Introduction

Although somewhat overlooked in recent years, vocabulary development is a critical aspect of literacy. In past years, (1940-1970) it was believed that vocabulary had been emphasized too much in classrooms and soon thereafter a backlash emerged where vocabulary development inside of the classroom was neglected (Allen, 1983, p.1). Often it is held that a large vocabulary is an indicator of intelligence and educational achievement, as evidenced in education practices today by the use of verbal measures on intelligence tests and college entrance exams. Although there is a strong correlation between a vast amount of word knowledge and its reflection on one's intelligence, the implications of deliberate vocabulary instruction are far more salient.

For the purposes of this paper we will define vocabulary development as "instruction in word meanings that must go beyond the definition and include experiences in which the students build relationships between new words and what she/he already knows" (Roberts, 1999, p. 65). We will also define vocabulary development to include "providing extensive information to students about when and where to apply strategies, as well as information about the learning benefits produced by use of strategies" (Pressley, 1998, p. 211). We will incorporate the definition underscored by Thomas Gunning (1996) "a rich store of words, which allows us to transmit knowledge with precision and imagination" (p. 163). And last Janis M. Harmon (1999) defines word learning to be "employing multiple strategies to gain knowledge of new words, including making use of context, drawing on different types of content connections, doing word-level analysis and using syntactically appropriate synonyms" (p. 304). Juxtaposing each

of these definitions gives us a broad perspective of *vocabulary development*, laden with meaning, purpose and relevance.

Rationale

For many years, it was generally believed that sophisticated readers merely sampled or surveyed text. On the basis of predictions about what words and letters they would see, readers were thought to look at words and letters just long enough to see if their predictions were confirmed (Cunningham, 1998, p. 197). Frequent readers understand the relationship letters have with one another. They also recognize word patterns that are both familiar and unfamiliar to them. When a frequent reader encounters a word formation that is unfamiliar they will stop to analyze the word. Eye-movement research carried out with computerized tracking has shown that, in reality, readers look at every word and almost every letter of each word. However, for experienced readers the amount of time spent on processing each letter is incredibly small—only a few hundredths of a second (1989, Rayner & Pollatsek, as cited in Cunningham 1998). How does this information support the need for direct vocabulary instruction? Being that experienced readers read often, they better understand word formation. “The astonishingly fast letter recognition within familiar words and patterns is explained by the fact that our brains expect certain letters to occur in sequence with other letters” (Cunningham, 1998, pp. 97-98). Most of the time as we read, we think the words in our mind. The more accustomed we become to word patterns depends on how often we see and recognize them. As we read, we look very quickly at almost all of the letters of each word. Words we have read before are instantly recognized and processed as we see them. Consequently, the words that we do not recognize “easily interfere with

comprehending text. As a result, studies show that vocabulary problems cause comprehension difficulties" (1999, as cited in Roberts, Graves, Juel, & Graves, 1998, p. 66).

Vocabulary instruction has not been at the forefront of educational writing and research. Although *The Reading Teacher* has published articles related to word recognition and comprehension strategies, "there have been no articles devoted to vocabulary instruction during the past year. In 1997 only 2% of all submissions to *The Reading Teacher* dealt with vocabulary instruction" (Padak & Rasinski, 1998). However, vocabulary instruction is an integral component of teaching children reading comprehension. There have been numerous studies on the rates of vocabulary acquisition. Due to the large number of new words students encounter throughout their school years, such studies reveal the significance of formal vocabulary instruction on strategies and etymology of word meaning. Janis Harmon (1999), in "Initial Encounters with Unfamiliar Words in Independent Reading" states that Anderson and Nagy (1992) calculated "elementary and high school students learn about 2,000 to 3,000 new words every year" (p. 306). In another study by Nagy and Anderson (1984, as cited in Harmon, 1999) it was found that "middle school students gain some understanding of approximately 3,000 to 4,000 new words each year, provided they read between 500,000 to one million words in running text per school year" (p. 306). Nagy et al broke these numbers down to three or four words a day. Another study by Ruddell (1995) revealed estimates that students learn up to eight or nine words a day. Last a study by Chall (1987, as cited in Gunning, 1996) states that the average child begins first grade with a store of approximately 5,000 to 6,000 words. However, there are more than 315,000 entries on

2,500 pages in The Random House Dictionary of the English Language (1994). This is a silent tribute to the vastness of our spoken and written language. The abundance of new words poses a challenge to students who have not had any instruction on word learning. Vocabulary within content areas is especially important since it constitutes both information students should know and words they need to function within the subject. Direct instruction would then engage learners in strategies that would help them to construct word meanings from written contexts as they use their language experiences for making connections with newly encountered words. Thus, with such a large number of new words being introduced to students throughout their academic careers, vocabulary instruction would seem not only beneficial but necessary.

Correlation to Other Areas of Learning

The key to successful skills in vocabulary instruction is geared toward the active process of learning and ultimately the facilitation of a richer listening, speaking, reading, writing and comprehending vocabulary in *all* curriculum areas.

Listening/Speaking

At home, conversations are often one on one and the child's thoughts and interests are cultivated. "This is an ideal environment for building basic language, but not for long-term growth in all intellectual areas" (Gunning, 1996, p. 66). Listening and speaking skills are closely intertwined. A student's oral vocabulary can provide teachers with a considerable amount of information about student's functioning range of word knowledge, which helps prescribe instruction strategies for teachers. Relevant and systematic activities should be selected to enhance these skills through the use of vocabulary instruction. For instance, giving oral reports on books read induces the

concept of presenting information clearly and at an appropriate rate of speed so that listening comprehension is optimal. "Use of language during such activities helps pupils to achieve more optimally in speaking" (Ediger, 1999, p. 8). However, all students should be familiar with key vocabulary words in the report or inevitably the listening audience will tune out as unfamiliar vocabulary obstructs their comprehension.

Research shows that shared reading is an excellent way to help students construct concepts about print. Shared reading requires that students draw upon their listening vocabulary to construct meaning from the spoken text. "Throughout the story time activity, pupils should understand an increased number of facts, concepts and generalizations" (Ediger, 1999, p. 8). This necessary listening skill might then provide knowledge to students about unfamiliar words heard in context which will help "students understand increasingly complex vocabulary later read" (Ediger, p.10). Listening centers also help to enhance being a good listener, which entails listening for details, critical thinking skills, comprehension, and an understanding of sequential ideas and facts needed for understanding. "Listening skills help students value the thinking of others, and stimulates active participation which should help a discussion to move forward in quality" (Ediger, p.10). However, listening and speaking skills cannot and will not develop throughout lessons and activities unless students are familiar with key words throughout the text.

Writing/Spelling

There are direct implications on student's writing and spelling skills when they receive vocabulary instruction. Referring back to Thomas Gunning's definition (1996) that states vocabulary development is a "rich store of words, which allows us to transmit

knowledge with precision and imagination," one can see how a rich vocabulary would help students better express and convey their thoughts and feelings (p. 163). "It is quite obvious that there are many writing opportunities for pupils pertaining to each curriculum area" (Ediger, 1999, p.12). Pupils can actively engage in reading, rereading and proofreading when sharing in writing experiences. Students with rudimentary writing abilities will have difficulties in expression in other aspects of communication. "Superior writing is associated with frequent reading" (Gunning, 1996, p. 443). Student's writing often reflects the genre and forms with which they are familiar.

Students should enjoy a full range of writing activities whereby their spelling skills are simultaneously strengthened. Often students use writing as a forum for expression of words and thoughts that cannot be verbalized. Interactive journals, where teacher and student engage in written conversation, logs, poetry, letters, plays, summaries, will not only help students with their written expression but also with their spoken, reading and comprehending vocabulary.

Research in developmental spelling has yielded important information. Words that students consistently spell correctly are those words that have patterns that make sense to the students in theory of how words are spelled. Research by Bear and Templeton (1998) states that "it is crucial to make the link between the spelling of a word, its meaning in text and its structural relationship to other words" (p. 230). Encouraging students to be curious about new words they encounter in their reading can act as a catalyst for further word study. Teachers can begin by introducing students to systematic examination of structural elements in words-bases, prefixes, suffixes—and most importantly how the spelling of these elements depends on an understanding of their

meaning. "Importantly, spelling and vocabulary instruction come close together through sorting base words and suffixes. Students examine how the suffix *–ment* affects the meaning of a word, such as in *agreement* or *movement* " (1996, Bear & Templeton as cited in Cunningham, 1998, p. 235). Instructing students in word knowledge will directly affect their spelling and appreciation for the spelling/meaning connection. Meanings are accessed through visual word recognition. According to the stored knowledge students have about words, they are able to form new words with similar meanings. "Thinking of a word that looks and sounds the same as a new word will help you quickly remember how to pronounce and spell the new word" (Cunningham, 1998, p. 203).

Reading

The most devastating effects of a poor vocabulary are evident in reading comprehension. Studies on vocabulary instruction unequivocally identify vocabulary knowledge as a major factor influencing reading ability where comprehension was improved as a result of teaching vocabulary (LaFlamme, 1997; Nagy, 1988-89). Literature showed that there are harsh realities revealed in the strong connection between word knowledge and comprehension. Implications for reading skills and comprehension through vocabulary instruction have been researched and results found that "the inescapable bottom line is that good and frequent readers have better vocabularies than do poorer or reluctant readers" (Rekrut, 1996, p. 66). Furthermore that "there is a cyclical effect between vocabulary, reading and knowledge" (Johnson & Rasmussen, 1998, p. 204).

Wide reading appears to be the best indirect way for students to acquire the thousands of words they must learn annually. One reason for this is that the more

students read, the more words they encounter, the more familiarity they will have with new words in various contexts. Another strong reason for advocating wide reading in relation to vocabulary development is due to incidental word learning. "Incidental word learning refers to the construction of word meanings as a function of independent reading" (Harmon, 1999, p. 305). This means that students who are avid readers will automatically encounter more new words for which they will construct and derive meaning from context. Proponents of this theory contend that the greatest amount of vocabulary growth occurs through incidental learning. Those students who read for 25 minutes a day at the rate of 200 words per minute 200 days of the year will encounter one million words, of which 15,000 to 30,000 will be unfamiliar (Nagy, Anderson, & Herman,1987, p. 306). However, in addition to promoting wide reading in the classroom, teachers can and should provide students with strategies to decipher unknown words. Despite the fact many would believe that direct instruction and incidental word learning are at opposite ends of the pendulum, they should not be viewed as conflicting philosophies. Both strategies are crucial to a child's vocabulary development. Students will ultimately benefit from both direct instruction in word learning and incidental word learning through wide reading.

Comprehension Success

One of the most poignant outcomes of direct vocabulary instruction is a marked increase in student's comprehension. "When we examine the relationship between vocabulary knowledge and reading comprehension, we typically find a very high correlation" (Blachowicz, 1999, p. 213). Correlation does not mean that there is an exclusive cause and effect relationship between the two, rather this paper seeks to show

that there is a strong association between delibebrate vocabulary instruction and student's comprehension. It is through words that readers gain access to their stores of knowledge and their understanding of the text itself. Student's mental encyclopedias typically reflect the frequency of exposure to certain words, which reveals meanings of words in context. Consequently, students with a limited store of vocabulary words will most likely be limited in scope throughout their reading experiences. Clearly, obstruction of comprehension would depend on the amount of unfamiliar key words in an unknown passage. "A large number of unknown words in a predictable text should not obstruct comprehension; whereas, even a few unknown key concepts can severely disrupt comprehension" (Blachowicz, 1999, p. 215). Thus, the more words known by the reader, the better their chances to understand and enjoy what they are reading.

Vocabulary knowledge is only one element contributing to the comprehension of text necessary for a thorough understanding. Comprehension, defined by Janis M. Harmon (1999) is, "a process in which the reader constructs meaning while or after interacting with text through the combination of prior knowledge and previous experience; information in text; the stance taken in relationship to the text; and immediate, remembered, or anticipated social interactions and communication" (p. 305). Comprehension is a complex skill. Often, when students fail to comprehend, it is because of an excess of unfamiliar words. The goal should then be to teach students specific strategies that will eventually enable them to independently tackle unknown words. Ewers and Brownson's (1999) research on vocabulary acquisition advocates, "Vocabulary knowledge has consistently been found to be a strong predictor of reading comprehension" (p. 11).

Blackowicz (1999) states, “When a student fails to show good comprehension, and print skills, the problem can sometimes be traced to lack of familiarity with words” (p. 214). Initially, teachers should introduce new words one by one, before students begin reading a passage. But more beneficial than that is equipping students with word attack skills so that they are able to decipher meanings of unknown words independent of a teacher. Graves, Juel & Graves, (1998) state that, “Strategic readers need the ability to self-select strategies and derive meaning from texts of various genres.” Strategic readers are risk takers who interact with the text and apply decoding strategies to increase comprehension.

What’s in a Word?

To understand the importance of instruction in vocabulary development is to understand the complex function and interaction of words as lexemes. A lexeme is the abstract unit which underlies some of the variants observed in connection with words (Carter, 1997, p. 7). For example, *fight* is the lexeme for the words *fought, fighting, fighter* and *fights.* Each lexeme stands on its own as an individual word although its has several different word forms. An orthographic definition of a word is “any sequence of letters bounded on either side by a space or punctuation mark” (Carter, p. 4). Bloomfield (1933, as cited in Carter, 1997) stresses the stability of a word by the fact, “that it can stand on its own as a reply to a question or as a statement of exclamation.” Lexemes also help us understand the polysemy in individual words. Polysemy, defined by Carter (1997) is, “the existence of several meanings in an individual word” (p. 12). For example, the word *race* can be associated with running a *race* or with an ethnic group.

There are not any specifiable similarities between the words and their meanings as may first appear depending on one's familiarity with the word.

Hyponymy offers an organizing principle for vocabulary teaching and learning. Hyponymy is "the relationship of inclusion, organizes words into taxonomies, or hierarchical tree-type diagrams" (McCarthy, 1990, p. 19). In the hyponymy relation, *mammal* would be a hyponym for *animal,* which is the "superordinate" term. Other hyponymy relationships for the term *animal* would be reptile, and amphibian, where further taxonomies would be presented for further subdivisions. This could be used to express the relationships between seasons, transportation, clothes or body parts.

Two other important concepts related to words are morpheme and collocation. A morpheme is the smallest unit of meaning in a word. Each morpheme in a word comprises its own meaning. The word *laughed* is made up of two morphemes-- *laugh* and *-ed.* Adding *-ed* to the word laugh changes its meaning and tense. Therefore, a word must consist of at least one potentially freestanding morpheme. Collocation is a term used to describe a group of words, which occur repeatedly in a language. Michael McCarthy (1990) states, "The relationship of collocation is fundamental in the study of vocabulary; it is a marriage contract between words, and some words are more firmly married to each other than others" (p.12). Knowledge of collocation is knowledge of what words are most likely to occur together. For instance, beige collocates with car but not with hair; just as blond collocates with hair but not with car. Knowledge of collocational appropriacy is part of vocabulary competence and fluency.

Levels of Word Knowledge

I.S.P. Nation (1990) defines productive knowledge of a word to be, "Knowing how to pronounce the word, how to write and spell it, how to use it in correct grammatical patterns along with the words it collocates with" (p. 32). Similarly, Ryder and Graves (1994) discuss three levels of words students know (and learn): unknown words, words with which students are acquainted, and words whose meaning is firmly established. Unknown words are those that are completely alien to the student. Acquaintance words are those with which the student is familiar. Although they may have seen the word before, they are unable to transfer it over into other contexts and uses. Firmly grounded words are ones that the student recognizes, are part of their oral vocabulary, and are known in such depth that they can use them in a variety of contexts and associate them with a range of experiences (Calfee & Drum, 1986). Consequently, knowing a word in the fullest sense goes beyond simply being able to define it or get the gist of it from context. Rather active processing and vocabulary growth comes from students elaborating on words and demonstrating meaning in varied contexts of use. Presumably, knowing a word involves knowing the different meanings carried by the same form. According to Dale and O'Rourke, (1971, as cited in Gunning, 1996) students who encounter new words in text will say to themselves: I never saw it before, I have heard of it, but don't know what it means, I recognize it in text—it has something to do with . . . or I know it. This shows that even when a student recognizes an unfamiliar word, there are different degrees of knowledge. After students are able to read and sound out unfamiliar words, they should learn the word's meaning through rich, contextualized and generative activities.

In order for students to truly acquire and remember new words that will become part of their oral and written vocabulary, they must have multiple exposures to the new words in assorted contexts. Beck, McKeown, and Omanson (1987) suggest that students meet new words at least ten times; however, Stahl and Fairbanks (1986) found that as little as two exposures were effective. The underlying factor in the effectiveness of multiple exposures to new words seems to rely on the fact that students encounter these new words in a variety of different meaningful contexts. Polysemy, the existence of several meanings of a word, can produce meanings, which are close or distant. This can be semantically problematic for students when a word they have learned is presented in only one form. Multiple exposures to the word in different contexts would allow students to discern which definition was being applied.

J. Richards in The Role of Vocabulary Teaching underscores six language universals, which show to what extent knowledge of a word exists. The first is knowledge of the frequency of the word in the language. This principle states that to really know a word is to know the probability of encountering that word in print. Some lexical words are more frequently used in speech than in writing and teachers should be aware of this when determining student's word knowledge. The second principle is the knowledge of the register of words. This means that students know the limitations of usage on words. Knowing the register of a word means understanding colloquial English usage of words verses slang usage. Third, knowledge of collocation is having an awareness of syntactic behavior associated with the word and conjoining words. A fourth rule is that students who truly know a word, understand its morphology, meaning that they understand the underlying form of a word and the related derivations that are formed

from the base word. Fifth, there is an understanding of semantics where one understands what the word denotes as well as words that are analogous, opposite, and similar in connotation. Last is the knowledge of polysemy, which simply means understanding the many different meanings associated with a word.

Word Selection

There are systematic rules and guidelines for choosing words for vocabulary instruction. Time is often a constraint with the day; therefore, there are benefits for incorporating vocabulary development strategies within content instruction. In order for words to be truly learned, that is, committed to long-term memory, they must be reinforced in meaningful ways. The rote memorization of words and dictionary definitions will certainly not lead to the retention of words to be used in a student's functioning spoken and written vocabulary. When choosing words, select words based on content, students, and time (Misulis, 1999, p. 26). Words that are selected should be important to developing an understanding of related content in other subject areas. "There is a direct association between the knowledge of word meanings and understanding of what is to be learned" (Misulis, p. 25). This will make the meanings of words relevant to the context in which they appear as well as help to build connections between existing vocabulary and new vocabulary. Students will then encounter new words in a confirmatory and relevant manner rather than as an unknown word in an irrelevant piece of text.

Throughout content instruction it is important to continue to help students make associations between the vocabulary words they are learning and their prior knowledge.

When selecting words, account for student's prior knowledge and connection with words. This will undoubtedly construct relevancy between the learner and the content vocabulary. "It is essential to relate new words to experiences that students may have had" (Gunning, 1996, p.166). Teachers should predict or observe their students to discern which words may espouse relevancy. Helping students make connections and associations between what they are learning and their prior knowledge will enhance their retention of what is learned. Therefore, a selection of words should be based upon the premise that they will build on student's previous knowledge while contributing to their understanding of the new content being read. "Given the content to be learned, the nature of the learners themselves, and the anticipated time for a unit of study, the teacher makes decisions related to what is deemed a reasonable number of words for instruction" (Misulis, 1999, p. 26). Also, include what students already know, that is, their prior knowledge, when initiating and implementing vocabulary development. After informally assessing prior knowledge, a teacher can provide students with synonyms, antonyms, analogies, homophones, and homonyms of the words they already know. Students should be able to make associations among vocabulary words. Having students brainstorm, categorize, organize, or analyze can help students understand the meanings of words in relation to other words and the symbiotic relationships among words. This might involve initiating brief discussions of the words and their meanings before pertinent upcoming lessons.

Another important theme in selecting words for study, is to choose words related to students content areas. John Laflamme (1997) suggests "vocabulary instruction must be formalized, structured, and related in a meaningful way to the content that students are

learning" (p. 378). There is nothing inherently inappropriate about giving students a list of vocabulary words. They can practice their spelling, dictionary skills, and penmanship. However, there is a tendency for students to merely memorize words, definitions, and sentences for a test. On the other hand, for words to truly be learned they must be reinforced in meaningful ways. One way that this can be done is to assist students in understanding the vocabulary related to their content areas. "Vocabulary words should be selected that reflect students' learning needs in light of the content to be studied" (Misulis, 1999, p. 26). This is important in helping students come to a greater understanding and retention of the words that contribute to content learning in all subject areas.

Leu & Kinzer (1999) suggest three categories of words that should be taught in vocabulary instruction- *function words, content words* and *content-specific words.* Function words are the "glue" words of a sentence, meaning that they are often articles (a, an, the), conjunctions (and, but, or), prepositions (at, into, over); and auxiliary verbs (could run, had snowed) (p. 335). If function words "are taught out of context, they can be difficult for young children to conceptualize because the concepts they represent are not concrete" (Leu & Kinzer, p. 335). Like other researchers, Leu and Kinzer advocate teaching content words such as nouns, pronouns, verbs, adjectives and adverbs in context. Context will help clarify meaning and usage to all key content words, which for the most part, have concrete meanings. Last are content-specific words. Content-specific words "always have specialized meanings within a particular subject area and must be learned within the context of that area" (Leu & Kinzer, p. 337). For example, the words *amendment, succession,* and *ratification* all are content-specific to history—and should

be taught in context because of the probability of encountering these words in their history text.

Barr and Johnson (1997) suggest several ideas for continually developing vocabulary. They have shown "that students' self-selection of words is an important factor in vocabulary development" (p. 129). Student interest and curiosity in words can significantly contribute to word development. They are more prone to discuss and develop interest in new words they have heard or seen before. They also suggest creating direct experiences to learn new words. "Young children learn best if they can experience the meaning of a word" (p.130). Learning or reading about kites is not as effective as bringing a kite into the classroom for students to see and feel. Just as flying the kite would be the most effective direct experience students could have with the word. It would be more probable that students would remember and be able to use *kite* in context, after having had an encounter with one. Employing concrete experiences can be time-consuming and costly but will increase word learning.

White, Sowell, and Yanagihara (1989, as cited in Cunningham, 1998) analyzed the words in the Carroll et al. (1971) and found that 20 prefixes accounted for 97% of the prefixed words. Prefixes are chunks at the front of words that have predictable pronunciations and spellings. Therefore, due to the frequency of these prefixes, teaching them and their word parts would seem advantageous to student's vocabulary development. According to the study, four prefixes—*un-, re-, in-* (and *im-, ir-, il-*) and *dis*—accounted for 58% of all prefixed words. The prefixes accounting for the other 39% of the words were: *en-, em-, non-, in-, im-, over-, mis-, sub-, pre-, inter-, fore-, de-, trans-, super-, semi-, anti-, mid-, and under-.* Suffix instruction was taught so that

students could understand how they often change the word from a verb form to a noun form—as seen with the change of frustrated to frustration. Teaching the suffixes *-ly, -er, -or, -ion, -tion, -ible, -able, -al, -y, -ness, -ity,* and *-ment* account for 87% of the suffixed words. While, the suffixes, *-s, -es, -ed*, and *-ing* account for 65% of the suffixed words. The remaining suffixes, *-ic, -ous, -en, -ive, -ful,* and *-less* account for less than 1% of the suffixed words. This information is important because students will undoubtedly profit from explicit instruction with the most common prefixes and suffixes. White, et al. (1998) estimated that "the average third grader would encounter 230 words, the meaning of which would be obvious if the base word and the four most common prefixes and suffixes were known" (pp.193-194).

A Look at Vocabulary Studies

Numerous studies have been executed in order to collect and analyze data pertinent to the implications of formalized vocabulary instruction. We will look at two studies, each of which found substantial information specific to the vocabulary domain. The first study recorded by Dole, Sloan, and Trathen is entitled "Teaching Vocabulary within the Context of Literature" and is found in the March 1995 *Journal of Reading.* The second study is recorded in Janis Harmon's "Initial Encounters with Unfamiliar Words in Independent Reading" found in the February 1999 issue of *Research in the Teaching of English.*

Vocabulary Study #1

This study was conducted with 43 tenth-grade students in a private school in the United States. The English class was an elective course called Action and Adventure. The goal of the study "was to develop an alternative instructional unit that would provide

students with this procedural and conditional knowledge about words" (Dole, Sloan, & Trathen, 1995, p. 454). The teacher, Chris, taught the alternative unit to one class of students and the traditional unit to another class. Before the unit, Chris administered a pre-test Important Words Test, where students were asked to read a selection and then choose words they felt were important to the overall story plot. The pre-test showed that 48% of the words students chose were words that were unfamiliar to them. Sixty-six percent of the students cited that they chose a certain word because they did not know what it meant, 20% chose a word because it described characters, 16% chose a word because it described the plot or story action, 9% stated "the book picked them," and 7% chose a word that described something. These percentages clearly reveal that the students were not aware of which words were key for either building or obstructing comprehension of the passage. Word selection is an important component to vocabulary instruction, not only for students, but for teachers as well. Teachers should model their thinking patterns about how and why they choose certain words for instruction. In phase one of his research, Chris began to do this, each morning for four weeks he listed a group of important words from the passage on the board and shared with the class why he had chosen those words. He then asked students to practice choosing words based on the following criteria: the word must be a word they did not know, it must be used in the selection, and must describe a key character, event or idea.

Phase two meant that students were to gradually become less dependent on Chris' input when selecting words. They also were to be able to justify the reasons why they selected those words. For the following weeks Chris integrated his vocabulary instruction into the discussion of the reading selection and had the students read each

word out loud in context along with its definition. Chris would then initiate a discussion on how those words did or did not directly fit into the story's main plot, character or idea. In phase three of Chris' instruction "students developed independence in using their new strategies for selecting important words" (p. 456).

Both at the beginning and the end of the unit, the students were given a vocabulary test. The pre-test for both classes revealed that 11% of the 20 words were identified as "established" words, words that were important to the overall theme of the text. The post-test revealed that the alternative group chose 60% of the words as "established," while the traditional group identified only 39% of the words of the words as established. "At the end of the instructional period, students in the alternative group were more confident in their knowledge of the important vocabulary words than were students in the traditional group" (p. 457). In summary, there were three important features of Chris' vocabulary instruction which were pertinent to the student's success. The first was that Chris provided specific criteria before asking students to choose important words. Second, Chris made sure that his students learned the contextual meanings of each word. And last, he provided extensive practice to students with the important words.

Vocabulary Study #2

The second case study takes place in a seventh grade literature based reading classroom in the United States. This study reports detailed descriptions of "what two proficient middle-school readers did during initial encounters with self-selected, unknown words in independent reading" (Harmon, 1999, p. 304). The way in which the data was collected was scrupulous note taking on verbal strategies expressed by the

students at the time of engagement with the new word. The students read a passage aloud and upon encountering an unknown word, the students would verbalize their thoughts as they worked to determine meaning. It was concluded that both students "drew upon test-based references, content connections, word-level analysis, dictionary use, and their knowledge of syntax to generate definitions" (p. 318). Being that the two participants were strong readers, indicates that their strengths were derived from the fact that they used a wide variety of skills to determine meaning of unknown words.

Conclusions revealed that both readers drew upon knowledge outside of the text. Both students used a variety of methods, and both students verbally indicated that they played with the pronunciation of the unknown word, referred to the local text for clues, extended the word to a context they had heard or seen it in before, and finally referred back to the local test before predicting a definition. Although the conclusions they drew about each unknown word were not always accurate "word meanings did not grossly interfere with comprehension" (p. 334). Overall, the research showed that proficient readers use a variety to strategies to decipher meaning of unknown words and that these two readers' encounters "proved to be fruitful endeavors in generating plausible word meanings . . ." (p. 334).

Direct Instructional Strategies

Each encounter with an unfamiliar word in reading represents an opportunity for learners to expand their vocabulary knowledge while actively constructing meaning of the text as a whole. Most students need to be taught the strategies that strong and capable readers already implement. Teachers can increase motivation by helping students appreciate "the purposes of strategies to help them understand why they should

implement vocabulary strategies when they are experiencing difficulties making meaning of words" (Roberts, 1999, p. 68). Additional shared research emphasizes the importance of teaching students to use their cognitive skills to enhance learning. There are several direct strategic skills that students can learn to use effectively: contextual analysis, semantical analysis, structural analysis, and other less formal strategies such as definitional approaches. First, there will be an examination of specific strategies learner's use for inferring words in context.

Contextual Analysis

In contextual analysis, "a reader uses the words in a sentence surrounding an unknown word to figure out the unknown word's meaning" (Carnine, Silbert, & Kameenui, 1990, p. 285). Contextual clues include syntactical analysis where students use their knowledge of sentence structure to figure out meaning of an unknown word. The literature supported using syntactical principles upon encountering an unknown word in its context. Contextual analysis is an important skill and strategy essential for students, because it allows them to determine the meaning of many unknown words they will encounter. Research suggests that "students whose vocabularies are most in need of being increased are least likely to be able to get information from context" (Goerss, Beck, & McKeown, 1999, p. 153). Although context clues can be fairly obvious, "students may fail to take advantage of them" (Gunning, 1996, p. 146). Nagy, Anderson and Herman (1987, as cited in Gunning, 1996) "estimated that the average reader is able to use context successfully only between 5 and 20 percent of the time" (p. 146). However, I.S.P. Nation (1990) states that "once learners know around two or three thousand words, they can use the reading skills they have developed to infer the meanings of unknown words that they

meet" (p. 60). Through instruction and practice, children can and will become more proficient at evaluating word meaning from context.

I.S.P. Nation (1990) conducted a few studies analyzing how students guess words from context. "There is no question that learning from context is an important avenue of vocabulary growth and that it deserves attention and practice in the classroom" (Nagy, 1988-89, p. 7). Their studies indicated that a large proportion of unknown words (at least 80 percent) can be successfully dealt with using the following strategy. Teachers begin instruction by having students look closely at the unknown word, next they look at its immediate context, and then take a much broader view of how the clause containing the word relates to others clauses, sentences or paragraphs. Sternberg and Powell (1983, as cited in Gunning, 1996) postulate a three-step process whereby students use context to determine meaning. First is *selective encoding* where students gather information from the sentence that will help them construct meaning for the unfamiliar word. The second step is *selective combination*. Here students combine relevant clues into a tentative definition. Last is *selective comparison* where students use their past experience to help determine meaning for substitution. Carnine, Silbert, and Kameenui (1990), suggest strategies similar to the ones above. They identify three steps where the student identifies the unknown word, finds words in surrounding context that help reveal meaning, and finally students restate the sentence using a substitution word. After guided practice with these strategies, students will begin independent practice with unknown words.

Context teaches beyond a word's dictionary definition, it also teaches students the correct usage and meaning of the word in a sentence. Some contexts give the reader more concise definitions than others. Research by Goodman (1965, as cited in Carnine,

Silbert, & Kameeuni) found that "students correctly identified more words [meanings] when they were presented in context rather than in isolation" (p. 52.). Contextual clues include different parts of the sentence, surrounding sentences, or paragraph to discern meaning. Gunning (1996) underscores several types of context clues students can look for in sentences. The first is *explicit explanation* or *definition*, where the unknown word is directly defined in the sentence preceding or following the word. Second are *appositives.* Appositives restate or redefine the unfamiliar word. *Synonyms* and *examples* are two other ways to infer meaning from context. Three other ways to use context are by using clues such as *comparison* and *contrast*, *classification*, and *experience.* Last are *function indicators*, where context provides clues to meaning by elaborating on the words' function, purpose or use. Contextual analysis can be employed in the classroom through several direct and structured activities.

Syntactical analysis, a component of contextual analysis, serves to strengthen students word attack skills through an understanding of language. Syntax, as defined by Webster's Dictionary (1997) is "the way in which words are put together to form phrases, clauses or sentences" (p. 734). The way in which words are put together can serve as an important tool for deciphering unknown words because although at first glance the learner might not recognize the word, one's knowledge of sentence structure can help determine the meaning. Rupley, Logan, and Nichols (1998/99) provide a vivid description of the importance of syntax in vocabulary development. "Randy became very nervous as the doctor's assistant approached him with the sphygmomanometer" (p. 337). The context offers to some degree the setting of the event; however, none of the context clues are helpful in inferring the meaning of the unknown word. "When context is not

enough to derive meaning from an unknown word, skilled readers use their language knowledge to help them infer meaning (Rupley, Logan & Nichols, 1998/98, p. 336). An understanding of syntax enables the reader to discern that the "sphygmomanometer" is a noun, a thing. Only an understanding of syntax would allow the reader to determine its part of speech. In the sentence, *she placed the* ____ *on the table,* an understanding of syntax would reveal that the object is a noun. Neither a verb, adjective, pronoun, or adverb could accurately fit into the space; however, only an understanding of syntax can provide the prior schema necessary for completion. "Most studies found syntactic factors to be highly related to reading comprehension, second only to those of vocabulary" (Chall, 1983, p. 198).

Ideas for the Classroom

There are several ways of developing and maintaining vocabulary support in class throughout the day. Activities should be worthwhile and should emphasize pupils' interest and background. Research indicates that students need multiple exposures to new words. Barr and Johnson (1997) suggest thirteen or more exposures to learn new vocabulary (p. 129). Thus, new words should be developed before, during and after the reading of text. One effective way to have children demonstrate their reading comprehension using vocabulary from text is to have students construct an outline of important concepts from the text. When constructing outlines, students should be taught the idea of main concepts and subordinate ideas that relate directly to one another. Another idea for application within the classroom is to preface each reading assignment by asking the students to look and select words they want to know more about. Maryann Manning (1999) suggests having students acts as etymologists. Students select a word

they would like to know more about, propose the origin and meaning(s) based on Greek and Latin roots, and give examples of the word in context. Students then vote on correct definitions of the word. After review of correct definitions, students record words in a personal dictionary.

Literature.

"Without teacher attention and instruction to terminology, students' comprehension will necessarily suffer. For this reason, considerable attention to vocabulary development is basic to effective instruction in the content areas" (Dishner, Bean, & Readence, 1981, p. 137). Teaching vocabulary within the context of literature is a beneficial classroom activity that is tantamount to comprehension. Dole, Sloan, and Trathen (1995) conducted a study within a tenth grade classroom. The students were reading, The Secret Life of Walter Mitty. The teacher asked the students to use three criteria for selecting important words from the upcoming chapter in the book: the word must not be established in their vocabulary, the word must be one that is used in the selection, and the word must accurately describe a key character, place, theme or event. The students were asked to underline and predict the meanings of these words in the text as they read. They were also instructed to look up the words in the dictionary and then select the definition appropriate to the context. The following day, the vocabulary words that the students had chosen were discussed and integrated into instruction. Through scaffolding and guided practice students were able to independently use the strategy for selection of key words which may obstruct comprehension.

Possible sentences.

Moore and Arthur (1981, as cited in Dishner, Bean & Readence, 1981) suggest using a method called *Possible Sentences,* which enables readers to independently determine meanings and relationships of unfamiliar words in content reading. In the first step of *Possible Sentences* the teacher lists key terms of a passage that are defined by surrounding sentences. The new vocabulary words, in their sentences, are presented to the class, and written on the chalkboard. In step two the students pair two words in the list, and write possible sentences for each word as it is connected to the other. Step three entails having students read the passage checking for appropriate usage of the target vocabulary words. Last, students evaluate definitions, and eventually modify and produce original sentences using the words fittingly. Moore and Arthur (1981, as cited in Cunningham, 1981) state some key components related to the implementation of the *Possible Sentences* strategy. When students are choosing target words they, "must comprise key vocabulary with clear defining context." Also, the credibility of each students' sentence "suggests that students conceptual backgrounds be appropriate for the passage, and that the accuracy of the students' final sentences provides evidence that the meaning and the relationships of the words were identified correctly" (p. 140*).* *Possible Sentences* is a strategy that juxtaposes vocabulary development with comprehension in content passages.

Context strategy.

Joan Gipe (1980, as cited in Barr & Johnson, 1997) created a strategy called *Context Strategy*, where students use context clues in applying word meaning to unknown words. *Context Strategy* "encourages students to integrate information across

sentences and at the same time incorporates the definition of the target word" (p. 116). This strategy requires that the teacher choose target words from a selected passage and then generate four sentences ranging from the most obscure usage to the most precise. Gipe suggests that initially teachers use a sentence directly from the passage so that concepts can "be used to further link vocabulary learning to text comprehension" (p. 118). After reviewing the four sentences students are asked to predict a definition for the word. This strategy is time consuming, as a substantial amount of time is spent on each new word; however, the multiple exposures, the student involvement and the words taken directly from text are cornerstones for building vocabulary development and retention.

Knowledge-Rating.

Another strategy ripe for establishing word learning is called *Knowledge-Rating* (Barr & Johnson, 1997). In *Knowledge-Rating* "students learn to self-assess their level of word knowledge so they are better prepared to comprehend text" (p. 116). Here, the teacher is responsible for choosing words from the text that will either enhance or impede students' comprehension. Students are given a list of the words and asked to rate their level of word knowledge by using the following statements: I have no idea, I have seen and heard the word, I can define the word, or I can use it in speaking and writing. After the students have filled out the chart the teacher will use discernment as to which words he/she needs to discuss and develop before students read the text. Generated class discussions about the new words can provide students with opportunity to express their understanding or lack thereof before they read. "Knowledge rating is designed to infuse responsibility and develop word consciousness in students" (Barr & Johnson, 1997, p.116).

Vocab-O-Gram.

Blachowicz (1986, as cited in Barr & Johnson, 1997) developed a strategy called the *Vocab-O-Gram.* *Vocab-O-Gram* is used before beginning a new unit, text, or story. When using this strategy students "are going beyond the definition of the word to consider its application in text and are engaged in much higher thinking about words and their relationship to text" (pp.127-128). The teacher selects nine key words from the text that students will use to predict the plot of the story. Students are to place each word in a box labeled: setting, characters, problem, actions/events, and resolution. Students will place the words according to their knowledge of story structure and their familiarity with the words. After students have made their predictions, the class will read the text to confirm or change predictions about the words.

K-W-L.

Similar to the *Vocab-O-Gram* is the *K-W-L* chart. *K-W-L* is an acronym for know, want to know, what have I learned? The *K-W-L* chart is a great way to introduce new vocabulary to students, while increasing comprehension. It "emphasizes students' prior knowledge, categorizes their ideas, encourages them to develop questions for reading, directs them to seek answers to their questions and determines sources to search for answers" (Barr & Johnson, 1997, p. 135). After introducing a new topic to the class, the teacher asks students what they know about the concept. For example, if you were to begin a lesson on mammals, you may ask the students what they already know about mammals. The class would generate a comprehensive list of information pertaining to mammals. The teacher may probe for information by introducing words such as "warm-blooded, or vertebrates." After introducing new technical words students can then begin

to expand on their knowledge of mammals while acquiring new vocabulary. Before reading, the class also fills in the section that asks; What do I want to know? The students' interest is peaked and they begin to produce questions they want answered pertaining to mammals. After the lesson, and after the class has found the answers to their questions (W-want to know) the students fill in L-what I learned, whereby they demonstrate new vocabulary, and a solid grasp on the new concept.

Semantic Cues

Semantics, as defined by Webster's Dictionary (1997) is "the study of meanings in language" (p. 664). Gunning (1996) defines semantics as "words that have special meanings that have to be learned if the words are to be understood fully" (p. 187). Selecting semantically appropriate words can often cause difficulty for students, especially when the word has a generalized meaning. Semantics can also present problems for second language learners by reason of the fact that, "Some single words forms can have a lot of related meanings, some words have the same form but have totally different meanings in different contexts, different words sometimes share a general meaning sense, and some words do not always have a set opposite" (Dufficy, 1996, p. 11). Several important features, such as are *homographs, homophones, synonyms, antonyms, figurative language, multiple meanings, connotation, denotation* will be examined in this section. Including semantic instruction will prove beneficial to the native English speaker and the ESL student alike.

According to Gunning (1996) homographs are "two or more words that have the same spelling but different origins and may have the same or different pronunciations" (p. 188). For example, the word *bank* may mean a place where money is stored or the

sideways slope of a surface along a curve. This variation in meaning may present a problem if the immediate context is not provided. The fact is that in the English language many word forms occur in different contexts with quite different meanings. Homographs, "make spelling easier but reading more difficult" (Gunning, 1996, p. 188). Some homographs even have different pronunciations with the same spelling*: bow, lead, dove, sow, sewer, desert, lead,* and *read.* Although spelled the same, the pronunciation and meanings of the words are drastically different. As students read more they will be accustomed to the variation of same spelled words with different meanings, and will thus learn the importance of relying on contextual clues. Research indicates that "learning a new meaning for an old word is more difficult than learning a new meaning for a new word" (Gunning, p. 188). Consequently, students will need guided practice for recognizing and developing awareness for homographs.

Homophones, "are words that are pronounced the same but differ in spelling and meaning and often have different origins as well" (Gunning, 1996, p. 188). For example, *there/their/they're, principal/principle, stationary/stationery, your/you're, weather/ whether,* and *too/to/two.* These words may present problems for students phonemically because it would seem that different blends of phonemes could not produce the same sounds. Homophones may also present problems for phonemic spellers, who rely upon sounds, dipthongs and schwas to sound out words. Context will provide the reader with adequate information regarding meaning; however, "it is important to note spelling to interpret the meaning of a sentence correctly—for example, *She was last seen hanging onto a buoy*" (Gunning, p. 188).

Synonyms and antonyms are important components of semantical analysis for vocabulary development. Synonyms can help students connect new words to old words. Synonyms are not completely interchangeable in all contexts, but in most cases, where synonyms are substituted, the overall meaning of the sentence does not change. In using "synonym or antonym clues, an easier word is used to define the more difficult target word" (Barr & Johnson, 1997, p. 131). For example, the word, *begin* has multiple synonyms, such as *start, commence, originate,* and *initiate.* The word may also be defined by its antonyms: *end*, *close*, *terminate*, *conclusion*, *finish*, and *stop.* By allowing children to explore new synonyms and antonyms of old words, the connection between prior knowledge and new knowledge can be more easily associated. Although every synonym or antonym may not completely invite the same contextual meaning and may not be entirely interchangeable, "initial synonyms and antonyms do not have to be precise. They must, however, be designed to give students an approximate meaning that can be redefined as they encounter the word in later reading" (Carnine, Silbert & Kameenui, 1990, p. 139). Synonyms should be introduced carefully, because students should be taught that synonyms are new words which correlate to old words, whereby new vocabulary is being explained by expanding on existing knowledge of old words.

Antonyms can also be used to further define a familiar word by introducing its opposite meaning. Teaching antonyms along with synonyms as a strategy for vocabulary development will expand their word knowledge as well as help "make their writing clearer and more expressive" (Rubin, 1983, p. 83). Antonyms, like synonyms, are an effective strategy to teach word meaning. Antonyms can also be used as "non-examples" of words. For example, a lesson might include showing students a picture of something

white in order to teach the color black. White would be a “negative” or “non-example” used to further explain and define black. Another example would be to show students pictures of singular and plural objects in order to help them differentiate between the two concepts. The teacher might point to the singular and say the word “dog.” “Rely on examples more than abstract principles, or definitions and begin with familiar words” (Cunningham, 1998, p. 210). Showing non-examples can also help stretch students so that they limit the set of positive examples. Not only will they be familiar with the new word, but they will also understand what the new word is not. Carnine, Silbert, and Kameenui (1990) report “faster acquisition and higher transfer scores of students who are taught to discriminate between opposites when learning new words” (p. 179).

Figurative language is another dimension to vocabulary development; one where direct and formalized instruction is necessary. A “metaphor’s central position in the structure of language, and its contribution to concept development and cognitive functions are combined to assist in the learning of vocabulary” (MacLennan, 1997, p. 98). Figurative language is most often seen in literature, which is defined by Gillian Lazar (1993) as “a disciplined technique for arousing certain emotions” (p. 2). Figurative language, often used in poetry, plays, novels or short stories, deviates from linguistic norms. For instance, metaphors often create difficulty for students because the interpretation is not literal, but rather words are substituted to reveal a likeness between two things. Lazar (1993) defines a metaphor as “a connection or comparison between things which are usually considered to be unlike each other” (p.105). Students may find it difficult to unravel the connection between apparently dissimilar objects or concepts. Understanding metaphors involves engaging in a series of linguistic inferences (Lazar, p.

106). This can be especially difficult if students are limited in their experience with words. Another feature common to figurative language, which can often present comprehension problems are, idiomatic expressions. Unfamiliar idiomatic expressions are "peculiar to a language and cannot be understood from the meanings of the individual words making up the expression" (Gunning, 1996, p.189). Expressions such as "save face," "more than meets the eye," or "a cold heart" are all idiomatic expressions, often taught to students as idioms. Idiomatic expressions "hinder comprehension in much the same way as difficult vocabulary words do" (Gunning, p. 189). As a result, they should be discussed before reading a selection and introduced as part of new vocabulary terms and phrases.

Lastly, important to instruction in semantics are the concepts of connotations and denotations. The connotation of a word "is its implied, suggested or associated meaning or meanings," and the denotation of a word "is its explicit meaning" (Gunning, 1996, p. 190). The connotative use of a word requires an understanding of more than a simple definition because the meaning is implied rather than explicit. Connotative meanings also "include all emotional senses associated with the word" (Rubin, 1983, p. 86). This is exemplified when we think of the connotative meaning of the word *mother.* For some this word connotates home-cooked meals, comfort and warmth and for others it may connotate pain, abandonment, and abuse. Therefore, the connotation of a word is strongly connected to ones' past experiences and prior knowledge. The denotation of a word includes a specific meaning so that a word is directly defined within the sentence or surrounding sentences. For example, consider the sentence: *The glass, filled with ice cold water, shattered when it fell from the counter.* The denotation would be that a *glass* is

something from which we drink; it holds liquids. The connotation of the word might be drawn from the fact that the glass shattered; meaning that the glass was breakable. If we changed the sentence to say, *The glass, filled with ice cold water, bounced on the floor when it fell from the counter,* the denotation would be the same as the sentence above; however, the connotation would be that because the glass "bounced" because it was a plastic cup. Our learners should be familiarized with connotations and denotations of new vocabulary words because it will help them more readily decipher meaning by using the words in the sentence itself.

Ideas for the Classroom

Two classroom activities specific to semantical analysis are semantic feature analysis, semantic mapping, synonym substitution and mnemonic method. Each of these word learning activities is designed to build on words (or concepts) students already know.

Semantic feature analysis.

Semantic Feature Analysis is "a way of teaching the significant concepts and vocabulary of a passage by developing a relationship chart" (Rekrut, 1996, p. 68). Semantic feature analysis is generally conducted before students begin reading to help establish meaning amongst words that are closely related. The teacher selects key vocabulary words, differentiating between superordinate (across) and subordinate (down) terms. Next, the teacher should lead students in a discussion about features or characteristics amongst the words. The discussion should "alert the students to the relationships among general and specific concepts, and focus their attention on related new vocabulary" (Rekrut, 1996, p. 68). For example, if a teacher were about to begin a

lesson on sharks, he/she might begin the lesson by having students participate in creating a semantic feature analysis. The superordinate terms, such as *great white, hammerhead, blue, maco* and *tiger* sharks would appear on the left hand side of the chart; whereas, the subordinate terms, such as *stripes, attacks humans, Atlantic Ocean, Pacific Ocean, large shark, small shark,* and *hammer-shaped head* would appear across the top of the chart. The students would then complete the chart with + (positive) or – (negative) signs that would suggest the presence or absence of each feature according to each kind of shark. If students are unsure of whether or not to put a + or – in a particular square, a temporary "*?*" should be placed so that at the end of the lesson it may be filled in. By using semantic feature analysis students create a graphic representation of the differences amongst sharks. This is useful for teachers as well because it can be used as means to assess students' existing knowledge about the subject matter. However, after much guided practice, teachers should allow for students to complete the matrix independently.

Semantic mapping (Webbing).

S*emantic Mapping* is "a device for organizing information graphically according to categories" (Gunning, 1996, p. 169). Semantic mapping is often called graphic organizing, brainstorming, or webbing; however, each strategy seeks to accomplish the same goal—to "represent an important concept and have students list as many related words as possible, putting them in broad categories" (Rekrut, 1996, p. 68). Teachers often use semantic webbing as a means to assess prior knowledge as well as to explore meanings of unknown words, concepts, and topics. Semantic mapping begins with a central word (or concept) and allows students to build on that word by adding related concepts and words to the central word and connecting categories. For instance, the

teacher might encircle the word *plants* on the chalkboard. Under the teacher's direction, students generate subcategories pertaining to plants such as, how they grow, where they live, what they need in order to survive, and different kinds of plants—each of these broad topics branch off from the key word, *plants.* Students then brainstorm as many words as they can and place them in the appropriate place. After reading more about plants, students continually add and revise the map to include new vocabulary and terminology related to plants. Research indicates that "semantic mapping seemed to help students categorize words and focus on their similarities and differences, qualities which may serve as a structure which enhances recall" (Rekrut, 1996, p. 68).

Synonym substitution.

Synonym Substitution is a strategy created by a group of graduate students from the State University of West Georgia, and is conjoined in Elaine Roberts' article (1999), "Critical Teacher Thinking and Imaginations: Uncovering Two Vocabulary Strategies to Increase Comprehension." Unlike the other strategies, this strategy requires that students first read the assigned passage or text before new words are introduced. Students are then asked to self-select difficult words from the passage, where they then decide on a definition and check that definition in context or a dictionary. Next, students substitute a synonym for the word in the passage. After, students illustrate their selected word or present a dramatic presentation of the word to the rest of the class, whereby students are asked to guess the word. Finally, the word is presented as an analogy. For example, if the difficult words selected were *dagger* and *saber*, students could then draw an analogy between "*dagger:knife* and *saber:sword*" where old words are connected to new words (Roberts, p. 74). Although this strategy is extremely time consuming, it leads to a

significant amount of interaction with each word selected; which in turn leads to greater retention and word building. The objective of the strategy is "to make comparisons of vocabulary words and their meanings" (Roberts, p. 74). A variation of the strategy is to have students work in groups where they select difficult words from a passage and substitute synonyms for the words. Next, the groups teach the analogies to the class where they illustrate the word and present it to the class. Eventually students will be able to substitute synonyms for difficult words, check them in context and draw analogies between old words and new vocabulary.

Mnemonic method.

A *Mnemonic Method* is "a way of improving the learner's memory for items having an associative component" (Rekrut, 1996, p. 69). This method is used to help students associate new words with old words by using mnemonic devices so that retention is optimal. The learner first creates "a keyword that sounds like a salient part of the unknown words, and then links the keyword to the unknown words by means of a visual image or a sentence" (Rekrut, p. 69). For example, to help remember the word *squabbled*, students may produce a sentence such as *"the squirrels squabbled over the one nut I threw on the ground."* Research shows the "effectiveness of the keyword method in enabling students to recall and apply their newly learned vocabulary as much as two weeks after instruction" (Rekrut, p. 70). Second language learners often use this technique when transferring words over from their L1 to the L2. For example, if an Indonesian student were trying to remember the word *parrot*, they may link it to the Indonesian word *parit*, which means ditch—and then link the two words together by remembering an image of a parrot lying in a ditch (I.S.P. Nation, 1990, p. 166).

Structural Analysis

Structural analysis is the last of three formal cueing systems discussed in this paper. Nagy and Anderson (1984, as cited in Cunningham 1998) estimate "that approximately 60% of English words have meanings that can be predicted from the meanings of their parts" (p.193). Instruction in structural analysis involves teaching students the importance of morphemic analysis in relation to polysyllabic words, and syllabication. Dorothy Rubin (1983) states that structural analysis "a powerful tool, but it is dependent on your having at your fingertips knowledge of word parts and their meanings" (p. 77). Understanding structural analysis is an important part of learning how to how to read, spell, and comprehend.

Structural analysis depends on morphemes, "the smallest units of meaning" (Gunning, p. 138), so that instruction in morphemic analysis entails instruction in compound words, prefixes, suffixes, and root words. Carnine, Silbert and Kameeenui (1990) define morphemic analysis as "a vocabulary aid [which] involves dividing a word into its component morphemes, then using the meanings of the individual morphemes to figure out the meaning of the entire word" (p. 287). If a student can extrapolate meaning from smaller parts in a word, he/she may be able to synthesize its word parts to make sense of the whole. O'Rourke (1974, as cited in Gunning 1996) describes morphemic analysis as "one of the most powerful word-attack skills, but also one of the most neglected" (p. 137). When teaching morphemic analysis skills to students, concepts should be taught incrementally, introducing its different components over time. Structural analysis concepts taught should be generative, rather than taught mechanically and in isolation. Carnine, Silbert and Kameenui (1990) underscore two rules for

introducing morphemes to students: introduce the most functional affixes first (un-, re-, pre-), and separate morphemes likely to be confused e.g., *-er, -est.* These two rules will help make the input more comprehensible for all students. Root and base words should be taught in conjunction with affixes. "As with prefixes and suffixes, roots that should be taught are those that appear with high frequency," such as, *-graph-, -astro-, -port-, -tele-* or *–auto-*. (Gunning, 1996, p. 141). Teachers should take advantage of every opportunity to enhance students recognition of root words.

Compound words "come in three forms: solid, hyphenated, or open" (Gunning, p. 138)—for instance, *upstairs (*solid), *high-rise* (hyphenated), and *top hat* (open). Compound words often define themselves by the fact that the conjoined words reveal its meaning. The words, *backdoor, midnight*, and *nutshell* provide clues to the words meaning, whereas *password, powerhouse* and *sand dollar* do not help the reader decipher any meaning. Teachers should introduce compound words to students in context and teach them to look for word meaning within the confines of the words themselves.

Prefixes and suffixes were spoken of earlier in contextual analysis but they also play a large part in structural analysis. Research indicates that "prefixes are easier to learn than suffixes" (Gunning, 1996, p. 139). Prefixes appear at the front of words, are easily identified and have a predictable pronunciation; whereas, suffixes usually change the meaning and part of speech of a word—for example, adding the suffix *-ence* to the word *preference* changes it from the verb form to the noun form. White, Power, and White (1989, as cited in Cunningham 1998) found 782 words prefixed by *un-*, 401 words prefixed by *re-*, 313 words prefixed by *in-, im-, ir-, il-* and 216 words prefixed by *dis-*. This provides pertinent information to teachers about which prefixes to introduce to

students. White et al. (1989) also found that the average third grader would encounter 230 words, the meaning of which would be obvious if the base word and the four prefixes were known. Another words, the more familiarity students have with prefixes and suffixes, the more effectively they will deal with unknown words. They further concluded that "the number of analyzable words for each grade level would double if all prefixes, not just the most common four, were included [in morphemic analysis]" (pp. 194-195). This skill is especially relevant to multisyllabic words where morphemic complexity elevates.

Multisyllabic words are words that usually contain three or more morphemes. White, Power, and White (1989) concluded that "skilled readers use structural analysis in three ways: to recognize known words more efficiently, to remember the meanings and spellings of partially learned words, and to figure out the meanings and pronunciations of new words" (as cited in Cunningham, 1998, p.198). More instruction in morphology will directly impact students who undoubtedly will have difficulty reading long words. Showing students how distinct parts of words directly contribute to word meaning is an essential component of morphemic instruction. Fundamental to decoding multisyllabic words is an ability to discern root or base words within the larger words. The root of a word is "the part of the word that is left after all the affixes have been removed" (Gunning, 1996, p. 141). For example, the word *nonexportable* contains three morphemes, *non-*, *export,* and *-able.* If students were taught the prefix *non-* and the suffix *-able* then their chances of recognizing the root word *export* would be greater—and thus help define the word for them. Although multisyllabic words may not occur frequently, they usually carry important meaning essential for comprehension and

"morphological relationships are the keys to unlocking pronunciation, spelling and meaning" (Cunningham, 1998, p. 214).

Syllabication is the last component of structural analysis. Once students have a solid grasp of phonics rules they can apply those rules to the different syllables in the word. Syllabication is "words that are broken down into syllables phonemically, or according to their sounds rather than orthographically" (Gunning, 1996, p. 133). Syllabication is not often taught in today's classrooms and cannot be introduced until students have an understanding of reading, writing and spelling. "Fortunately, many of the most frequent words used in English have just one syllable" (Gunning, p. 132). Because the most frequent words are one syllable, teachers can begin instruction in syllabication when students are familiar with most of those words. Syllabication is important because it is "designed to help students decode an unfamiliar word by separating it into its syllabic parts and then recombining the parts into a whole" (Gunning, p. 133). Gunning recommends an informal introduction to syllabication in the later half of the first grade.

There are two approaches to teaching students syllabication—the generalization approach and the pattern approach. The generalization approach suggests teaching students general rules for dividing words into syllables. Gunning (1996) suggests introducing syllabication to students using the following techniques in successive order. Begin by telling students that most prefixes and suffixes form their own syllables. Introducing *easy affixes* such as, *-ly, -ed, -er, -ing* and dividing words on the chalkboard using such suffixes will demonstrate to students the process of dividing easy affixes into syllables.

Compound words are another simple way of introducing students to syllabication because they almost always divide into syllables between the two words. Next, introduce the *two consonants between two vowels* rule. This rule states that when two consonants are sandwiched between two vowels the word divides between the two consonants. For instance, the division in the words, *cur-tain, and cand-le,* illustrate the rule. However, there is a disclaimer to this rule which states that digraphs cannot be separated even though there may be two consonants between two vowels; this is seen in the words *moth-er* and *feath-er*. *One consonant between two vowels* is the next rule Gunning suggests. Words such as, *hea-ven,* and *Jes-us* would divide this way. Last, is the *final le* rule which states that whenever there is an *le* at the end of a word, it is divided with the preceding letter—*sad-dle* and *pur-ple* would divide in such a way.

The second approach, the pattern approach, is used to help students decode polysyllabic words which often cause difficulty with comprehension. The pattern approach to syllabication helps students by teaching them to separate large words into smaller, more easily recognizable and pronounceable parts. "The advantage of this approach is that students learn to recognize pronounceable units in words. . ." (Gunning, 1996, p. 135). If a student encounters the word *sprinkle* he/she can easily divide it into its syllabic parts, *sprink-le,* in order to help sound out the unfamiliar word. The same would go for a larger word such as, *stig-ma-tize.* Using the pattern approach, students are introduced to a large amount of words, each of which contain the same high-frequency syllable. For example, using the short *a* will help students learn how to the divide words into their respective syllables—*at, sat, cat, mate* and *plate*. The advantage of introducing words with the same vowel sound is that students become accustomed to the sound and

word according to its familiar parts, and can then practice dividing words with less difficulty whereby students are equipped with decoding skills for large, unknown words.

Ideas for the Classroom

Structural analysis is an extremely effective word attack strategy. However, practical classroom activities seemed to be rather dry. Students do need guided practice with the strategy but it should be included in instruction throughout the day, varied in context and application. Practice with individual concepts should also be carried out, so students are not confused. For example, prefixes should be introduced separately from suffixes.

Practice with prefixes.

Gunning (1996) suggests introducing prefixes to students by placing the following words on the board: *pregame, prepay, preview, pretest, predawn*. After a brief discussion on the root words, teachers should note how the prefix *pre-* changes the meaning of each root word. This is an opportune time to explain the importance of understanding the meaning of prefixes and how they can help figure out unknown words. Using the words above, students are asked to complete an exercise where they fill in the blanks of sentences. After students have seen the relevance to learning the prefix *pre-*, other prefixes such as, *post-* and *inter-* can be introduced.

Lessons for specific prefixes.

Cunningham (1998) suggests writing nine words that begin with the prefix *re-* on index cards. Of these nine words, three words should mean “back” (rebound, return, rewind) and three words should mean “again” (redo, replay, restate). The words chosen should be words with which students are familiar. Students are then asked to place the

words in columns according to whether the prefix *re-* makes the word mean "back" or "again." Students can practice this independently by placing *re-* words in columns labeled "back" and "again." At the end of the lesson "review the chart and help students summarize what they learned about *re-* as a pronunciation, spelling, and sometimes meaning chunk in words" (pp. 205-206).

Some more suffixes.

Two suffixes which often cause confusion for students because of their similarity in sound are, *-tion* and *–sion.* The teacher should write *-tion* on index cards, some of which are related to "doing" and others that are not. After students have recognized that all of the words end in *-tion*, the teacher should divide the words into two columns. For some words, the meaning is obvious despite the fact that the suffix *-tion* is added to the word. For example, "coin collec*tion*," "an elec*tion*," or "an attrac*tion*." For other words, the suffix *tion* do not lead the reader to any conclusion regarding the meaning of the root word—men*tion*, tradi*tion* or frac*tion*. Have students decide which column the words ending with the suffix *-tion* should be listed under—the column which means "doing" or the one that does not appear to have any relation to "doing."

Morphemic analysis.

Morphemic Analysis activities are suggested by Gunning (1996) to reinforce the strategy. Once students have been instructed in prefixes and suffixes, they should practice decoding polysyllabic words using morphemic analysis. Begin by writing words such as "*enrollment, unimaginable, unfavorable, irregularly, uncomfortable, photographer,* and *disagreeable*" on the chalkboard and have students break the word apart into their respective morphemes. An extension of this activity would be to have

students create webs of roots and affixes. For instance, using the root *expl* students would create a web based on all of the words containing the prefix. Words such as, *explain, explode, explosion, exploit,* and *explore* would be a part of the web for *expl.*

Dictionary Definitions

Although this paper seeks to equip teachers with alternative choices in vocabulary instruction; dictionary usage is not strictly forbidden; in fact, "the dictionary is probably the most used of all reference sources" (Rubin, 1983, p. 122). Definitional approaches are effective when used in conjunction with other strategies. Vocabulary instruction is indeed, instruction in word definitions. However, "definitions alone can lead to only a relative superficial level of word knowledge" (Nagy, 1988-89, pp. 4-5). Albeit, dictionary skills are an essential tool aiding in alphabetizing, parts of speech, as well as in synonyms and antonyms; however, implementing dictionary instruction into vocabulary instruction should be introduced in meaningful ways. Looking up word after word and recording its definition can be tedious and research shows that students may still not be able to gain comprehension of a passage by use of a dictionary definition. Teachers should encourage students to use dictionaries to look up unfamiliar words. Research indicates that when students encounter an unfamiliar word they "should continue reading the paragraph in which the word appears to see if the context gives the word meaning. If context does not give the meaning students should look up the word" (Carnine, Silbert, Kameenui, 1990, p. 286). Dictionary usage should be used as a secondary source to contextual, semantical, and structural analysis of an unknown word. Only after a student has exhausted these less timely and most beneficial strategies should a dictionary definition be sought. As students become more proficient readers and strategizers

dictionary definitions can actually be effective for introducing new vocabulary as well multiple meanings for the same word. For less proficient readers, dictionaries should be used only for words in which students can accurately discern meaning when more than one definition is given.

Using a dictionary is a complex task. First, students must understand the concept of alphabetizing, which means they must have a solid grasp of the alphabet itself. They also must understand that after assessing the first letter of a word, they must beyond to the second, third and fourth letter to find the word in a dictionary, as is the case with the words; *ten, tent, tentacle, tenacity,* and *tentative.* In order to help develop these skills, teachers often begin dictionary instruction by introducing guide words so that students can more quickly find the word for which they are searching. There are several other factors that may obstruct student's success in dictionary usage. Such factors include: acronyms (FBI, CIA), contractions (aren't, can't), numbers (7 versus seven), and prefixes and suffixes which are often listed as a separate entry.

Dictionaries provide students with a vast amount of information per word. Each entry first begins with information to help students construct the correct pronunciation of each word. When looking in Webster's Dictionary (1997) for the entry on *bomb,* the definition reveals a considerable amount of information; "*bäm\ n* **1 :** to attack with artillery or bombers **2 :** to assail persistently **3 :** to subject tot he impact of rapidly moving particles." This definition first reveals the correct pronunciation of the word, which may be confusing due to the silent "b" at the end, it also reveals its part of speech, and then lists three possible definitions for the word. Not knowing how to pronounce a word can interfere with comprehension. "If students have read the word *quiche* but have

no idea how to pronounce it, they will not recognize it as being the same word they saw in print when they hear it spoken" (Gunning, 1996, p. 157). Although students may know a word when they hear it, they may not recognize it in text, which easily interferes with comprehension. Dictionary instruction should be integrated throughout different curriculum areas. Instruction should not be laborious dictionary work, where students look up several words, write the definition, including parts of speech and pronunciation. Rather dictionary usage should be used to complement lessons in English, science, social studies and even math. An integrated approach will teach students to use a dictionary as a supplemental resource when all other word recognition skills are unsuccessful.

There are several reasons why research supports using a dictionary as a resource only when students have first been equipped with other word attack skills. Dictionary definitions do not provide students with enough information for adequate use of the word in an appropriate manner. Nagy (1988-89) states two reasons that account for students having difficulty writing a sentence for unknown words while only having a dictionary definition. "One is that definitions alone tell little about how a word is actually used" and second "it is difficult to write a sentence for a truly unfamiliar word, given only the definition, [because they] do not effectively convey new concepts" (p. 6). This is especially true when definitions include the word itself to define the new term. For example, when using Webster's Dictionary (1997) to define the word *equinoctial,* the definition states, "relating to an equinox" (p. 256). The same is true of the word *existential* which is defined as "of or relating to existence" (p. 266). Using such definitions to apply meaning to new words is hardly possible if the word is given to students outside of its context and if the student is completely unacquainted with the

word. Although the definition may be accurate, it does not contain enough information to allow students to transfer the word over into a new context. Furthermore, if the word is presented to students in context and they are expected to stop and look up each obscure word, it "interrupts the flow of the story and disturbs comprehension" (Gunning, 1996, p. 159). Consequently, definitional approaches should be integrated in content, should evoke discussion and should represent a positive, yet alternative resource for students.

Ideas for the Classroom

Dictionary activities have become tedious and senseless acts which are time-consuming and laborious. This section of the paper seeks to provide information on how dictionary usage may be integrated in curriculum through meaningful and functional activities.

Fictionary dictionary.

Gunning (1996) suggests a dictionary reinforcement activity entitled *Fictionary Dictionary*. Fictionary dictionary is "an excellent game for acquainting students with the creation of definitions" (p. 159). It is suggested that the game be played in groups of four to six. Teachers preselect relevant yet difficult words from a dictionary. They ask students to create fictitious definitions for the words. The teacher then collects the slips of paper with the definitions, including the correct dictionary definition. The moderator shuffles the slips and reads them aloud. Students are asked to vote (only once) on the correct definition. The round ends when the correct definition has been identified. Players receive two points if someone voted on the definition they created, and players receive one point for identifying the correct definition. The game ends when each child has an opportunity to be the moderator

Dictionary timing.

In *Dictionary Timing* students are put in groups of four to five and given a set of pre-selected words used in a sentence (preferably from a text the students are going to read). Using a timer, the groups are given twenty minutes to look up the words in a dictionary and to create definitionally appropriate sentences for each word. When the timer goes off, the students are asked to read their sentences aloud. Each group receives one point for the correct dictionary definition and one point for an apropos sentence. The game ends when, as a class, each word has a correct dictionary definition and sentence attached to it. The game can be adapted to have students find the correct pronunciation of a word, or its part of speech.

Fun with questions.

Questioning strategies can be time-consuming activities; however, they promote vocabulary growth and dictionary usage within content areas. Teachers pre-select pertinent words and arranges them into fun questions for the students to answer. The students must look the word up in a dictionary in order to answer the questions. Dorothy Rubin (1983) offers these fun questions: Is *litter* a term in the metric system? Is *haiku* a Hawaiian mountain? Is a *marigold* a flower? Are *yen* used in Hungary? What is a *centipede?* Can you hold an *enzyme?* The teacher should choose words that will appear in an upcoming text. The words preselected for each question should be new words pertinent to subject areas and should be ones that may obstruct comprehension. Students may work to answer the questions in groups or alone.

Dictionaries, dictionaries, dictionaries.

Dorothy Rubin (1983) suggests this activity in order to help students become familiar with different dictionaries. Students are asked to look up the pronunciation of several words in several different dictionaries. In order to begin, students must first acquaint themselves with the pronunciation key in the front of each dictionary. Rubin shows how the pronunciation diacritical marks for the words, *coupon, courage,* and *covet* appear differently in five different dictionaries. Each of the different diacritical marks will allow the reader to correctly pronounce the word, even though each is unlike the other. The obvious next step would be to have students examine the different definitions in the various dictionaries.

Unsuccessful Vocabulary Instruction

Although the majority of the research indicates that direct vocabulary instruction reaps a myriad of benefits for students' reading comprehension skills, still some research indicates that there are specific reasons for failure in vocabulary instruction. Nagy (1988-89) states that one reason for unsuccessful vocabulary instruction may be due to a lack of "vocabulary instruction which produces in-depth word knowledge" (p. 3). A superficial understanding of a word's meaning will not transfer over into other contexts. This results in students merely having partial knowledge of a word. Partial knowledge of a word "does not produce a sufficient depth of word knowledge" (Nagy, p. 4). Another reason that contributes to unsuccessful vocabulary instruction as it relates to comprehension is "*redundancy of text . . .*" a certain proportion of unfamiliar words in the text does not measurably hinder comprehension, then instruction on these words would not measurably improve it" (Nagy, p. 3). This statement accentuates the fact that teachers should carefully and mindfully select words for instruction ahead of time so

words that students are able to decode and define on their own are not included in direct instruction. This information should be carefully noted so that vocabulary instruction is fruitful. This research does not propagate throwing direct instruction out the window altogether; rather, it emphasizes some reasons for unsuccessful instruction so teachers can navigate their way around these pitfalls.

Another pitfall is the fact that many teachers rely upon dictionary definitions to help students learn new words. Not only do definitions leave students with a superficial understanding of a new word "but they do not always contain enough information to allow a person to use the word correctly" (Nagy, 1988-89, p. 5). Nagy clearly underscores that reliance upon definitions alone will not effectively convey new concepts to students. Comprehension is the goal of reading and so isolating words out of context and relying upon a definition to provide meaning and clarity for a new concept will not help to develop student's vocabulary. Nagy states that "reading comprehension depends on a wealth of encyclopedic knowledge and not merely on definitional knowledge of the words in the text" (p. 7). This is to say that students cannot merely hold fast to dictionary definitions, they need to explore words in different contexts, in different tenses, and as different parts of speech.

Conclusion

All the literature reviewed for this paper substantiated that wide reading is essential to word learning. Students must see and read words in context several times before committing them to memory; however, direct instruction in vocabulary skills is an essential tool needed for independent word learning and comprehension. Direct instruction proved to be effective and essential to vocabulary growth. Janice Harmon

(1999) so succinctly summarizes the benefits children receive from formalized word learning, “the more words known by the reader, the better are their chances to understand and enjoy what they are reading” (p. 70). Reading unlocks the door to a new world; filling it with adventure, action, history, joy and even sadness. The ultimate goal of reading is comprehension. Without comprehension children will never truly enjoy reading and without a sufficient vocabulary they will never truly comprehend. The long-standing effects of an abundant vocabulary will amplify throughout students’ academic careers and will directly affect students success in all areas of curriculum. “Vocabulary size correlates with success in all areas of curriculum (Manning, 1999, p. 103). Consequently, this paper sought not only to reveal how advantageous vocabulary instruction is but how simply it can be directly implemented into each and every classroom.

A well-established vocabulary will undoubtedly serve students throughout life. Rupley, Logan and Nichols (1998-99) state, “as children’s vocabulary grows their ability to comprehend what they read grows as well” (p. 336). Students’ vocabularies are continually assessed throughout their school years and beyond—the Stanford-Binet, Wechsler Intelligence Scale for Children, Standardized Achievement Test (SAT), and the Graduate Record Exam (GRE). These tests measure students’ verbal intelligence, which is an indicator of reading, writing, spelling and comprehension success. These tests are seemingly biased and inadequate in reliability and validity; nonetheless, all students will eventually have their vocabulary knowledge called into question. As educators, we have a large responsibility to our students, with a limited amount of time. Therefore, vocabulary instruction should be integrated and woven throughout content areas; it

should not constitute a subject in and of itself. The literature attested to the fact that contextual analysis provides the greatest amount of information concerning an unknown word's meaning.

There is an abundance of literature pertaining to vocabulary development. However, further research in the area of independent word learning may be beneficial. Students draw and rely upon several strategies to determine meaning, and there seemed to be a lack of information pertaining to which strategies students at varying levels would benefit from most. There may also be some benefits to having students engage in systematic study and practice tests during their school years. This may further acquaint them with "gatekeeping" educational testing formats. In summary, there is a plethora of literature regarding the effects of direct vocabulary instruction and the overall conclusion drawn was that students reap a myriad of benefits across the curriculum as a direct result of vocabulary instruction along with wide reading.