

- Imperative:

- Accountable

- Unfortunate:

Matching

Match each vocabulary word to the word that is most nearly the same in meaning.

Hazardous	many
Imperative	harmful
Environment	important
Numerous	surroundings
Accountable	unlucky
Unfortunate	responsible

Concentration Cards

hazardous	marked by danger RISKY
numerous	amounting to a large number MANY
imperative	not to be avoided NECESSARY

	not fortunate, resulting in a bad situation UNLUCKY
	The circumstances or conditions that surround one SURROUNDINGS
	Responsible for giving an account of one’s acts RESPONSIBLE

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