The Relationship Between Vocabulary and Reading Comprehension in Junior High Aged Students with Learning Disabilities

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THE RELATIONSHIP BETWEEN
VOCABULARY AND READING
COMPREHENSION IN JUNIOR HIGH
AGED STUDENTS WITH LEARNING
DISABILITIES

By
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Abstract

The purpose of this study was to investigate the relationship between the reading ability, particularly in the area of reading comprehension and the level of reading vocabulary possessed by junior high aged students with learning disabilities. Reading is a complex process involving the simultaneous integrated application of the four cuing systems: (a) graphophonic, (b) syntactic, (c) semantic, and (d) schematic. While most people learn to utilize these systems rather easily, this is not true for everyone. Failure to effectively employ any one or more of these cuing systems can spell disaster for the reader both in school and in many profound areas of life after exiting school. A review of the literature confirmed that there is a definite correlation between a reader's vocabulary (semantics) and reading comprehension. The research also indicated that there are two primary approaches to teaching vocabulary, direct instruction and contextual instruction. There are numerous methods which have been researched and utilized for each type of instruction, with each having strengths and weaknesses. This study reviewed some of those methods and identified benefits and drawbacks for them. It also studied a means to assess whether there is a correlation between a student's vocabulary and reading comprehension utilizing already existing evaluation tools that are typically used by school psychologists, the Vocabulary subtest of the Wechsler Intelligence Scale for Children III and the Passage Comprehension section of the Woodcock-Johnson Test of Basic Achievement. While the use of these evaluation tools did not prove successful in establishing a significant positive correlation, some additional areas of research that may be pursued in the future are identified.
Chapter One

The Problem

Problem Statement

The purpose of this study was to investigate the relationship between the reading ability, particularly in the area of reading comprehension and the level of reading vocabulary possessed by junior high aged students with learning disabilities.

Reading Process

Reading is a very complicated and difficult process involving the simultaneous interaction and coordinated synthesis of the four cue systems - graphophonic, syntactic, semantic, and schematic (May, 1994). The graphophonic cues are the written letters (grapho) and the spoken language sounds (phonic) that the reader hears inside his / her head when reading. Syntactic cues are the order in which the words are placed by the author or the grammar clues which help the reader understand the relationship between the words. The semantic cues are the meaning laden words or vocabulary. Finally, the schematic cues are those clues generated by the reader based upon his / her prior knowledge and schemas and triggered by the writers graphophonic, semantic and syntactic clues. The skillful reader is the individual who can effectively employ all of these cues simultaneously.

Despite the complex nature of reading, most people acquire it at a very young age and with relative ease. However, this is not true for all people. Ongoing longitudinal research by the National Institute of Child Health and Human
Development (NICHD) at the National Institutes of Health (NIH) have found approximately 17 - 20 percent of the children in the United States have substantial difficulties learning to read (Lyon, 1996). Difficulty in any of the four cue systems can create a reading problem.

For example, a child who has not mastered the graphophonic cues, will at the very least struggle when he / she encounters an unfamiliar word and may not successfully "sound out" the word. As a result, the child will not know what the word is and will be unable to attach any meaning to the word. If the word is contained within a sentence the child's fluency in reading the sentence will be severely impaired and the likelihood of the sentence making any sense will be very limited.

Similarly, if the child has a limited vocabulary, the ability to comprehend what is read will be severely hampered. The meanings of the individual words within the sentences and paragraphs will contain holes that will impair the reader's ability to combine the meanings of the words to grasp the concept that the author is attempting to express. Indeed, Paul and O'Rourke (1988) identified word knowledge as an important component in reading comprehension and they indicated that other researchers have identified it as one of the most important components.

Also, many different types of disabling conditions may impact on the ability to read. An estimated 85 - 90 percent of students with learning disabilities experience reading problems (Kauffman & Hallahan, 1981). This study was concerned with a specific group of individuals who possess the necessary cognitive abilities to read but
have a learning disability that impairs their abilities to process the written words. These persons have difficulty learning this sophisticated skill and for them, reading becomes a difficult and frustrating endeavor. Approximately one half of the children in the United States find learning to read a formidable challenge, with this being one of the most difficult tasks that between 20 and 30 percent of them will ever have to master (Lyon, 1997).

Because reading involves so many elements, there are many potential places to look to pinpoint the exact reason for an individual who is not reading well. Most research investigating reading in children has focused on the development of decoding skills (Stothard & Hulme, 1995). Problems in the graphophonic cuing area are viewed as the primary culprit in preventing children and adults from becoming competent readers (Lyon, 1997). Not only has it become a focus of concern in schools but an entire industry has arisen outside of schools whose sole attention is on solving the phonics problem. There are private clinics that charge parents significant amounts of money to cure their children of their reading problem and which focus almost entirely on the area of phonics. There are various commercial products advertised regularly on the radio and television like "Hooked on Phonics" and "The Phonics Game" which claim they will help children overcome their phonics based reading problem.

Elemental to graphophonic cuing is phoneme awareness. The reader must know how to connect or translate printed symbols, letters and letter patterns into sounds. The reader must understand that our speech can be broken up into small
sound bits These small sounds and the segmented parts of speech are what people commonly refer to as phonics (Lyon, 1997).

Additionally, individuals must understand the alphabetic principle, that written spellings systematically represent the phonemes, the 44 sounds of the spoken English in order to read successfully (Lyon, 1997). A failure to develop phoneme awareness or to understand the alphabetic principle will seriously hamper the ability to read.

Another possibility is that the reader is having difficulty with syntactical cues. Perhaps the child is not able to discern the meaning of the sentence based upon the order of the words. For example, the child may not understand that when a question is being asked the verb comes before the noun in the sentence while when making a statement, the noun comes first. Failure to understand something this simple can create serious reading problems.

Perhaps the reader is experiencing difficulty reading due to a lack of schematic cues. If the child is seriously lacking in prior knowledge in the area that he / she is reading, making sense of the sentence or passage is going to be very difficult. This problem can be compounded by an inability to read or to read well. In early elementary grades, children learn how to read. However, the focus of schools at the upper elementary level and on up is that the student reads to learn (Lyon, 1997). Much of prior knowledge or schema is acquired through reading. The child who does not read or does not read well is at a serious disadvantage in his / her opportunities to develop the prior knowledge necessary to be successful.
While deficits in any one or more of these cuing systems will create difficulty in reading, this paper focuses on the area of semantic cues. Specifically, it investigates whether there is a relationship between the ability of individuals to read and the vocabulary that they possess.

**Importance of Reading**

Reading is an important skill to being a successful adult; to finding, qualifying for and keeping employment; to living safely and independently. As G. Reid Lyon, Acting Chief of the Child Development Branch of the NICHD testified to the Committee on Education, U.S. House of Representative, "...if you do not learn to read and you live in America, you are not likely to make it in life" (Lyon, 1997). The individual who does not learn how to read or read well will find their occupational and vocational futures seriously compromised (Lyon, 1996). Most jobs require at least a basic level of reading competency. Even the low paying service industry jobs like fast food restaurants demand a degree of reading ability while higher paying positions require even more ability. Indeed, as Lyon indicated in his testimony, reading failure is a serious national problem and is more than an academic problem, it is also a significant public health problem (Lyon, 1997).

That reading is critical to success in school cannot be overstated. The ability to read is very important to succeeding and surviving in a school environment. It is pervasive in all subject areas and is crucial to the success or failure of students at all grade levels (Lewis, 1997). Reading is one of the most important skills that children
can develop. Reading is the primary avenue to learning social studies, history, language arts, mathematics, science and any other content area subject in school. Reading skill is the most essential foundational skill for all learning in school. The student who does not read or does not read well is going to have a very difficult time succeeding and is likely to face a school career filled with struggle, frustration and failure created by low self-esteem, low self-concept and low motivation. Between 10 and 15 percent of children with reading disabilities drop out of school prior to graduating from high school, further complicating their chances of securing employment that will sustain them as adults (Lyon, 1996).

The problem is not one of intelligence, because even the student who is of average or above average intelligence will be unable to learn if he/she cannot read the grade level textbook (Lyon, 1997). Less than 2 percent of poor readers who do graduate from high school go on to attend four year colleges despite many having above average intelligence (Lyon, 1996).

The problem of reading failure is one that effects all ethnic and socioeconomic groups in our country. The 1994 National Assessment of Educational Progress identified 32 percent of whites, 72 percent of African-Americans, 67 percent of Hispanics, 23 percent of Asians, 36 percent of Pacific Islanders, and 55 percent of American Indians were reading below basic levels in the fourth grade (Lyon, 1997). The same report indicated that the amount of parental education is also not a factor as 32 percent of the fourth grade students who were reading below grade level came
from homes where the parents had graduated from college (Lyon, 1997).

This struggle may well manifest itself in not only a lack of academic success but also in a host of social problems, including behavioral difficulties. The shame and frustration a student feels in the classroom at being unable to read as well as his / her peers, often manifests itself in significant acting out problems at school. Unfortunately, there can be very serious negative consequences to having reading and learning difficulties besides the impact on comprehending information both in the classroom and beyond. Not surprisingly, a large proportion of children with learning disabilities are identified by parents and teachers as exhibiting problem behaviors. These behaviors include anxiety and depression whose symptomatology may include aggression and hyperactivity. These children are at risk for problem behaviors and for dysfunctional social and behavioral adjustment (Vallance & Cummings, 1998).

Today, literacy has academic, societal, and economic implications (Boyle, 1996). Not only does reading play a critical role in the education of children in schools but also in the functioning of adults after they have exited school. Unemployment rates for individuals with learning disabilities are much higher than for the nondisabled population (Sitlington, 1996) and a reading disability is the primary disorder for the vast majority of individuals with learning disabilities (Boyle, 1996). Chard, Simmons, and Kameenui (1995) reported that the Orton Dyslexia Society found that adults without basic literacy skills accounted for 75 percent of unemployment and 1/3 of the mothers receiving Aid to Families with Dependent
Children.

In addition, later in life as adults, the possibility of potential problems with the law increases. Statistics show that young adults with learning disabilities have a much higher conviction rate than that for nondisabled young adults (Sitlington, 1996). The National Longitudinal Study found that 31 percent of individuals with learning disabilities who had been out of school for three to five years had been arrested. By comparison, 20 percent of nondisabled individuals who had been out of school for the same length of time had been arrested (Sitlington, 1996). The Orton Dyslexia Society found that adults without basic literacy skills accounted for 60 percent of prison inmates and 85 percent of juveniles appearing in court (Chard, Simmons, & Kameenui, 1995).

As stated in the beginning of this chapter, the focus of this study was on the relationship between vocabulary and reading comprehension. The next chapter will summarize a more detailed sampling of the literature available regarding teaching vocabulary and reading comprehension with particular attention to students with learning disabilities.
Chapter Two

Review of Literature

Introduction

The discussion in the previous chapter presented the focus of this paper, namely the relationship between vocabulary and reading comprehension in junior high students with learning disabilities. Through a review of the literature, this section will provide background in the research of the process of reading, on what areas to focus on when learning how to read, and how students can and do learn vocabulary.

The process of reading is both complex and multidimensional. Reading involves the simultaneous interaction and coordinated synthesis of the four cue systems - graphophonic, syntactic, semantic, and schematic (May, 1994). While most research in the area of reading difficulties and learning how to read has focused on the graphophonic or decoding areas (Stothard & Hulme, 1995), the schematic/prior knowledge (Carr & Thompson, 1996), syntactic (Andolina, 1980), and semantic (Mastropieri & Scruggs, 1997) areas have not been ignored. Because the reasons for individuals, including those with learning disabilities, have difficulty with reading can involve any one or more of the four cue systems, all four areas must be considered and addressed based on the needs of the individual. For this reason, the most promising and most successful approaches to teaching reading are multidimensional (Showers, Joyce & Scanlon, 1998).

In the early elementary grades the initial focus is on teaching children that
spoken words are made up of individual sound parts called phonemes. This awareness of phonemes is crucial in the early stages of developing reading to facilitate children learning phonics skills. The children are then taught that these phonemic sounds have corresponding symbols called letters, the alphabetic principle. Children are taught how combining the letters results in the formation of words and ultimately connecting those words forms sentences. Good readers use these graphophonetic skills combined with their strong vocabularies and grammatical and syntactical skills coupled with their own experiences to be successful readers (Lyon, 1998). Limitations in any of these areas will adversely affect the child's ability to become a successful reader.

As children move from early elementary grades to upper elementary and on into secondary schools, the focus changes from one of learning to read to reading to learn (Lyon, 1997). It is at this stage that it becomes important to not only be able to sound out the words but also to understand what the author is trying to say by combining the words in the manner presented. Reading comprehension is the process of constructing meaning from written texts, based on a complex coordination of a number of interrelated sources of information (Mastropieri & Scruggs, 1997). The importance of reading comprehension only continues to increase as the child progresses through school. Reading comprehension is crucial for the success of students in the school environment and has been described by Lyon (1997) as the ultimate goal of reading instruction.

Unfortunately, the Clinton Administration's America Reads Challenge Program
indicated 17 percent of school-age children as poor readers (Lewis, 1997). This figure is supported by longitudinal studies from the NICHD which indicated that between 17 and 20 percent of children in our country experience significant difficulties in learning how to read (Lyon, 1997). A significant portion of this group is students with learning disabilities. It is estimated that 75 percent of all students with learning disabilities have a reading disability as their primary disorder (Boyle, 1996).

Compounding the reading difficulties of students with learning disabilities, in particular in the area of reading comprehension is the movement toward including students with disabilities into general education classrooms. While this movement is a positive one in providing significant social opportunities as well as exposure to important content information there can be negative consequences as well. With placement into subjects like science and social studies as well as other classes, students with learning disabilities are being exposed to significant amounts of information including many new vocabulary terms. The teachers are no longer presenting the students with written materials to help them learn to read but instead are presenting textbooks and other written materials that are integral to the instruction (Koury, 1996). Often the learning of that information requires reading. Because students with learning disabilities by definition operate below grade level, most often in the reading area, they experience difficulty in comprehending the material that is before them (Koury, 1996).

Considering the seriousness caused by this problem of reading comprehension,
it is necessary to look at the cause. As indicated earlier in this study, reading is a complex process requiring the coordination of many elements to be successful. Not surprisingly, any or all of these factors can and may be the culprit in adversely effecting an individual's reading comprehension. Arguably, educators must look at all of the potential causes for the comprehension difficulties experienced by their students. The prospect that the student has not acquired adequate graphophonic skills can not be ignored and should be investigated and addressed, if appropriate. The professional educator must also consider and evaluate the degree to which syntactical difficulties are the cause of the problem.

Yet another possible cause of the problem may be in the area of vocabulary. Interestingly, this area can be related to the area of schema or prior knowledge in that the student may have had limited opportunity to develop a strong vocabulary as the result of limited exposure to the words. By being able to quickly identify where the reading problems exist, educators can address and hopefully remedy the difficulties to the greatest degree possible, thereby improving the quality of life for individuals with learning disabilities.

Summary

As indicated by Pressley and Associates (1990), Anderson and Freebody (1981) found that vocabulary is important to text comprehension. Subsequent studies by Nelson-Herber (1986), Nagy (1988) and by Baker, Simmons and Kameenui (1995) have supported that a strong correlation exists between vocabulary and reading
comprehension (Smith, 1997). While this study is investigating whether there is a relationship between vocabulary and reading comprehension in junior high aged students with learning disabilities, assuming that such a correlation will be found, the question is, what can be done about improving a student's vocabulary and thereby presumably improving his / her reading comprehension? What are the methods for teaching vocabulary? Is there more than one way to accomplish it and if so what are the pro and cons to those various methodologies? The balance of this chapter will address these questions by means of a review of the research literature on teaching and acquiring vocabulary.

**Teaching Vocabulary**

Baumann and Kameenui (1991) reported that the majority of word meanings are learned through *incidental* learning opportunities. In other words, in the course of everyday living, through the expression and reception of both oral and written language, people are exposed to and learn new words. However, there are also words that people learn because they are *intentionally* taught to them. In the case of school aged children, it is their teacher who teaches them the majority of these words. How best to accomplish this teaching will be the focus of this chapter.

A review of the research on how individuals acquire vocabulary and therefore how to teach vocabulary reflects numerous methodologies, which will be presented and reviewed later in this chapter. All of these methodologies reflect intentional learning, however, all of these methodologies can be separated into two main
approaches, direct instruction and contextual instruction.

**Direct Instruction.** Direct instruction, as the term implies, involves the teacher providing direct instruction regarding the meaning of the word, to the student(s). This approach is very time consuming and very labor intensive for the teacher. The types of direct vocabulary instruction that discussed in this study are: the keyword method, semantic mapping, computer assisted instruction, and access/instrumental instruction.

The keyword method is the first method that will be examined. It is a method that has been evaluated in numerous studies and referred to in many articles (Condus, Marshall, & Miller, 1986; McLoone, Scruggs, Mastropieri, & Zucker, 1986; Pressley, 1990). The keyword method is a mnemonic technique based upon mental imagery which can assist the student in making associations between a new vocabulary word and its meaning (Pressley, 1990). Not surprisingly, it was originally developed for learning foreign languages. The method consists of two stages. The first stage is the "acoustic-link" stage in which the student acquires a "keyword" that sounds like the unfamiliar word and is a word that the student can create a visual image of in his/her mind. The second stage of the method is the "imagery-link" stage and in it, the student forms a visual image in which the keyword and the definition interact (Pressley, 1990). One example is the term "angler." The word angel is similar in spelling and so the student might either be instructed by the teacher to visualize an angel or once the student has been taught the method, will do so himself. Next, the student will add a fishing pole to the visualization of the angel, so the angel is fishing. From this he will
associate the term "angler" with a fisherman (Pressley, 1990).

The next direct instruction method is semantic mapping which consists of the student writing the target word and surrounding that word with information that describes the target word (Baker, 1995) or a hierarchical relationship map (Bos & Anders, 1990). This activity is often done in a group setting with the teacher drawing the map on the board but after a child has learned the process, it can be done in small groups, with a partner or individually. There are other variations of the semantic mapping strategy including semantic feature analysis and semantic / syntactic feature analysis in which the teacher and students predict relationships between concepts by creating a relationship matrix. The teacher and students also predict the answers for the cloze-type sentences using the matrix in the semantic / syntactic feature analysis strategy (Bos & Anders, 1990).

The next direct teaching method is computer assisted instruction. These software programs are numerous and varied. Initially, these programs were limited to providing direct instruction by presenting specific vocabulary words and their definitions with multiple opportunities for review and practice of the words and definitions by the student. Johnson, Gersten, and Carnine (1987) studied two computer assisted instructional programs. One provided teaching and practice exercises on a small set of words and cumulative review exercises on all of the learned words while the other presented a much larger group of words with no review.

The final direct instruction method is perhaps the oldest. It was referred to in
the literature as access/instrumental instruction. In this methodology, the students are
directly taught the word and its meaning with an emphasis on oral recitation
correctness and automatic pronunciation of the word as well as memorization of the
definition (Baker, 1990). Typically the direct instruction by the teacher utilizes the
students seeking definitions in the dictionary and utilizing rehearsal to memorize the
meanings.

Summary. Kameenui, Dixon, and Carnine (1987) found that direct
instructional methods of teaching vocabulary will actually enhance the student's ability
to independently learn words incidentally (Baker, 1990). In addition, Paul and
O'Rourke (1988) identified that direct teaching of vocabulary can provide a foundation
on which children can build more intricate structures of contextualized understanding
(Baker, 1990). Finally, numerous studies have shown that direct instruction provides
better retention of a specific definition (Condus, Marshall, & Miller, 1986; McLoone,
et al., 1986; Pressley, 1990).

Paul and O'Rourke (1988) found in their research that a particular vocabulary
problem for students with disabilities are the polysemic or multimeaning words. They
identified a semantic mapping approach to be a very effective means of teaching these
students the vocabulary words.

The computer assisted instructional method can be done independently by the
student. In the study by Johnson, Gersten and Carnine (1987), not surprisingly those
students using the smaller set of words with review achieved mastery much more
quickly. Unfortunately, not every school has available the technology either in the form of the computers or software for students to utilize this approach.

The keyword method in particular was singled out in numerous studies. In a study comparing the keyword method to directed rehearsal, the junior high aged students with learning disabilities who used the keyword method outperformed the others in recall performance and demonstrated an ability to effectively use the strategy independently (McLoone, et al., 1986). In another study which compared the keyword method to picture context, sentence-experience context and a control group, the 12 year old students with learning disabilities significantly outperformed the others in recalling more word meanings not only both immediately after the words were learned but also 10 weeks later (Condus, Marshall, & Miller, 1986).

The keyword method outperformed the rehearsal method with both concrete and abstract words (Mastropieri, Scruggs, & Fulk, 1990). Mastropieri, et al. (1990) found that those students in their study who utilized the keyword method demonstrated a higher level of recall and comprehension as well as a much greater ability to use the words in novel situations.

While there are many positive findings about the keyword method of teaching instruction, there are some negatives. One concern that is repeatedly expressed is that until children reach the late grade school years, they are not able to generate the images proficiently to make the method work, even when they are provided with the vocabulary word, the keyword, and the definition (Pressley, 1990).
There are some other drawbacks regarding the effectiveness of the other direct teaching approaches to vocabulary. One that was identified more than once was the limited number of words that can be directly taught (Anderson & Nagy, 1991; Baker, 1995). Researchers estimate that children learn about 3,000 words a year or more than 8 per day (Anderson & Nagy, 1991; Lyon, 1997). A direct vocabulary teaching program typically teaches 10 - 12 words per week or 400 per year, making it impossible to directly teach 3,000 words to children during a school year.

The traditional access / instrumental method is very ineffective for learning new words. Harris and Sipay (1975) stated, "words have meaning to a child only when they are related to things he has experienced" (Gipe, 1979 p. 642). The definitions and example sentences found in the dictionaries are often so foreign to the student that there is nothing to trigger his / her prior knowledge and create meaning for the child (Gipe, 1979). Bos and Anders (1990) also showed that dictionary instruction is far less effective than other direct instructional methods like semantic mapping, semantic feature analysis and semantic / syntactic feature analysis.

**Contextual Instruction.** Contextual instruction involves teaching the students strategies which they can employ independently that will facilitate them learning the meaning of words by utilizing the words surrounding the target word, within the text that they are reading. The types of contextual instruction addressed in this study were: Internal-Contextual Features, Contextual Analysis with Partners, and Contextual Analysis with Vocabulary Studies.
Internal-Contextual Features instruction is a morphological approach to teaching word meanings. The method involves teaching the students to look for cues in the word to help in the understanding of the meaning of the word. These cues include prefixes and suffixes that appear in the word, as well as the root word or word family that the word comes from (Pressley, 1990). By teaching the students prefixes and suffixes and teaching them about word families and root words they can often develop at least an associative level of understanding of a word, especially if they combine this information with the clues given by the words surrounding the target word.

The next two methods involve the utilization of the contextual analysis method in combination with either the Partners strategy or Vocabulary Studies strategy. Contextual analysis is merely the process of using information gleaned from the words around an unknown word to make an educated guess at the meaning of the word (Watts & Truscott, 1996). The Partners strategy is a self-questioning strategy that incorporates a vocabulary journal and provides the students with supported practice in the use of prediction, contextual analysis, metacognition and paraphrasing. Students record unknown words that they encounter when they read, in their Partners journal. Each page of the journal initially contains four question prompts that are eventually faded out. The prompts are: (a) predict, (b) look for clues on the page, (c) decide what to do next, and (d) paraphrase a definition for the unknown word. During designated class time, students participate with their assigned partners to work
through the four steps (Watts & Truscott, 1996).

The other variation on the contextual analysis method utilizes the Vocabulary Studies strategy which consists of five steps: (a) copy the complete sentence in which the unknown word appears and underline the unknown word, (b) use the clues in the surrounding sentences to try to guess the meaning of the word and write your educated guess, (c) write one or two sentences explaining which clues you used to come up with your guess and how you used those clues, (d) look up the word in the dictionary and write the definition, and (e) explain whether your guess was close to the meaning of the word and why you were or were not able to come close. This is done only once or twice a week because it is so time intensive (Watts & Truscott, 1996).

Summary. In general, Gipe (1979) found that interactive or contextual methods are preferred as the learner is guided by the familiar context to his / her prior knowledge that already exists within his / her conceptual base. The information is then assimilated into the already existing knowledge that the individual already possesses (Gipe, 1979).

However, as with the direct instruction methods, there are both positive and negative aspects to the contextual instruction methods. One of the positives of this approach is that the students can often generalize and derive meaning for unknown but similar words (Pressley, 1990). Another advantage is that students are able to be exposed to more words through the reading process (Anderson & Nagy, 1993; Lyon, 1997). If children do indeed learn 3,000 new words a year, then exposure to the
maximum number of words would seem to be in their best interest, providing them the opportunity to learn as many words as possible. Most vocabulary growth of words takes place through inductive learning, not direct instruction (Stanovich, 1986).

On the negative side, contextual methods are criticized for not fostering retention of specific definitional meanings over long periods of time (Pressley, 1990). Also, because poor readers don't read, they don't have the volume of reading necessary to influence their vocabulary development (Baker, 1995). Finally, contextual learning of vocabulary doesn't work for very young (K-1) because they are too young to read (Baker, 1995).

**Conclusion**

A comparison of the effectiveness of the two approaches in teaching vocabulary depends upon the desired goal of the learning. Of particular importance is the question of how deeply the learner needs to understand the meaning of the word. This is referred to in the research as the "level of word knowledge." McKeown and Beck (1988) indicated that word knowledge is not an all-or-nothing proposition, rather words can and are learned at different levels. Baumann and Kameenui (1991) discussed three levels of word knowledge that can be used to describe the depth of understanding that is desired and correspondingly the methodology for teaching the word that will be most effective and efficient (Baker, 1995). Those three levels are identified as: **association, comprehension and generation.**

**Associative knowledge** would consist of the student being able to link a word
with a specific definition or single context. When a student is able to demonstrate a broad understanding of a word by being able to use it in a sentence or able to find an antonym, classify the word or in some other way demonstrate a broad understanding of the meaning of the word, then the student has demonstrated a *comprehension* level of knowledge of the word. Finally, in order to demonstrate a *generative* level of knowledge, the student would have to produce a novel response to a word or restate the definition in his / her own words.

If the goal is to teach the specific meaning of a limited number of words in a short amount of time, then a direct, word-by-word approach (e.g., mnemonics such as the keyword method) will be most efficient (Pressley, 1990). The depth of knowledge will be much greater when a direct approach is utilized and might be particularly useful for teaching words that are critical to the content area and at the same time, for which the student has no prior knowledge upon which to build meaning (Baker, 1995). McKeown and Beck (1988) propose that the choice of what words to teach depends on the following factors. First, how important is the word to the understanding of the selection? Second, what is the relationship of the word to the specific domain of knowledge that is being taught? Next, is there a general utility for the word that the student may use it in more than one specific limited setting? Finally, is there any relationship that this word has to other lessons or classroom events?

However, if the goal is to teach the students a skill which will allow them to derive a tacit knowledge of a large number of words, then a contextual approach
would be best (Pressley, 1990). The instructional method for teaching vocabulary words must match the goal for depth of knowledge that is desired in the learner (Baker, 1995).

Regardless of the approach or methodology utilized, the most critical thing to remember is that it is imperative that the student be taught a means to independently learn the meanings of words (Baker, 1995). For children with learning disabilities, it is preferable that they learn many new words at the associative level and fewer words at the comprehensive level and generative levels (Baker, 1995).

While no best method to teach vocabulary has been identified there are certain features of vocabulary instruction which have been recognized for improving reading comprehension. These features include providing the students with multiple exposures to words in a variety of contexts as well as engaging the students in active thinking about words (McKeown & Beck, 1988).

To be sure, all of these methods have their strengths and their weaknesses. When those are considered in combination with individual learner differences in abilities and learning styles it only logical to conclude that there is no one right method that should be used exclusively. The child’s unique learning needs coupled with the desired depth of learning of the word that is necessary should dictate the methodology used by the teacher. Also, regardless of the method used, every effort should be made to foster independence in the student in his / her ability to effectively utilize the method.
Chapter Three
Methodology

Subjects

The subjects for this study were 34 seventh and eighth grade students with learning disabilities from the Jenison Junior High School. These are all of the students at the Jenison Junior High who have been identified as having a learning disability as their primary disability and who have been evaluated utilizing the Wechsler Intelligence Scale for Children III and the Woodcock-Johnson Psycho-Educational Battery-Revised.

Because the total population of students whose primary disability is a learning disability is so small, the entire group was used rather than selecting a smaller sample from the total group.

Instruments

The instruments used to collect the data were the Passage Comprehension section from the Tests of Achievement portion of the Woodcock-Johnson Psycho-Educational Battery-Revised and the Vocabulary subtest from the Wechsler Intelligence Scale for Children - III (WISC-III).

The choice of the Woodcock-Johnson test was made for the following reasons.
by utilizing selected sections (Cummings, 1995). Second, the Woodcock-Johnson has been amply researched (Cummings, 1995) including the fact that it was normed using 6359 individuals from over 100 geographically diverse regions in the United States. These individuals have included ages 2 through 90+ and has included both racial and ethnic minorities. Third, the tool is recognized through various studies for its appropriateness for use with persons with learning disabilities (Cummings, 1995). Finally, this is the test which is most commonly given to students in the Jenison Public School system who are being evaluated either for initial eligibility or re-evaluated as part of the three year re-evaluation for special education eligibility as students with learning disabilities.

The Woodcock-Johnson has an internal consistency reliability coefficient ranging from the high 0.80s to the low 0.90s and is considered to be a very stable assessment tool. Further, the content validity for the test utilized expert opinion in the process of selecting items and there is limited information about whether those experts included persons with alternative racial/ethnic perspectives (Cummings, 1995). In the area of concurrent validity, the BASIS, the Kaufman Test of Educational Achievement, The Peabody Individual Achievement Test and the Wide Range Achievement Test-Revised were administered to samples of children ranging in age from 9 through 17. The Woodcock-Johnson scores on these children correlated highly with their results on these tests indicating a high concurrent validity (Cummings, 1995). Finally, the construct validity for the Woodcock-Johnson are reported as high
The Passage Comprehension section of the Woodcock-Johnson employs a cloze technique for evaluating the students comprehension of a passage. The administration of the section involves the student silently reading a brief passage which contains a blank space within it. The student must fill in the blank space with a word that makes sense. By selecting an appropriate word to place in the blank, the student demonstrates a comprehension of the passage. The test manual contains both correct and incorrect words that may be given by the student. In some cases there is only one acceptable correct answer, while in others, there is more than one word that is acceptable. With each item, the evaluator is instructed to allow the student about 30 seconds to respond after completely reading the section and if there is no response in that time, to encourage a response. If the student still does not respond, then the evaluator is to point to the next item and to say, "try this one." Only one word responses are acceptable and if the student gives more than a one word response they are asked to give only one word. Responses that differ in the verb tense or number (singular / plural) are correct. Students continue to complete items until they have incorrectly answered six consecutive items.

The WISC-III was selected because it is the third generation of the Wechsler Intelligence Scale for Children and its predecessor, the WISC-R was the most popular and widely researched test of children's intelligence (Braden, 1995). The WISC-III also happens to be the IQ test most commonly utilized by the Jenison Public Schools.
psychologists when testing students for either initial eligibility for special education or as part of the three year re-evaluation process.

The normative sample is large (2,200) and representative of the 1988 U S. Census data. Subtest reliabilities are rated as moderate to excellent (.61 to .92) (Braden, 1995). The WISC-III has shown itself to have very high validity with respect to predicting academic achievement in children with learning disabilities (Braden, 1995).

Administration of the Vocabulary subtest of the WISC-III involves the tester reading a word to the student. In return, the student must respond with either a synonym or a multiple word description of the word. The tester has a list of acceptable answers for each word and the student must give one of those answers. The student may get a score or either 0, 1, or 2, depending on the completeness of their answer. The words become progressively more difficult and abstract and at the point that the student gives five consecutive incorrect responses, the subtest is complete. Using an established formula, the tester computes the raw score into a scaled score for the Vocabulary section. That scaled score is later combined with the scaled scores from the other subtest areas of the test to compute standard scores.

Data Collection

The Woodcock-Johnson Test of Achievement is administered to most special education students with learning disabilities at the Jenison Junior High School as part of their three year re-evaluation. The standard scores on the Passage Comprehension
batteries were taken from each students CA-60 file.

In addition, the Wechsler Intelligence Scales for Children-III is administered to most special education students with learning disabilities at the Jenison Junior High School as part of their three year re-evaluation. The scaled scores for the vocabulary subtest were taken from each students CA-60 file and paired with the Passage Comprehension scores from the Woodcock-Johnson.

Analysis of Data

The correlation coefficient was determined between the scores on the Vocabulary subtest of the WISC-III and Passage Comprehension scores from the Woodcock-Johnson using the Pearson r formula. The resulting coefficient was then evaluated for statistical significance at the 95 percent probability level using the table taken from Table IV of Fisher and Yates: *Statistical Tables for Biological, Agricultural and Medical Research*, published by Longman Group Ltd., London. Based on this table, a coefficient > 0.349 would indicate statistical significance for a sample size of 34 (32 df or degrees of freedom).

Applying the Pearson r formula to the scores in Table I resulted in a correlation coefficient of 0.0872. Since this is not greater than the 0.349 necessary to show statistical significance it would suggest that there is not a relationship between vocabulary and reading comprehension. However, numerous research studies completed by others would suggest that this finding is not accurate.
Discussion

Assuming that the previous research is valid and there is a relationship between vocabulary and reading comprehension, what could explain the failure to show a significant correlation this time?

One possible explanation is that either the scores on the Woodcock-Johnson or WISC-III were not accurate. This explanation is not likely for a number of reasons. First, both tests were administered by trained licensed school psychologists. Second, there is more than one psychologist employed by the district and even if one were to be doing the tests incorrectly it is not likely that all the psychologists would do them incorrectly. Third, because these students are all in junior high school and all of them have been in special education for many years, these tests have been performed on multiple occasions as a part of the three year re-evaluations that are required. Therefore, if the results of these test scores were significantly different from previous scores, due to the tests being administered incorrectly, the tests would likely have been readministered correctly. For all of these reasons it is unlikely that an error in the administration of the tests and resultant incorrect scores would explain the failure to find a correlation between the scores and it is likely that the scores are correct.

Another possible explanation for the failure to find a correlation between these sets of scores may lie in the existence of outliers or a few scores that fall far from the mean of the other scores in the sample. Outliers can indicate that either a distribution is not normal or that some error of measurement has occurred (Sprinthall, 1994). If
there is one or more outlier in this sample, it could increase the standard deviation changing the distribution of the scores and significantly effecting the correlation coefficient.

In an effort to determine whether one or more outliers exist in the sample and effected the coefficient, the scores were plotted on a graph. Unfortunately, while there were a few scores which were located outside of the pack, the elimination of those scores and recomputing the Pearson r correlation coefficient did not result in a significant change, certainly nothing close to the necessary coefficient of > 0.349 required to demonstrate significance. The shape of the plot graph even suggested the possibility that the scores are random, as a clear positive ellipse that is characteristic of a positive correlation is not readily apparent (Sprinthall, 1994).

As stated earlier, reading is a complex task involving many elements. Yet another possible explanation for the failure to achieve a significant correlation is the effect the students abilities to decode words had on their passage comprehension scores on the Woodcock-Johnson test. Because the Passage Comprehension section of the test requires the student to read a passage and then provide the word necessary to make the selection correct, it is possible that the student with poor decoding skills would answer incorrectly not because of a lack of vocabulary but simply because of a lack of ability to read the selection.

In an effort to determine if decoding is a factor in the passage comprehension scores, the students CA-60 files were revisited and the scores on the Letter-Word
Identification section of the Woodcock-Johnson test were recorded for each subject. The Pearson r correlation coefficient was then recomputed, first for the students whose Letter-Word Identification scores were at or above 90 (average scores range from 90 - 110) and then for those students whose Letter-Word Identification scores were < 90.

There were 12 students whose scores on the Letter-Word Identification section were 90 or greater, suggestive of average or better decoding abilities. The correlation coefficient for those students with average or above scores on the Letter-Word Identification was 0.130. While this is a substantial change from the 0.0872 correlation coefficient for the entire sample it is still significantly below the 0.349 needed to be indicate a significant correlation unrelated to chance occurrence. Correspondingly, the 22 students with Letter-Word Identification scores below 90 resulted in a correlation coefficient of 0.115 which is also substantially less than the coefficient of 0.349 required to establish the existence of a significant correlation between vocabulary and reading comprehension.

Yet another explanation for other researchers being able to establish a correlation between vocabulary and reading comprehension and this data not resulting in such a correlation perhaps lies in the instruments used to test vocabulary and comprehension. To do this, it became necessary to further research the studies cited as determining that a correlation between vocabulary and reading comprehension exists, in particular to determine how the vocabulary and reading comprehension
abilities were determined in those studies and the correlation coefficients that were identified. Surprisingly, none of the research studies cited over and over (Nelson-Herber, 1986; Nagy, 1988; Baker, Simmons, & Kameenui, 1995; Mezynski, 1983; and Stanovich, Cunningham, & Feeman, 1984a) actually tested for the existence of such a correlation.

Instead it was necessary to go back to a study by Davis (1941). In a later replication of the original study (Davis, 1968), the 1941 study is identified as the first factor-analytic study of comprehension performed to measure the mental skills used in reading, including vocabulary. Both studies utilized the Cooperative Reading Comprehension Test and measured nine skills in reading comprehension. One of those skills was recalling of word meaning (vocabulary). Davis (1941) found correlations approaching 0.90 for vocabulary and comprehension. The sample size for the 1941 study was 421, substantially larger than the 34 in the present study.

In conclusion, it would appear that the explanation for the failure of the present study to establish the existence of a significant correlation between vocabulary and reading comprehension lies in the choice of instruments used to measure the skills of vocabulary and / or reading comprehension.

Despite the lack of a clear relationship between vocabulary and reading comprehension being demonstrated in this study, the findings of Davis (1941 & 1968) that such a relationship does exist, validates the need to utilize whatever effective means, whether it is direct or contextual instruction, to increase the vocabularies of
students with learning disabilities. In addition, that instruction must be designed and implemented to foster the greatest independence possible that will enable the students with learning disabilities to continue to improve their vocabularies and their reading comprehension skills.

Further research should be conducted to determine what assessment tools might be utilized by schools which might establish the existence of vocabulary or reading comprehension deficits which would correlate with the other skill. Further, a causal comparative study of which skill, vocabulary or comprehension, effects the other would be helpful to improving the reading abilities of students with learning disabilities in school and thereby improving their quality of life after exiting school.
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References


Smith, Carl B. (1997). Vocabulary instruction and reading comprehension. ERIC Digest. ERIC Clearinghouse on Reading, English, and Communication, Bloomington, IN.


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