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WORD MEANING CATEGORY PREFERENCES OF COMPETENT AND
POOR READERS AND THEIR ORGANIZATION OF MEANING
CATEGORIES IN GRADES FIVE THROUGH EIGHT

presented by

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of the requirements for

Ph.D. degree in Teacher Education

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Major professor

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WORD MEANING CATEGORY PREFERENCES OF COMPETENT AND
POOR READERS AND THEIR ORGANIZATION OF MEANING
CATEGORIES IN GRADES FIVE THROUGH EIGHT

By

John Peter Malafouris

A DISSERTATION

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My deepest appreciation and love go to my mother,
who is proud of me and of my accomplishment.

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CHAPTER I

INTRODUCTION

The importance of vocabulary in reading comprehension has been consistently reported in different areas of reading research. Davis (1971) in his factor analysis of component skills in reading comprehension posited that knowledge of words is one of the essential component skills in reading comprehension. Loban (1970) and Stevenson (1976) in their studies of children's language development showed a high correlation between preschoolers' knowledge of word meanings and achievement at higher grade levels. Thus, what the child brings to reading in the way of vocabulary knowledge is an essential ingredient in that child's success in school.

Statement of the Problem

It has been shown by Al-Issa (1969), Kruglov (1954), and Evanechko and Maguire (1972) that as children mature, their definitions of words move from simple characteristics and relationships to more complex notions. Children's choices of word definitions pass through three general stages: concrete ("an apple is red"), functional ("an apple is something you eat"), and abstract ("an apple is a fruit").

Knowing that students progress from concrete to abstract in their development of word meanings does not tell us much about the

individuals or the subgroups within a larger population. For instance, do students of differing reading abilities progress at the same rate, different rates, or persist at a particular level? The interpretation of these differences is important in developing an effective instructional program.

Petty, Herold, and Stoll (1968), in their summary of studies dealing with teaching of reading vocabulary, indicated that some systematic attention to vocabulary teaching is better than no teaching of vocabulary at all. They further stated that vocabulary instruction appeared to have theoretical justification but no theoretical explanation for how it should be done.

This lack of theoretical explanation for vocabulary instruction could be remedied by relating the sequence of development of word meanings to a child's reading level. Do both good and poor readers progress to the abstract level at the same rate? Or do they differ in their rate of progression through the stages?

Children need the ability to distinguish between and to interrelate word meanings. As Ruddell (1979) stated, "as the child's lexical meaning store expands, specific meanings must be developed which are appropriate to a given context, and multiple meanings of specific words must be developed" (p. 8). This knowledge is basic to the comprehension process.

Need for the Study

The literature has provided a description of the trends in the development of word meanings of children. As children mature,

definitions of vocabulary move from simple characteristics and relationships to more complex definitions. Relating these developmental patterns in word definition to other developmental dimensions has varied. A great deal of research relating vocabulary to thought processes has been conducted, but only limited research has investigated a child's reading ability and related it to the development of word meanings.

As teachers we are aware, from students' daily work, of varying abilities of students to define words. Standardized achievement test results provide other sources of data that attest to the varying abilities of students. These data, by their nature, are limited because they can only tell us what words the child knows (can define) or does not know. The data do not address the quality of meaning for a particular word.

As children come into contact with various definitions of words, they learn a variety of dimensions that may be associated with word meanings. For example, a word may have physical attributes (chair has legs and a back), contrasts (opposite of big is small), or connotations (a piano is heavy). These dimensions can be labeled as categories of meaning, and a student's preferred category of meaning gives insight into that student's quality of meaning for a particular word.

A failure to understand the multiple dimensions of a word limits the child's ability to comprehend. For example, one child who consistently defines words in terms of physical attributes is limited to the

concrete level, while another child who is able to define words in more abstract terms is not limited to that level. These two children may be viewed as differing in the quality of meaning they give to definitions. This research will attempt to discover if there is a difference between good readers and poor readers in their preference for the types of meaning.

The Purpose of the Study

The purpose of this research is twofold. First, it is to identify the dimensions of meaning categories (concrete, functional, and abstract) for good and poor readers at the fifth, sixth, seventh, and eighth grades. The second purpose is to discover if there is a difference between good and poor readers at each of these grade levels as to their preferred categories of meanings as used by Evanechko and Maguire (1972). A great deal of evidence is available showing knowledge of word meanings is an important subskill to comprehension. The importance of this type of research lies in the fact that vocabulary development is an integral part of any reading program.

This study is a descriptive examination of the relationships between reading level and the global notion of meaning dimension and the specific instance of word meaning categories.

The Semantic Features Test (1973) was administered to fifth-, sixth-, seventh-, and eighth-grade students, and results were analyzed for two different types of data. The first type of data consisted of an examination of the concrete, functional, or abstract dimensions of

meaning exhibited by the students. Evanechko has found that all readers, regardless of level, progress from the concrete to the abstract. Is there, then, a difference between the two groups in their rate of progression in this dimension? If, across grade levels, good readers show a preference for abstract meanings and poor readers show a preference for concrete meanings, this may be an important component in explaining poor performance on measures of reading comprehension by poor readers.

The second type of data consisted of preferred meaning categories. The same test reveals students' preferred meaning categories and, consequently, differences between good and poor readers as to preferred types of meaning categories can be determined. Categories devised by Evanechko, which consist of 24 logico-semantic relations in word definitions, were used, and readers' responses were tabulated to determine if there were differences of preferred word meaning categories between good and poor readers. Evanechko has reported that fifth- and eighth-grade students show the same preference; however, he has not examined these preferences between good and poor readers.

If a relationship is discovered between reading levels and dimensions of meaning at the particular grade levels being tested in this research, then a longitudinal study would be indicated to discover the progression for the different types of readers. We know from the research of Kruglov (1954) and Al-Issa (1969) that there is a progression of development from concrete to abstract, but we do not know if

there is a difference in the progression for different types of readers.

Knowing if good readers and poor readers differ in types of word meaning they prefer could affect instruction. For example, if poor readers show a preference for attribute definitions, then instruction should begin at this level before moving on to instruction on connotative meanings.

Hypotheses

Informal observations led to the assumption that good readers and poor readers differ in their preferences for types of word meanings and that they progress at different rates through the stages of vocabulary development. If so, these differences have been masked because the research conducted so far has not differentiated between subgroups of students within a larger population. Evanechko and Maguire's (1972) research demonstrated the progression from concrete to abstract in word definition ability, but neither differentiated between subgroups in their population nor showed the level of development of the intervening grades. Thus, there is a gap in our knowledge in the global sense because we do not know how children progress through grade levels, although we assume continuity. We also do not know how subgroups, good readers and poor readers, perform.

There are two types of hypotheses. The first type deals with any differences between good readers and poor readers at fifth, sixth, seventh, and eighth grades in their preferences for particular

categories of word meaning. The second type deals with any differences between good readers and poor readers at these grade levels in their organization of these meaning categories into the concrete or abstract dimensions. This investigation at these various grade levels may show a progression of vocabulary development along a continuum from concrete to abstract. Or we may find there is no continuity in meaning category choice. Ideally, this progression could be discovered by a longitudinal study, but this is not within the scope of this research. However, this research may provide a basis to determine if a longitudinal study needs to be undertaken to chart the progression of the dimensions across these grade levels. Following is the formal statement of the hypotheses:

Section I

Good readers will not differ from poor readers in their preferences for particular word categories at grade five.

Good readers will not differ from poor readers in their preferences for particular word categories at grade six.

Good readers will not differ from poor readers in their preferences for particular word categories at grade seven.

Good readers will not differ from poor readers in their preferences for particular word categories at grade eight.

Section II

Good readers will not differ from poor readers in their organization of word meaning categories into dimensions at grade five.

Good readers will not differ from poor readers in their organization of word meaning categories into dimensions at grade six.

Good readers will not differ from poor readers in their organization of word meaning categories into dimensions at grade seven.

Good readers will not differ from poor readers in their organization of word meaning categories into dimensions at grade eight.

CHAPTER II

REVIEW OF THE LITERATURE

This review of the literature deals with three major areas of research relating to this study: (1) language and cognition, (2) phonological factors, and (3) linguistic factors. The last area is further subdivided into syntax, semantics, and vocabulary.

Language and Cognition

Some developmental psycholinguists have attempted to bridge the gap between language and cognition. They have viewed reading as a skill in which thought processes and language interact. Thus, Clark and Clark (1977), Nelson (1974), Bellin (1975), and Anglin (1970) have directed their research to exploring the role of language and cognition in connection with the language functions of communication, memory, and reasoning, among others, and have related these to reading.

A basic problem is clarifying the relationship between language and cognition. Some believe that language is essential for thinking, while others hold that language forms and possibly distorts thought. The latter position was espoused by Whorf and his disciples (Clark & Clark, 1977) in their theory of "linguistic relativism." They contended that the picture of the universe is different for individuals in

different linguistic communities; hence, we are at the mercy of our particular language.

However, language was viewed as a liberating force by Bruner (1964). "Language provides a means not only for representing experience but also transforming it" (p. 4). Language is the tool for organizing and expressing our experiences. For Bruner, language plays a predominant role in thinking.

The major theorist opposed to this view was Piaget (1967), who argued that language itself is not sufficient to explain thought because the structures that characterize thought have their roots in action and in sensori-motor mechanisms that are deeper than linguistics.

There is evidence (Bourne, Dominowski, & Loftus, 1979; Nelson, 1974) that language development proceeds from a receptive phase to a productive phase. The transition appears to depend on the development of cognitive skills which are not well understood at this time (Bourne et al., 1979). Children understand language before they can speak, and they develop concepts before they learn the names for those concepts (Anglin, 1970; Nelson, 1974). Later they are able to generate sentences spontaneously, being, to use Charkovsky's term, "linguistic geniuses" (Dale, 1976, p. 49).

The difficulty that underlies these issues is the differentiation between cognition and the structures of language, particularly at the semantic level. Both deal with meaning. The distinction between cognition and semantics is designed by linguists "to differentiate

linguistic context from other contexts--to identify as semantic those aspects of meaning that exist in language. Linguistic meaning (semantics) may or may not be different from other kinds of meaning" (Beilin, 1975, p. 347). Whitehurst (1979), however, argued that semantics is a construct that has no validity for there is no adequate definition of semantics.

Gibson and Levin (1975) asserted that there are two basic assumptions about reading: (1) that reading is a cognitive process that starts at the perceptual level and ends at the conceptual level and (2) that the basis of language (and therefore reading) is abstraction, rejecting both the referential and metalinguistic theses. In reading, the child must develop strategies for processing larger units of information. The beginning reader attends primarily to the written and phonological attributes of words; the more experienced reader attends more to the syntactic and semantic features of sentences and paragraphs.

Phonological Factors

The term "decoding" refers to the visual analysis of the printed word with or without articulating. This is the perceptual basis upon which other levels of reading skills are grounded, however abstract. Meyer, Schvaneveldt, and Ridley (1974), using high school students and adults, argued that the visual information must be translated into its phonemic components (speech). Baron (1973) argued that the phonemic stage is not necessary for reading. Doehring (1976) believed that beginning readers associate printed words with speech in word

recognition, and later this association may aid in reading difficult or unfamiliar text but may become unnecessary for more efficient readers, as direct visual processing occurs without speech.

Pronouncing and recognizing single words involves a number of cognitive skills. Bradshaw (1975), in his review of the literature regarding the graphemic and phonemic constraints of decoding, presented three hypotheses. The first is the graphemic hypothesis, which states that the reader translates meaning directly from the visual analysis of the word. The second is the phonemic-encoding hypothesis, which states that the reader converts the visual stimulus to phonemic representation. The third is the dual-encoding hypothesis, in which lexical memory can be assessed by both visual and phonemic representation simultaneously. He presented evidence for each of these positions, aware that it was conflicting evidence.

The process of decoding, however, goes beyond grapheme-phoneme relationships alone. Weber (1970) collected the oral-reading errors of 43 first-grade children over a five-month period. At the end of first grade, she divided the children into high achievers (good readers) and low achievers (poor readers), based on their scores on the vocabulary subtest of the Metropolitan Achievement Test. She found no difference between the groups on the use of grammatical constraints for identification of words. "Children resisted uttering a sequence that did not conform to an acceptable sentence" (p. 162).

These findings were confirmed by Biemiller (1970), who found that regardless of reading ability at the end of first grade, children use

grammatical and semantic cues in identifying words. Thus beginning readers appear to use their knowledge of the language as an aid in word identification.

Guthrie (1973) suggested that decoding is the primary process of the first year of learning to read, and, if we assume Guthrie was correct, we need to ask what cognitive processes lead to learning to decode. Mattingly (1972) used the term "linguistic awareness" to refer to talking about and reflecting on language as well as to segmenting spoken language into phonemic sequences. Cazden (1974) used the term "metalinguistic awareness" to describe this same ability and believed it makes special cognitive demands: The child must learn to treat sounds as individual units and manipulate them. The child must be able to segment the sounds of speech. In learning to decode, children must map letters and letter sequences to sounds which require the acquisition of rules.

Most of the research on phonemic segmentation has stemmed from the work of Liberman and Shankweiler (1972, 1976, 1977). Their work was based on the assumption that reading is somehow parasitic on speech. In learning to read, the child must map the written word to the spoken word and to do this must be aware of the phonetic structure of spoken language (Knights & Bakker, 1976; Liberman & Shankweiler, 1977).

Helfgott (1976) tested 103 kindergarteners on their ability to segment words and blend letters in order to predict first-grade achievement levels. She tested them on consonant-vowel-consonant (C-V-C), consonant-vowel/consonant (C-VC) and consonant/vowel-consonant

(CV-C) patterns. She found that the ability to segment and blend consonant-vowel-consonant words in kindergarten correlated highly with first-grade word recognition scores on the Wide Range Achievement Test.

Fowler, Liberman, and Shankweiler (1977) analyzed oral reading errors of second, third, and fourth graders and found most errors occurred on the final consonant of a consonant-vowel-consonant syllable. The number of errors decreased with age. They concluded that the beginning reader guesses at the words based on the initial consonant and fails to process the remainder of the word.

Developmental trends show the changing nature of the processes underlying decoding skills. Doehring (1976) stated that the processing skills appear to be acquired over a period of years, with letter-by-letter processing developing first with syllable, then word and sentence processing follows. This was confirmed by Samuels, LaBarge, and Bremer (1978), who, using second, fourth, and sixth graders and college students, found younger students using letter-by-letter strategies for decoding and, with increasing skill, "holistic strategies" came into play. By sixth grade, the word appeared to be the unit of recognition. Calfee, Lindamood, and Lindamood (1973), using a sample of 25 students from grades kindergarten through 12, concluded that the ability to manipulate the phonetic components at the syllable level of the spoken language is significantly and substantially related to reading and spelling performance through high school.

These studies have shown that processing of the phonological correlates of letters and words facilitates decoding and that evidence

exists for the developmental changes of the processes underlying decoding. Thus, we can infer that the processes are dependent on the cognitive development of the child and that the ability to abstract and apply knowledge of the language to reading depends on cognitive development, for decoding requires the acquisition of rules and the application of those rules, which is a cognitive task.

Linguistic Factors

We now turn our attention to the syntactic and semantic processes and to vocabulary. These will be discussed using research related to oral language and measures of comprehension.

Palermo and Malfese (1972), in their review of the literature on language acquisition, stated that the phonological, syntactic, and semantic levels of analysis are intimately interrelated and that language advances appear to be correlated with developmental periods of cognitive advances.

When children's abilities to use the sense of a passage in dealing with unfamiliar words are examined without reference to their reading achievement, it is generally found that they do use meaning clues. An analysis of oral reading errors of first graders by Biemiller and Weber (1970) found that oral reading errors "made sense." However, this ability seems to differ for students of differing reading achievement levels.

Isakson and Miller (1976) divided 48 fourth graders into two groups. One group had adequate word recognition but poor

comprehension. The other had both adequate word recognition and comprehension. They were presented with sentences with only the verb changed. Poor comprehenders were less disturbed by syntactic and semantic violations of sentence structure. Clay and Imlach (1971) compared 103 good and poor readers in second grade on fluency, pitch, stress, and juncture. They concluded that good readers seem to take advantage of linguistic information while poor readers read word by word. Weinstein and Rabinovitch (1971) had 41 fourth graders learn four sentences, two of which were syntactically structured and two of which were unstructured. The good readers learned structured sentences more rapidly than unstructured sentences. Poor readers did not. They attributed this difference to the good readers' ability to use syntactic clues. Oakan, Wiener, and Cromer (1971) and Steiner, Wiener, and Oaken (1971) provided vocabulary instruction to good and poor fifth-grade readers prior to the reading of a passage. They concluded that poor readers read words as if they are unrelated items. Poor readers appear to be unaffected by syntactical or contextual clues.

Syntax

Studies dealing with syntactic characteristics of oral language and reading achievement have been conducted by Bougere (1969), Mahaffey (1975), and Ribovich (1975). These were correlational studies which investigated the relationships between sentence length, number of kernel phrases, and transformational complexity with reading achievement in first grade. Mahaffey (1975) found no relationship between oral fluency, mean length of communication unit, and understanding of oral

vocabulary with reading achievement. Ribovich (1975) found a slight correlation between syntax and reading comprehension score on the Metropolitan Achievement Test. Bougere (1969) concluded that although oral syntax may not be correlated with first-grade achievement, it may be important later. And, indeed, a relationship was found by Dumas (1976) using normal readers and reading-disabled third graders.

A more global picture of oral language and reading achievement is found in the work of Fry, Johnson, and Muehl (1970), who studied 73 second graders of below-average and above-average reading ability. Their conclusions were that (1) above-average readers have larger speaking vocabularies, which may make it easier for them to match the written word to one they already know; (2) good readers use more modification in the predicate whereas poor readers use more modification in the subject position, thus showing different syntactic abilities; and (3) poor readers use the "existence" sentence more than good readers, which means poor readers may have difficulty integrating sentences into a whole meaning.

Adams (1981) drew a distinction between the syntactic structure of speech and the syntactic structure of reading. In the former, she believed that the speaker chunks speech; thus the listener does not have to impose syntactic structure on the passage. In reading, however, the reader must discover the syntactic structure. She reasoned that if a reader does not have the necessary competence to organize the written material into syntactic constituents, both comprehension and memory will suffer. Adams also posed the question,

"How do you know if the reader is chunking or not?" A study specifically looking at memory as a factor was investigated by Rabinovitch and Shassberg (1968), who found syntactic structure facilitates recall.

Chomsky (1972) investigated the acquisition of syntax in speech of 36 children ages six to ten. She found a common order of acquisition. This sequence of stages appeared to be the same for all children, but the ages at which different children reached the stages varied. She also found a correlation between certain reading-exposure measures and syntax. Reading-exposure measures were the number of books the child had read. One of her conclusions was that the child's linguistic knowledge is important to reading and that reading influences the child's syntactic development.

Studies, such as Semel and Wiig (1975), Vogel (1974), and Guthrie (1973) reporting on syntactic abilities, have drawn the conclusion that children having reading difficulties have language problems. Posing the question, "Are these problems linguistic in nature or problems of abstraction and generalization?," one's answer is couched in terms generated by the writer's bias. There is no disagreement that children are able to construct sentences never previously heard. A child knows and uses his knowledge of the proper word order. This implies a knowledge of the rule system for making sentences. This knowledge is not taught. Also, if the acquisition of syntax follows an order, as Chomsky (1972) demonstrated, then the cognitive component appears to predominate. Children having reading difficulties who are also having language difficulties may be two sides to the same coin--cognitive

difficulties. But as Doehring, Patel, Trites, and Fiedorowicz (1981) pointed out, there are insufficient data to draw valid conclusions about the cause-and-effect relationship of reading and language deficits. They further stated that cognitive and linguistic abilities should be viewed as interactive and implied that one may predominate during certain stages of reading development.

Semantics

Semantic knowledge refers to our knowledge of word meanings and the knowledge of the relationships among words.

Golinkoff (1975) summarized his own and co-workers' research in this area and concluded that both good and poor reading comprehenders have no difficulty in obtaining the meaning of common printed words. Vellutino (1977), in his review of the research on semantic processing, inferred that there is no difference between good and poor readers on extracting semantic information in either written or spoken discourse in the global sense. He concluded that poor comprehenders are inefficient in matching incoming information with what is already stored in their heads, which may explain Perfetti's (1971) finding that fifth-grade poor readers were deficient in labeling categories.

Dale (1976), in the introduction to his chapter on semantic development, stated that semantic development is the least understood language factor and that semantic development is the aspect of language development most directly tied to the broader cognitive development of the child. Our lack of understanding is due to the fact that we do not

understand what it is that is being developed, for word meanings are in our head and thus we have no way of investigating them directly. But psychologists and linguists have given us various theories of word meaning.

One of the most popular has been the "referential theory": The meaning of a word is its referent (Dale, 1976; Gough, 1975; Olson, 1970). This theory is based on the assumption that things have names or objects have labels. The theory assumes that meanings of words must somehow reflect the properties of their referents (Gough, 1975). But the theory is not completely adequate since not all words have a referent we can see or hear or feel (Dale, 1976; Gough, 1975; Olson, 1970).

Another theory is to view meanings as a system for segmenting reality (Olson, 1970). Word meanings organize our world both externally--the world outside ourselves--and internally--dreams, pain, ideas, and so forth.

Using these theories as reference points, psychologists (Ausubel, 1968) and psycholinguists (Clark & Clark, 1977) have looked at how we use and understand language. In relations among individual words, linguists (Clark & Clark, 1977) have considered synonymy, antonymy, inclusion, and reciprocity. The meanings of "red" and "green" are included in that of "color." Examples of reciprocity are "buy" and "sell." For example, "Dan buys books from Laura" and "Laura sells books to Dan" are sentences presenting the same meaning from different points of view.

To further explain relations among words, linguists and psychologists have investigated properties of sentences. Word meanings are ambiguous. Thus, they have investigated how individual words in a sentence are combined into the meaning of the sentence. To account for these relations, linguists have assumed that words are "decomposable" (Gough, 1975). The meaning of a word is built up out of a set of more basic semantic components (Gough, 1975).

Three theories have been postulated to explain the basic elements of meaning or the basic semantic components. Katz and Fodor (1963), supporting a featural approach, proposed that the basic elements are semantic features. For example, "boy" has the features "human," "male," and "young," among others. Rosch (1973) postulated that a description of the meaning of a term should either include or actually be based on some sort of core concept. A third approach to the meaning of a word is that it is more than a sum of its features; relational information is necessary. In the sentence, "The mugger killed the man," the word "kill" involves more than the meanings of "mugger" and "man"; it involves the additional concept "the man dies."

A simplified illustration of the three approaches to word meaning would be to think of the word "dog." A featural approach would specify features like "mammal," "four-legged," and "barks." A core-concept approach would specify a particular dog. A relational approach would specify the relationship of dogs and other concepts such as "dogs eat meat," "chase cats," and "learn tricks," among others.

Whatever theory or position regarding meaning one takes, we are inevitably led back to the space between our ears. How is knowledge represented in memory, and how do we use this knowledge to make sense of our experiences? Research to find the answers to these questions concerns semantic memory. But here one encounters the difficulty of definition. What is semantic memory? Is semantic memory meant to include all our world knowledge or only our knowledge of language (Shoben, 1980)? Language is subsumed under "knowledge of the world" in this review.

Wickelgren (1981) and Samuels and Eisenberg (1981) have presented supporting theories about associative memory; Wickelgren synthesizing current work on associative memory, Samuels and Eisenberg taking the current work on semantic memory and relating it to reading. The items of semantic memory are concepts, not words, for words do not have unique meaning. Concept nodes integrate verbal and nonverbal stimuli. Our knowledge of the world is stored in a memory network composed of nodes and links. The nodes represent pieces or chunks of information. A node can be thought of as representing a concept. The nodes are linked to a larger number of other nodes. Links bond idea nodes together to form a consolidation of information. Wickelgren integrated the various theories of meaning, semantic features, prototype features, and relation features into his associative memory node network theory. Samuels and Eisenberg discussed the case of a beginning reader who sees the three letters "c," "a," and "t" a number of times, processing them separately, until he processes them all together as "cat." Nodes

representing the letters have become tied closely enough together to form a single representation of the whole word, which is then mapped onto a concept.

The question now becomes where semantic knowledge and cognition intersect. As Olson (1970) stated, "the problem of the differentiation of word meaning is the same problem that is sometimes called conceptual development" (p. 272). But as Dale (1976) pointed out, cognitive categories and semantic categories are not the same. Beilin (1975) posited "an abstract cognitive system of structures whose basic relations and functions are realized in systems of thought and in language, each system with properties independent of the other" (p. 361). But how does a cognitive concept become a semantic concept and the reverse?

Anglin (1970) defined a concept as a hypothetical construct which consists of all of the knowledge an individual possesses about a category of objects or events. This knowledge includes objects or events which are instances of the subject, information about the properties which can be predicted of the instances of that concept, and knowledge of its extension. For example, an extension of the concept "animal" is the set of "dogs," "cats," "fish," "birds," and "insects," among others, which are its instances. The intention of the concept "animal" is the set of properties "lives," "breathes," "eats," "moves," and the like--which define it.

We now return to our question of the transformation of a cognitive concept into a semantic concept and the reverse. In studying children's acquisition of word meanings, Nelson (1974) and Clark (1973)

proposed that words are learned only as labels for concepts which have already formed nonlinguistically. Nelson emphasized the functional properties. Clark emphasized the perceptual attributes. Anglin (1977) proposed that as a child matures, prototypical representations based on an integration of extensive and intensive knowledge are formed. Dale (1976), however, presented the view that semantic and cognitive concepts are developed simultaneously. From these conflicting theories the transformation of a semantic concept into a cognitive concept is obviously complex. It may be, as Beilin (1975) suggested, a two-way mapping: early development characterized by mapping cognitive structures onto language structures and later development characterized by mapping language structures onto cognitive structures.

Underlying all these theories, cognitive and linguistic, is an emphasis on developmental change. Miller (1978) thought that recapitulation is the most suggestive theory from general theories of development. The human mind moves conceptually from a preconscious union with nature to logical reasoning. The evolution of human language follows a similar pattern: instinctive cues to gestures, gestures to vocalization, sequences of vocalizations to grammar, and, finally, an unending expansion of vocabulary. In reading, the developmental sequence may be represented by the capacity to process larger and more complex sources of written material (Doehring, 1976; Gibson & Levin, 1975).

Cromer (1970) described four models of the disabled reader: defect, deficit, disruption, and difference. Cromer defined defect as "nonfunction or dysfunction," deficit as "absence of some function

which must be added before reading can occur," disruption as "something present and interfering," and difference as "mismatch between a typical way of responding and a pattern of responding that will allow for successful reading to occur" (p. 471). The model based on difference can imply that the disabled reader lacks the cognitive skill to perform the age-appropriate reading tasks at the time but eventually will be able to perform them.

Fletcher (1981) developed a model for cognitive development while studying the differences between retarded and nonretarded subjects from the same families and applied the model to developing readers. This model proposes that the sequence of cognitive development is the same but the rate at which an individual progresses through the sequence varies. This implies that there are differences, not deficits, underlying the disabled reader. In contrast, Rourke (1976) argued that disabled readers have a deficit, are lacking the ability, and will not be able to catch up.

Satz, Taylor, Friel, and Fletcher (1978) studied the reading achievement of 114 white males from the time they entered kindergarten until completion of fifth grade. The authors administered neuropsychological and cognitive measures at the beginning of kindergarten, grade two, and grade five. They concluded that sensorimotor-perceptual skills had predictive value for reading achievement in beginning readers (age 5 to 7), whereas verbal-conceptual skills were more predictive for older children (age 10 to 12). The authors used this evidence as support for a developmental-lag, or difference, theory.

Support for the developmental-lag theory also has come from research by Guthrie (1973) and Guthrie and Tyler (1975). Guthrie and Seifert (1977) studied older disabled and younger normal children matched in reading level. They conducted a longitudinal study (grades one, two, and three) of the acquisition of letter-sound correspondence rules in good and poor readers who were matched on reading level. The poor readers' average age was 9.35 years; good readers' average age was 6.3 years. They concluded that both groups acquired the skills in the simple-to-complex progression but disabled readers acquired the rules more slowly.

The assumption that reading disabilities represent a normal variation in the pace of acquiring reading skills for all children is tenuous, however. Levin (1973), using Cromer's definition of deficit-type and difference-type poor readers, found that difference-type poor readers responded to instruction in vocabulary and visual clues whereas deficit-type poor readers did not. Kraus (1973) found that third-grade reading scores could be used as predictors of reading success or failure in subsequent school years. This implies that some children do not catch up.

Also, differences between good and poor readers have shown up on a number of dimensions: visual perception (Vernon, 1971), emotionality (Rabinovitch, 1962), auditory discrimination (Wepman, 1961), and neurological development (Denkla, 1978), which lends credence to the idea that some poor readers do have a deficit. Also, the types of differences between good and poor readers argue against a unitary

theory of reading failure. These differences between good and poor readers have value in specifying the attribute in which a reader is deficient. Once this attribute is discovered, it can perhaps be related to another construct. For example, Liberman and Shankweiler (1976) showed that disabled readers have difficulty with phonemic segments (attributes) which may interfere with short-term memory (processes). If a child's vocabulary is considered an attribute, it may be related to the processes of semantic memory.

Vocabulary

Harris (1969) pointed out that vocabulary size has been found to increase with age. The qualitative differences in children's word knowledge also have been found to change with age (DiVesta & Palermo, 1974; Travers, 1969). The measurement of these differences has involved samples of free speech, asking a child to define a word pronounced by the experimenter; free association, tests in which a child is asked to pronounce as many words as possible in a fixed period of time; or word association tests in which a child is asked to give the first word that comes to mind when presented with a stimulus word. The vocabulary being measured, then, may be a function of the test administered.

In the area of oral vocabulary functioning, the research has centered on the syntagmatic to paradigmatic shift in word association. Syntagmatic responses are those in which a different part of speech is given (deep/hole, black/dog). Paradigmatic responses are those in which the form class of the response matches that of the stimulus; in

other words, the responses is the same part of speech as the stimulus (deep/shallow, black/white). A number of investigators (Brown & Berko, 1960; Entwisle, 1966; Ervin, 1961; Palermo, 1971) have found that a shift from syntagmatic responses to paradigmatic responses occurs sometime within the five- to nine-year-old age range.

In Nelson's (1977) review of the literature on syntagmatic-paradigmatic shift, she reached the following conclusions:

The frequency of syntagmatic and paradigmatic responses is conditioned at least by form class, frequency, and by the particular characteristics of the words sampled. The syntagmatic-paradigmatic shift is observed most dramatically for high frequency adjectives, whereas nouns tend to be paradigmatic at all ages and verbs tend to be more strongly syntagmatic. (p. 109)

Based on this interpretation of the data, Nelson concluded that when the shift does occur, it may be due to a change in the child's conceptual organization and the child's interpretation of the task.

Also relevant to this review are the auxiliary findings regarding definition tasks. Nelson (1977) cited work by Masters (1969), who found a correlation between age and functional definitions for younger children (ages four to nine); Shepard (1970), who found that functional definitions increased with age; and Riegel (1970), who compared oral association responses of children of varying ages, and concluded that older children gave more coordinate, contrast, and similarity responses than younger children. Feifel and Lorge (1950), categorizing the responses of children from 6 to 14 years of age on the Stanford-Binet and WISC vocabulary items, found that younger children give more use-type, description-type, illustration-type, and

demonstration-type responses whereas older children use more synonymic and explanatory responses. These findings have been interpreted as a shift from concrete, functional definitions of words to more abstract classifications of word meaning.

Review of Literature Specific to Design of Project

In learning to read, the child moves from simple decoding processes to processing larger units. We have reviewed the different linguistic attributes that are involved in decoding and comprehension. Decoding involves the use of graphological, phonological, and orthographic processes. Comprehension is generally considered to involve gaining meaning from words. But, regardless of the level, the child must "do something" with the word.

The review has shown that age-dependent relationships exist: Older disabled readers appear to function in ways that are similar to beginning readers in oral and written language patterns. As the child matures, the relationship is not as clear cut; there are a number of compounding variables.

The two major theories to explain inadequacies in reading ability have been the deficit model and the developmental model. The deficit model as described by Cromer (1970) explains poor reading is the absence of an ability which must be added before adequate reading can occur. In contrast, the developmental model as described by many authors postulates that the sequence of development is the same: Children differ in terms of their rate of development. Rourke (1976) has been the chief critic of the developmental theory, arguing that in

later stages of reading disability the evidence supports a deficit model.

The main proponent of the similar-sequence model in reading is Guthrie, who has conducted a number of studies matching older disabled and younger normal children for reading level. Guthrie's assumption is that if rate differs but not sequence, then older disabled readers should show similar cognitive performance patterns to those of younger normal children. In discussing their findings, Guthrie and Seifert (1977) reported that "good and poor readers manifested similar developmental phases" (p. 695). Both groups acquired the rules, but disabled readers acquired the rules more slowly.

Fletcher (1981) criticized the traditional maturational-lag theory on the grounds that there is an absence of evidence of catching-up phenomenon and Guthrie-type studies are likely to distort research results (Guthrie & Seifert, 1977; Guthrie & Tyler, 1975). He proposed comparisons over time because of the age-dependent relationships cited in this review. All the studies reporting the development of word meanings (from concrete to abstract) are also subject to this same criticism, for none of the authors has carried out longitudinal studies. The studies can also be criticized for not adequately differentiating between types of readers, for example, good readers and poor readers.

This study recognizes the usefulness of a longitudinal study and will discuss the relationship between this study and such a study

below. This research will, however, recognize the attempt to describe the level of performance of good and poor readers at particular ages.

The qualitative development of vocabulary has been shown to progress through the following stages: descriptive, functional, and categorical/abstract (Ausubel, 1980). In classifying the responses to the vocabulary subtest of the Stanford-Binet, Feifel and Lorge (1950) found in general that younger children, aged 6 to 9, tend to perceive words as concrete ideas, and older children, aged 10 to 14, tend to emphasize the abstract.

Al-Issa (1969) asked 201 boys aged 5 to 10 to define 30 nouns. He classified their responses and found most responses up to age 10 were functional and that the progression of children's definitions was from concrete/functional to abstract. These findings were replicated in a pencil-and-paper vocabulary test administered by Kruglov (1953). In a more recent study, Russell and Saadeh (1962) administered a four-alternatives definition-recognition test. The four answers were classed as functional, concrete, abstract, and incorrect. The results showed a clear shift from concrete to abstract responses between third and sixth grades.

Perfetti and Lesgold (1978) asked skilled and less-skilled readers (aged 8 and 10) if a word and a category named matched ("Is a dog an animal?"). The less-skilled readers were slower in responding and thus were assumed to be less efficient in processing verbal categories. This implies that less-skilled readers may not have all the semantic information subsumed under a particular category.

Pearson and Johnson (1978) appeared to equate word definition with concept and thus proceeded to develop a taxonomy of concept- (word-) level relations. They categorized synonymous, autonymous, associative, and classificatory relations as simple associations. On the complex associative level, they grouped analogous and connotative-denotative relations. Their final category was ambiguous words, which included multiple meanings, homographs, and homophones. The simple and complex associations were among those reported by Evanechko and Maguire (1972).

Evanechko and Maguire, in reviewing the literature on the development of children's word definitions, derived 24 kinds of logico-semantic relations, ways in which words possess meaning or meaning categories. These categories were grouped into dimensions such as concrete, functional, and abstract. They found that for younger children the concrete dimension was preferred, while for older children the abstract was preferred.

Investigations of children's word-meaning vocabularies have dealt with the qualitative changes of word meaning. Studies by Feifel and Lorge (1950), Kruglov (1953), and Russell and Saadeh (1962) have all shown a shift from concrete, functional definitions to more abstract classifications. Based on these studies and others, Evanechko and Maguire (1972) developed a Semantic Features Test. The test studies the semantic structure of words. It assumes the existence of "semantic space," which is comprised of various semantic dimensions. Thus, a word is related to other words to the extent that they share the same location in semantic space. The authors suggested 24 kinds of

logico-semantic relationships. These relationships are ways in which words possess meaning or categories of meaning, e.g., subordinate as in "fruit-apple" and synonym as in "steal-rob." These 24 kinds of meaning were clustered into a smaller set of four dimensions.

Evanekko and Maguire (1972) tested 286 children in grades 5 and 8. They suggested that younger children's semantic space was oriented toward experience, while older children showed more sophisticated class structures. In a follow-up study by Maguire, Patsula, and Evanekko (1975), 176 fifth-, 196 eighth-, and 198 eleventh-grade students were asked to categorize the different meaning types and then explain the strategy that was used for the categorization. They pointed out the increased sophistication of grouping strategies as a function of age. The authors believed this was consistent with Bruner's position on concept formation: Concepts about word meaning appear to move from a fairly personalized level to a more formal, structural level with age.

This line of research has been criticized from two directions, one theoretical and the other methodological. First, the theoretical position was criticized by Ausubel (1980) because it is based on a mediational theory of meaning. However, even if the theoretical framework of the Semantic Features Test is suspect, the results are consistent with the findings of others and touch upon the logical relationships of words, which are important for comprehension.

Second, Calfee, Chapman, and Venesky (1972) criticized similar research methodologically on the grounds that older children are simply better able to explain their understanding. This may be self-evident,

but the results of Maguire et al. (1975) showed a greater change between fifth and eighth graders than between eighth and eleventh graders. The greater change between fifth and eighth graders coincides with the stage-development theory of Piaget. This age group would be moving into the formal-operations period, whereas the children between the eighth and eleventh grade would theoretically have already made the transition. The change in this older group would be less. Even though the subjects were older, they were not necessarily better at explaining their understanding.

Since this study will be concerned with categories of meaning and dimensions of meaning, I have not dealt with the literature on semantic representations in memory. Semantic representations in memory are the psychological constructs to explain the process by which meaning is stored in long-term memory, whereas categories of meaning and dimensions of meaning are the exteriorized product of these processes. For example, how the word "bird" is represented in memory depends on your theoretical position, but if you ask the child for a definition it may be concrete ("has feathers"), functional ("it flies"), or abstract ("an animal"). My suspicions are that Evanechko's "semantic space" shares certain features with Collins and Quillian's (1969) hierarchical-network theory and with Smith, Shoben, and Rips's (1974) feature-comparison model of semantic memory.

The research describing the development of word meanings has shown the progression from concrete to abstract but has not addressed the difference between different types of readers. Evanechko's test

confirmed the findings of other researchers in this field, but he, too, did not differentiate between students of various reading levels.

In this study, Evanechko's test was administered to both good and poor readers to determine if there is a difference in the progression between the two types of readers, for the theory of maturational lag postulates that the rate varies among children. In working with students, one finds that poor readers appear to need more concrete experiences and concrete definitions, yet the research pointed out the progression for all students with no differentiation as to type of reader. It may be that there is no difference between the types of readers and their progression through levels of word meaning.

These data would also provide evidence for deciding the need of a longitudinal study. If there is no difference between the groups, the maturational theory could be discounted. If there is a difference, a longitudinal study could be undertaken to chart out the age-specific variable of word meanings. Fletcher's (1979) major criticism of reading-related research has been the failure to determine age-dependent variables.

CHAPTER III

METHODS AND PROCEDURES

The design, setting, and sample population are presented in this chapter. A description of the two test instruments follows, with a detailed description of the little-known Semantic Features Test. Also included in this chapter are the hypotheses tested and the procedures used in analyzing the data.

Design

This study used a cross-sectional design. The design was constructed to study the relationships between students' reading achievement and their abstractness and concreteness of word meaning, as well as the relationship between students' reading achievement and their choices of word categories.

It is hypothesized that performance on the Semantic Features Test will vary depending on reading ability. Good readers may attain the abstract notion of word meaning at an earlier stage, whereas poor readers may not attain the abstract level and remain at the concrete level. Also, good readers will differ from poor readers in their preference for certain word categories.

The number of students involved was 177 fifth graders, 288 sixth graders, 285 seventh graders, and 292 eighth graders. All the fifth

and sixth graders at three elementary schools and the seventh and eighth graders at one junior high school participated in the initial testing.

The students were administered the Vocabulary and Comprehension subtests of the Iowa Test of Basic Skills and the Semantic Features Test. If a student was absent during the administration of the Iowa subtests, that student was not included in the study. From this population the sample of good and poor readers was selected.

Setting of the Study

This study was conducted in a midwestern city with roughly 100,000 people. The city consists of five school districts, and all of the elementary schools and the one junior high school in one district were involved. This is primarily a bedroom community without industrial development.

The school population suffered a severe decline over the past five years. In 1978, the total school population, kindergarten through grade twelve, was 6,334. In 1982-83, the time of this study, the kindergarten through grade twelve enrollment was 3,736. The population is white and primarily middle class.

Because of this severe decline in population, the district in 1982-83 consisted of three elementary schools, one junior high school, and one senior high school. The total enrollment was 1,579 elementary students, 783 junior high school students, and 1,374 senior high students. Of these 3,736 students, 265 were certified special education. The elementary schools consisted of grades kindergarten through six,

the junior high consisted of grades seven and eight, with grades nine through twelve at the senior high school level. The district provides special education, vocational education, and Chapter I auxiliary services to the students.

The population for this study was drawn from all three elementary schools and the junior high school. The three elementary schools are similar in student population, racial make-up, and socioeconomic standing. One elementary school has a population of 471 students with 18.5 teachers, another has 503 students with 18.5 teachers, and the other has 605 students with 20 teachers. The elementary-school population of this study was specifically drawn from the fifth and sixth grades. The number of students involved from the three elementary schools was 177 fifth graders and 228 sixth graders.

The junior high school is similar to the elementary schools in terms of racial composition and socioeconomic background. The junior high school is organized into blocks. The blocks are Social Studies/English, Mathematics/Science, and Unified Arts (metals, wood, home economics, and arts and crafts). The students complete their six-hour schedule with a semester of reading and a semester of gym. The staff consisted of ten English/Social Studies teachers, ten Mathematics/Science teachers, four Unified Arts teachers, two reading teachers, and two gym teachers. The 783 students in grades seven and eight were tested for this study.

To conduct this research, an appointment was made with the superintendent of schools, and at that meeting a copy of the proposal

was given to the superintendent. The researcher discussed the proposal with the superintendent page by page. The superintendent requested verification from the university as to the authenticity of the study and that the researcher was being supervised by a member of the Michigan State University faculty. The verification was provided. The superintendent informed the principals of his approval and asked the researcher to explain the research to them. The researcher met individually with each principal. The faculty was informed of the study by memo with the dates and the times of testing.

Selection of Instruments

The two instruments selected for this study were the Iowa Test of Basic Skills (ITBS), Form 7 (1978), and the Semantic Features Test. The following levels of the ITBS were administered: level 11 to grade five, level 12 to grade six, level 13 to grade seven, and level 14 to grade eight. The Semantic Features Test is a 276-item instrument with each item consisting of two words followed by their definition. It was developed by Evanechko and Maguire.

Reading Achievement

The Iowa Test of Basic Skills is a nationally standardized test measuring growth in the fundamental skills: vocabulary, comprehension, the mechanics of writing, study skills, and mathematics. Internal-consistency reliability coefficients for the five main area scores range from .89 to .96.

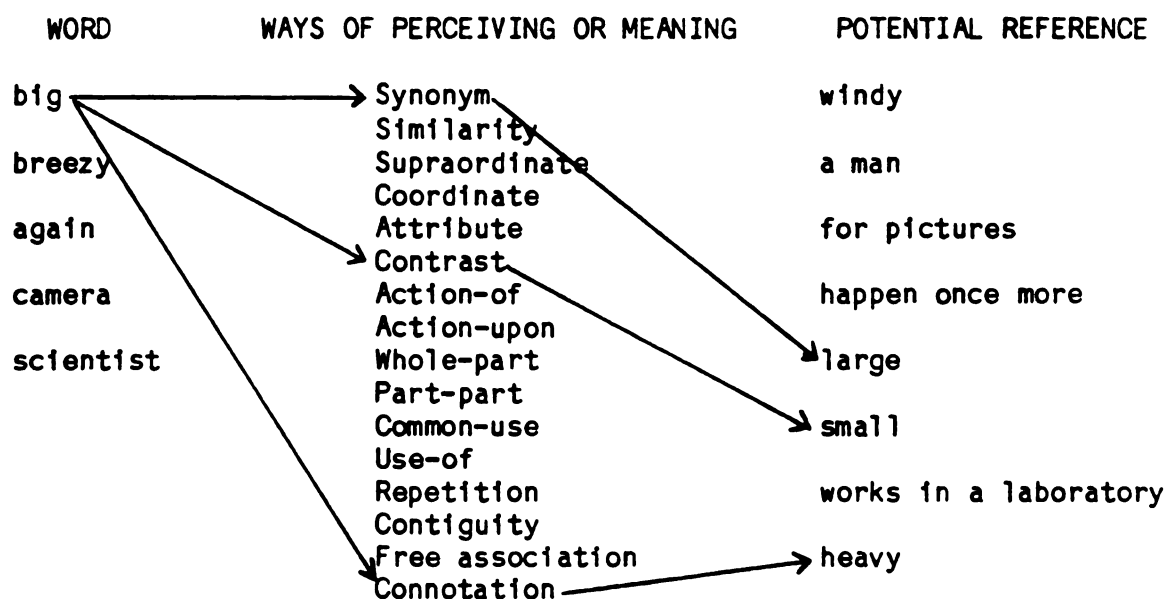
The vocabulary subtest consists of 39 items for level 11, 42 items for level 12, 43 items for level 13, and 44 items for level 14. The vocabulary subtest items are constructed in a multiple-choice format. The stimulus word is presented in a phrase, followed by four item choices.

The comprehension subtest consists of 54 items at level 11, 56 items at level 12, 57 items at level 13, and 58 items at level 14. The student is asked to read a selection and answer multiple-choice test items. Care has been taken in the construction of the test items to include literal meaning, interpretive meaning, and evaluative meaning types of questions.

Word Meanings

The Semantic Features Test was developed by Evanechko and Maguire. The test assumes a stimulus response basis for the association of word meaning and is derived from the Cumulative Learning Model as espoused by Gagne. This view contends that what is learned takes the form of sets of rules which are formed from concepts. The concepts, in turn, are based on prior discrimination such as extent, attribute, and relationship. These discriminations are based on "S-R connections" (Evanechko & Maguire, 1972, p. 508). The second assumption was that categories of meaning, i.e., synonym, supraordinate, and so forth, are formed by the association of significates and symbols. These categories of meaning form the dimension of meaning.

The conceptual model underlying the test is illustrated on the following page (Evanechko & Maguire, 1972, p. 509).



The authors were attempting by the use of this test to describe the "logic-semantic relations which define the semantic spaces of children and to indicate how these spaces change over time" (Evanechko & Maguire, 1972, p. 508). They defined semantic space as the network of relationships which link internal mediating responses; thus the position of a word in the semantic space in effect describes its meaning.

Evanechko and Maguire's survey of the literature produced 24 discrete kinds of logic-semantic relations of children's word definitions. These 24 logic-semantic relations between words and their definitions became the following 24 categories of meaning:

1. Synonym. The members of each word pair have exactly or very nearly the same referent:

e.g. big - large
steal - rob

2. Similarity. The members of each word pair are similar through being aligned on some dimension, with the referent of the right-hand member occupying a more extreme position on this dimension:

e.g. small - tiny
hungry - starving

3. Supraordinate. The left-hand member denotes a common class of which the right-hand concept is a member:

e.g. bird - sparrow
fruit - apple

4. Coordinate. The members of each pair refer to familiar members of a familiar class:

e.g. chair - table
beets - peas

5. Attribute. The right-hand member of each pair refers to a quality or attribute generally recognized as characterizing the object denoted by the left-hand member:

e.g. lemon - sour
turtle - slow

6. Contrast. The members of each word refer to opposite ends of a continuum:

e.g. hard - easy
loud - soft

7. Action-of. The right-hand member of each pair is an intransitive verb denoting concrete action associated with and performed by the agent referred to by the left-hand member:

e.g. dog - bark
baby - cry

8. Action-upon. The left-hand member of each pair is a transitive verb denoting a concrete action associated with and performed upon the object referred to by the right-hand member:

e.g. sweep - floor
throw - ball

9. Whole-part. The right-hand member of each pair refers to a familiar object recognized as important parts of a familiar whole denoted by the left-hand member:

e.g. bird - wing
hand - finger

10. Part-part. The members of each pair refer to familiar objects which are parts of a familiar whole:

e.g. wall - floor
arm - head

11. Common-use. The right-hand member of each pair denotes an object associated with and acted upon by the agent referred to by the left-hand member:

e.g. farmer - tractor
dog - bone

12. Use of. The right-hand member of each unit denotes a use made of the left-hand member:

e.g. orange - you eat it
envelope - you put letters in it

13. Repetition. The right-hand member of each unit is a repetition of the concept referred to by the left-hand member:

e.g. drink - you drink water
tap - you tap on the wall

14. Contiguity. The left-hand member of the unit is defined by direct concrete interaction of place, time, or activity with the right-hand member.

e.g. apple - grows on a tree
late - you can see by the clock

15. Free association. The members of the unit are free associates:

e.g. carry - heavy
enjoy - fun

16. Connotation. The right-hand member of each pair connotes a relationship with the left-hand member:

e.g. royal - strong
modern - good

17. Analysis. The right-hand member is an analysis of the left-hand member indicating certain dimensions of function of this concept:

e.g. rule - having power over people
lengthen - making a thing longer by adding to it

18. Synthesis. The right-hand member defines the left-hand member by stating its relation with other concepts commonly associated with it:

e.g. acorns - from an oak tree
bunk - it has two levels

19. Extension of a class (implication). The right-hand member of the unit gives examples of concepts to which the left-hand member might refer, implying a degree of familiarity with the concept:

e.g. bugs - insects and flies
farming - crops and animals

20. Denotation in context. The left-hand member is defined by use in context:

e.g. sharpen - sharpen the knife till it cuts well
bitten - bitten by a snake

21. Ostensive definition. The right-hand member defines the left-hand member largely on the basis of experience:

e.g. tickle - you make someone laugh
selfish - all for yourself

22. Generic definition. The right-hand member denotes the common class to which the left-hand member belongs:

e.g. kindle - burn
cup - dinnerware

23. Class membership implied. The right-hand phrase attempts to bridge the gap between general and specific by using phrases such as "kind of," "sort of," or "like a":

e.g. cone - like an ice-cream cone
stool - like a chair

24. Intention of a class (genus et differentia). The right-hand member states the class as well as the distinguishing features of the left-hand member:

e.g. sipped - drank a little at a time
notice - see and remember

The authors stated that care was taken to prevent overlap among the categories. Thus each test item was an example of one of the logico-semantic relations. Further care was taken to ensure that nouns, verbs, adjectives, and adverbs were represented among the test items and that, whenever possible, definitions were obtained from lists of children's definitions. The test consists of 276 pairs of items, with no category always first or last.

The Semantic Features Test was chosen for this study for several reasons. One was the completeness of its categories. Most measurements have dealt with a limited number of categories. Kruglov (1954) dealt with the categories of synonym, use and description, and explanation. The categories of Feifel and Lorge (1950) were similar. Thus, the test can be viewed as a synthesis of our current knowledge of the different ways children perceive meaning. The test presented no difficulty in decoding and, being a paper-and-pencil task, allowed for large-group testing across grade levels. Another strength of the test was the use of the various parts of speech. The breakdown was 56 percent nouns, 21 percent verbs, 14 percent adjectives, and 8 percent adverbs. The types of raw data available for analysis were important to this researcher in two areas. The obvious one was that it provided not only the dimensions of meaning, i.e., concrete to abstract, but it provided which types of meaning children preferred at various grade

levels. The other area was in the statistical treatment that could be applied to the data, for multidimensional scaling can be applied to the subjective judgments of the subjects in a quantitative manner.

Content validity of the Semantic Features Test was determined by independent judges. The extent of agreement among judges and between judges "ranged from .80 to .95 on all categories except explanation, which was subsequently dropped" (p. 515). Further, judgment of the suitability of the exemplars as to type of definition was determined by five doctoral students. From this examination, changes were made in the items. Evanechko and Maguire administered the test to fifth, sixth, seventh, and eighth graders. Their results are consistent with other researchers in the area of word definitions. Thus, the test could be said to have face validity and predictive validity.

Sample

All the students in grades five, six, seven, and eight were administered the vocabulary and comprehension subtests of the Iowa Test of Basic Skills and the Semantic Features Test. From this pool of students the sample population was drawn.

The criterion for selection of poor readers was a grade equivalent score of two or more years below their assigned grade level on either the vocabulary subtest or the comprehension subtest of the ITBS. The criterion for selection of good readers was a grade equivalent score of two or more years above their assigned grade level on either the vocabulary subtest or comprehension subtest of the ITBS. The use of

developmental level was important in differentiating the two groups on the developmental continuum. Poor readers would fall at one end of the normal distribution curve, and good readers would fall at the other end of the curve.

Based on the above selection criteria, the study sample was 75 fifth graders, 115 sixth graders, 137 seventh graders, and 158 eighth graders. A further breakdown of this sample by reading level is shown in Table 1.

Table 1.--Grade levels of sample.

Grade	Poor Readers	Good Readers
5	26	49
6	32	83
7	37	98
8	65	93

An analysis of this group by sex is shown in Table 2.

Table 2.--Grade levels and sex of sample.

Grade	Poor Readers		Good Readers	
	Boys	Girls	Boys	Girls
5	12	14	28	21
6	17	15	44	39
7	21	16	51	47
8	28	37	49	44

Collection of Data

The Semantic Features Test was administered to all subjects between January 15, 1983, and February 15, 1983. Seventh- and eighth-grade students who did not complete the test in the two 30-minute periods allotted for the test completed the test during March 1983. The answer sheets of fifth and sixth graders who did not complete the test were discarded.

The test was administered as follows: fifth and grades by an outside examiner and seventh and eighth grades by the researcher. Sufficient time was allowed to complete all items. The directions read to the students can be found in the appendix.

The school district administers the ITBS full battery in November to all fifth and eighth graders. This researcher used those scores for purposes of determining reading level for fifth- and eighth-grade students. The examiner administered the vocabulary and comprehension subtests to the sixth and seventh graders during January and February 1983. Since these tests were timed, those students who were present at the time of testing were included in the study. If they were absent, no attempt was made to make up the ITBS.

The Vocabulary and Comprehension subtests of the Iowa Test of Basic Skills were administered as follows: fifth grade by homeroom teacher, sixth and seventh grades by an outside examiner, and eighth grade by their English teacher. All students were told that the purpose of the tests was to gather statistical data for program formulation at the middle school for the 1983-1984 school year.

Testable Hypotheses

Based on the available literature and past experience, it was hypothesized that there are differences between good and poor readers in two areas: (1) preference for certain categories of word meaning and (2) the progression in word meaning from concrete to abstract.

To investigate these differences between good and poor readers in their preferences for certain categories, the hypotheses were stated in the null form. Statistical procedures appropriate to the null form were used. These procedures determined the probability that the differences found were true differences in the population under study. To investigate the progression from concrete to abstract, a hypothesis was stated for each grade level in terms of organization of meaning categories into dimensions, in order to use the statistical technique of multidimensional scaling in this cross-sectional design study.

The null hypotheses are:

Good readers will not differ significantly in their choice of word categories from poor readers at grade five.

Good readers will not differ significantly in their choice of word categories from poor readers at grade six.

Good readers will not differ significantly in their choice of word categories from poor readers at grade seven.

Good readers will not differ significantly in their choice of word categories from poor readers at grade eight.

Other hypotheses are:

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade five.

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade six.

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade seven.

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade eight.

Statistical Analysis

The analysis of the data took two forms. To find the differences in word category preferences, the data were analyzed using a two-tailed t-test. The data to determine if there was a progression from concreteness to abstractness in word meaning were analyzed using a nonmetric multidimensional scaling program.

To analyze the data for word category preferences, the times a category was chosen over another was calculated for each good reader and poor reader. These data were subjected to a two-tailed t-test to determine if the differences between the groups were significant. A two-tailed test of significance allows for both ends of the curve to be considered. This is important in this study because it permits the researcher to determine the significance between two means in either direction; that is, A greater than B, or B greater than A.

To determine the dimensions of meaning for each grade level, a nonmetric scaling technique was used. This technique was used because proportions can be calculated based on the choices made by the subjects of one category over another. These proportions can then be arranged into a similarities matrix. From this matrix a geometric representation can be created, "such that the distances between the points in the

representation best reproduce the order of the entries in the data matrix" (Torsca, 1976, p. 3).

The above technique attempts to place the categories in specified dimensionality that reflects the similarities between the categories found in the similarities matrix. Similar categories should be closer than those that are not. This then permits the researcher to consider the extremes of the dimensions and attempt to label them. This labeling is a technique proposed by Evanechko and Maguire (1972). They used the categories found in the extremes of each dimension. They labeled them and compared them. This study attempted a similar use of the categories falling in the extremes of the dimensions to determine if there was a progression from concreteness to abstractness in word meaning.

CHAPTER IV

STATISTICAL RESULTS OF THE STUDY

This investigation sought to determine whether good and poor readers differed in the word category preferences and if good and poor readers differed in their dimensions of meaning in grades five through eight. This chapter discusses the statistical results at each grade level regarding category preferences and dimensions of meaning. It was hypothesized that there would be no differences between good and poor readers, at grades five, six, seven, and eight, in their word category preferences. The difference between good readers and poor readers at grades five, six, seven, and eight in their organization of these meaning categories into the concrete or abstract dimensions was also investigated.

Word Category Preferences

The word category preferences for good readers and poor readers are discussed in this section. A description of the data is presented first. Then data are interpreted across grade levels. Results of each hypothesis are presented as follows:

Hypothesis One: Grade Five

Good readers will not differ significantly in their choice of word categories from poor readers at grade five.

Table 3.--Grade five category preferences.

Categories	Poor (n=26)		Good (n=49)		Level of Signif.
	Mean	S.D.	Mean	S.D.	
1	10.577	2.33	14.878	2.59	$p \leq .0001$
24	12.462	2.53	15.633	2.94	$p \leq .0001$
17	12.923	3.50	16.061	3.36	$p \leq .001$
12	13.154	2.92	14.959	2.56	$p \leq .01$
18	11.500	3.65	13.612	2.27	$p \leq .01$
10	10.000	1.87	7.081	3.39	$p \leq .0001$
8	10.000	3.60	6.755	3.07	$p \leq .0001$
16	8.923	3.30	5.898	3.45	$p \leq .001$
9	12.615	3.00	9.918	3.37	$p \leq .001$
3	12.577	2.33	11.102	2.98	$p \leq .05$
6	10.385	3.77	7.795	5.64	$p \leq .05$

The null hypothesis was not supported. Significant differences were found between good and poor readers at grade five.

Description of data. Good readers at grade five preferred the categories of synonym, use-of, analysis, synthesis, and intension of a class. The responses of synonym, synthesis, analysis, and intension of a class can be grouped and labeled conceptual and use-of can be labeled explanatory.

Poor readers at grade five preferred supraordinate, contrast, action-upon, whole-part, part-part, and connotation. The poor readers' preferences showed both concrete-type responses and conceptual-type responses, with supraordinate and contrast being of the conceptual type

and action-upon, whole-part, part-part, and connotation being of the concrete variety. The level of significance between the two types of responses showed a marked preference for concrete-type categories by the poor readers when compared with the good readers at grade five.

Hypothesis Two: Grade Six

Good readers will not differ significantly in their choice of word categories from poor readers at grade six.

Table 4.--Grade six category preferences.

Categories	Poor (n=32)		Good (n=83)		Level of Signif.
	Mean	S.D.	Mean	S.D.	
1	11.313	2.60	13.687	2.95	$p \leq .0001$
24	13.265	3.13	15.843	2.43	$p \leq .0001$
2	10.813	2.50	12.843	2.72	$p \leq .001$
17	15.219	3.79	16.759	2.84	$p \leq .05$
20	14.156	3.70	14.699	3.64	$p \leq .05$
22	9.531	3.43	10.892	3.01	$p \leq .05$
10	8.906	3.10	6.158	3.49	$p \leq .001$
16	7.031	3.78	5.048	3.36	$p \leq .01$

The null hypothesis was not supported. Significant differences were found between good and poor readers at grade six.

Description of data. Good readers at grade six preferred the categories of synonym, similarity, analysis, denotation in context, generic definition, and intension of a class. The categories of

synonym, generic definition, and intension of a class show logical-type responses, while denotation in context, similarity, and analysis are more functional in nature.

Poor readers preferred part-part and connotation categories, which can be labeled concrete. Again, as at grade five, poor readers tended to favor concrete categories when compared with good readers.

Hypothesis Three: Grade Seven

Good readers will not differ significantly in their choice of word categories from poor readers at grade seven.

Table 5.--Grade seven category preferences.

Categories	Poor (n=39)		Good (n=96)		Level of Signif.
	Mean	S.D.	Mean	S.D.	
1	12.487	3.29	15.260	3.26	$p \leq .0001$
22	10.513	2.98	12.781	2.97	$p \leq .0001$
24	14.795	2.73	16.063	2.99	$p \leq .05$
20	12.693	3.61	10.042	4.04	$p \leq .001$
8	8.410	3.05	6.915	3.44	$p \leq .05$

The null hypothesis was not supported. Significant differences were found between good and poor readers at grade seven.

Description of data. Good readers at grade seven preferred the categories of synonym, generic definition, and intension of a class. These categories can be labeled abstract.

Poor readers preferred the categories of action-upon and denotation in context. These categories can be labeled concrete.

Hypothesis Four: Grade Eight

Good readers will not differ significantly in their choice of word categories from poor readers in grade eight.

Table 6.--Grade eight category preferences.

Categories	Poor (n=66)		Good (n=92)		Level of Signif.
	Mean	S.D.	Mean	S.D.	
1	12.439	2.68	15.565	3.01	$p \leq .0001$
12	12.803	2.52	14.543	2.47	$p \leq .0001$
17	13.530	3.10	15.924	3.23	$p \leq .0001$
24	13.045	3.12	15.359	3.02	$p \leq .0001$
23	11.788	2.40	13.500	3.00	$p \leq .001$
22	11.561	2.66	12.500	2.80	$p \leq .05$
8	9.787	2.81	7.826	3.28	$p \leq .0001$
4	10.333	2.81	8.173	2.98	$p \leq .0001$
10	9.272	3.11	7.467	3.49	$p \leq .001$
9	12.636	3.19	11.174	3.18	$p \leq .01$
11	10.485	3.06	8.945	3.14	$p \leq .01$
16	7.787	3.53	6.391	2.80	$p \leq .01$
15	10.591	3.10	9.619	2.35	$p \leq .05$

The null hypothesis was not supported. Significant differences were found between good and poor readers at grade eight.

Description of data. Good readers at grade eight preferred the word categories of synonym, use of, analysis, generic definition, class

membership implied, and intension of a class. The categories of synonym, generic definition, class membership implied, and intension of a class can be labeled abstract, whereas use of and analysis can be labeled functional.

Poor readers preferred the word categories of coordinate, action-upon, whole-part, part-part, common use, free association, and connotation. These categories are primarily concrete.

Interpretation of Data Across Grade Levels

The overall pattern of word category preferences appears to be abstract for good readers. The good readers in all four grades preferred synonym and intension of a class. Examples of these are: synonym (e.g., big-large) and intension of a class (e.g., notice-see and remember). The other categories preferred by good readers showing a classification orientation were: at sixth, denotation in context (e.g., sharpen-sharpen the knife till it cuts well) and generic definition (e.g., kindle-burn); at seventh, generic definition; and at eighth, class membership implied (e.g., stool-like a chair) and generic definition.

The categories of analysis, preferred by good readers in grades five, six, and eight, and synthesis, preferred by good readers in grade five, can be labeled explanatory because the concepts are defined by either a relationship (e.g., acorns-from an oak tree) or a function (e.g., lengthen-make a thing longer by adding to it).

Poor readers showed a different pattern of choices in fifth and eighth grade. The categories of action-upon (e.g., sweep-floor), whole-part (e.g., bird-wing), part-part (e.g., wall-floor), and connotation (e.g., royal-strong), which were preferred by poor readers at grade five, show a more functional level of responses and are more grounded in experience. Other theorists have labeled these categories "perceptual level" of experience. At eighth grade, the additional functional category choices were common use (e.g., farmer-tractor) and free association (e.g., enjoy-fun). Concrete levels of choices for poor readers also appeared in sixth and seventh grade, even though just two categories were preferred at each grade. Sixth-grade poor readers preferred part-part and connotative categories, and seventh graders preferred denotation in context and action-upon categories. Higher-level category choices for poor readers were: at fifth grade, sup ordinate (e.g., bird-sparrow) and contrast (e.g., hard-easy), and at eighth grade, coordinate (e.g., chair-table).

These results can perhaps be attributed to intellectual development. The good readers may have superior intelligence, and poor readers may have lower intelligence; thus, the former will choose the categories that are abstract whereas the latter will choose categories that are functional and/or concrete. Yet the literature in the last few decades has shown that poor readers do appear to have different response patterns from good readers. Guthrie's (1973) research showed older poor readers responding in a similar manner to younger good readers. Wiener and Cromer (1967) also presented evidence that good

readers and poor readers differed in their responses on a number of different measures. Thus, intelligence as a simple cause-and-effect explanation is not sufficient.

. The preferences manifested by good readers could be explained by their better understanding of the language and by the effect of schooling. Evidence exists (Perfetti, 1977) that good readers process semantic information in a different manner from poor readers. Poor-reader preferences can perhaps be attributed to their processing of semantic information at a lower level because it has been demonstrated (Perfetti, 1977) that poor readers are deficient in semantic knowledge. Therefore, they may lack the higher conceptual relations or choose to use those definitions that are grounded in their experience.

Further Studies

Further studies need to be conducted to determine the reading category preferences for students reading at grade level. These results could be compared with poor and good readers to determine if differences exist among the three types of readers. Research is also needed to determine how students move from preferences for concrete-type meaning categories to more abstract meaning categories.

Implications for Teaching

This study dealt primarily with word definitions in semantic space as defined by Osgood et al. (1957), as opposed to cognitive development. Therefore, this study only has implications for the teaching of vocabulary and does not address cognitive style. Based on the results

of this study, teachers would be advised to teach vocabulary with emphasis on the different meanings of words. This would be especially true for poor readers. It would be useful for good readers to have experiences with word meanings other than synonym and class membership because at grades five and eight other categories are equally preferred.

Dimensions of Meaning

In reporting on the hypotheses dealing with dimensions of word meaning, the researcher will present the dimensions by grade and state if the hypothesis was supported or not supported. It is customary to discuss each hypothesis separately at the time of reporting the data, but in order to report the trends across the grade levels, the findings will be discussed at the end of the section.

The nonmetric dimensional scaling procedure used in this study attempted to place the categories into a space of defined dimensionality. The basic requirement is that categories that are seen as similar should be closer than those that are not. The indication of how well this requirement is met is called the stress. As Evanekko and Maguire (1972) stated, "the selection of the number of dimensions is essentially a compromise between trying to get the smallest stress and trying to use the fewest number of dimensions" (p. 516). The dimensions show the relationship of categories to one another in space. The closer the numbers are to .00, the fewer differences there are among categories.

Hypothesis One: Grade Five

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade five.

Table 7.--Projection of categories on dimensions--grade five:
poor readers.

Categories	Dimensions			
	1	2	3	4
1	0.191	-0.016	-0.096	-0.017
2	0.127	0.000	0.059	0.239
3	-0.108	-0.011	0.206	-0.092
4	0.091	-0.141	0.163	0.035
5	-0.183	-0.083	-0.105	-0.079
6	-0.026	0.199	-0.032	0.154
7	-0.066	-0.224	0.012	-0.061
8	-0.225	0.053	-0.015	0.015
9	-0.156	-0.117	0.037	0.057
10	0.033	-0.069	0.137	-0.147
11	-0.127	0.167	-0.099	-0.125
12	0.046	0.038	0.160	0.070
13	0.119	0.176	0.089	-0.023
14	-0.120	0.018	0.060	0.176
15	-0.013	0.019	-0.228	-0.022
16	0.005	-0.023	-0.179	0.014
17	0.036	-0.049	-0.064	-0.236
18	0.109	-0.171	-0.070	-0.089
19	0.073	0.148	-0.080	-0.028
20	0.041	-0.173	-0.030	0.128
21	0.008	0.009	-0.144	0.190
22	0.244	0.016	0.064	0.012
23	0.005	0.071	0.035	-0.184
24	-0.103	0.164	0.120	0.013

Table 8.--Projection of categories on dimensions--grade five:
good readers.

Categories	Dimensions			
	1	2	3	4
1	-0.054	-0.013	0.022	-0.113
2	-0.050	0.100	0.081	0.040
3	-0.044	-0.100	0.088	-0.056
4	0.043	-0.082	-0.038	-0.101
5	0.028	-0.144	0.013	0.045
6	-0.124	-0.039	0.026	0.074
7	0.048	-0.028	-0.015	0.113
8	0.047	0.112	0.022	0.039
9	0.148	0.026	0.056	-0.018
10	0.048	0.009	0.068	0.059
11	-0.043	-0.124	-0.028	-0.014
12	-0.012	0.002	0.089	0.089
13	0.076	0.065	-0.066	-0.079
14	0.121	-0.024	-0.021	0.020
15	-0.005	0.038	-0.112	0.009
16	-0.068	0.008	-0.100	-0.000
17	0.045	-0.020	-0.122	0.019
18	-0.051	0.014	-0.037	0.117
19	-0.044	-0.022	-0.118	0.015
20	-0.022	0.108	0.017	-0.103
21	-0.012	0.023	0.149	-0.021
22	-0.070	0.021	-0.042	-0.006
23	0.063	-0.044	0.053	-0.103
24	-0.109	0.015	0.016	-0.026

The null hypothesis was supported. No dimensions of word meaning were evinced by either good or poor readers.

Hypothesis Two: Grade Six

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade six.

Table 9.--Projection of categories on dimensions--grade six:
poor readers.

Categories	Dimensions			
	1	2	3	4
1	0.097	0.010	0.062	0.021
2	0.117	0.021	-0.028	-0.051
3	0.048	-0.083	0.047	0.050
4	-0.009	-0.099	0.045	-0.012
5	0.023	-0.100	-0.054	-0.052
6	0.052	0.004	-0.011	0.091
7	-0.043	0.068	0.059	0.022
8	-0.102	0.007	0.008	0.030
9	0.001	0.119	-0.026	0.009
10	-0.062	0.029	-0.077	-0.026
11	0.019	0.072	-0.054	0.072
12	-0.108	-0.025	0.009	-0.032
13	-0.064	-0.020	0.096	-0.022
14	0.010	0.105	0.023	-0.054
15	-0.018	0.055	0.005	-0.105
16	0.003	-0.018	0.050	-0.088
17	0.026	-0.004	-0.058	-0.088
18	0.024	0.012	0.106	-0.021
19	0.025	0.019	-0.109	-0.009
20	-0.001	0.024	0.055	0.099
21	0.097	-0.052	-0.001	0.012
22	-0.051	-0.053	-0.084	0.047
23	-0.030	-0.003	-0.018	0.107
24	-0.054	-0.086	-0.047	-0.006

Table 10.--Projection of categories on dimensions--grade six:
good readers.

Categories	Dimensions			
	1	2	3	4
1	0.072	0.065	-0.109	-0.027
2	0.016	-0.135	0.029	-0.013
3	0.132	0.026	-0.027	0.017
4	-0.037	0.071	-0.107	0.016
5	-0.077	0.101	-0.001	-0.035
6	-0.019	0.016	0.023	-0.113
7	0.065	0.061	0.060	0.083
8	0.101	-0.039	0.067	-0.008
9	-0.057	-0.085	0.107	0.045
10	-0.005	0.028	0.111	-0.016
11	-0.131	0.028	0.025	-0.035
12	0.022	-0.043	0.088	-0.050
13	-0.108	-0.037	-0.080	0.032
14	-0.082	0.052	0.073	0.064
15	0.042	-0.002	-0.041	0.107
16	0.032	-0.071	-0.033	0.053
17	-0.026	0.025	-0.019	0.106
18	0.016	0.118	0.006	0.017
19	-0.014	-0.042	0.004	0.119
20	-0.011	-0.038	-0.044	-0.133
21	-0.084	-0.099	0.001	-0.075
22	0.100	-0.009	-0.031	-0.088
23	0.024	-0.054	-0.127	0.005
24	0.029	0.066	0.026	-0.069

The null hypothesis was supported. No dimensions of word meaning were evinced by either good or poor readers at grade six.

Hypothesis Three :Grade Seven

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade seven.

Table 11.--Projection of categories on dimensions--grade seven:
poor readers.

Categories	Dimensions			
	1	2	3	4
1	-0.157	0.050	-0.014	-0.038
2	0.015	0.015	-0.136	0.019
3	-0.008	0.084	-0.056	-0.119
4	0.004	-0.051	-0.012	-0.130
5	0.054	-0.115	0.021	-0.067
6	0.067	-0.063	-0.089	-0.028
7	-0.155	0.044	-0.002	0.007
8	0.047	0.130	0.003	0.032
9	0.006	0.062	-0.119	0.094
10	-0.047	0.136	0.010	0.023
11	0.037	-0.125	-0.079	0.061
12	0.039	0.099	0.001	-0.067
13	0.010	0.063	0.125	0.062
14	0.045	0.008	-0.001	0.142
15	0.013	-0.124	0.094	0.048
16	0.001	-0.006	0.107	0.016
17	-0.080	-0.041	0.060	0.067
18	-0.049	-0.016	0.000	0.144
19	-0.107	-0.096	0.005	-0.011
20	0.150	0.025	-0.043	0.034
21	0.153	0.022	0.045	-0.070
22	-0.032	-0.002	0.115	-0.109
23	-0.070	-0.062	-0.119	-0.060
24	0.064	-0.036	0.085	-0.050

Table 12.--Projection of categories on dimensions--grade seven:
good readers.

Categories	Dimensions			
	1	2	3	4
1	-0.112	-0.001	0.004	0.011
2	0.002	-0.105	-0.012	0.016
3	0.016	-0.036	-0.092	-0.035
4	0.058	0.015	-0.084	-0.032
5	0.024	0.014	0.010	0.095
6	-0.023	0.099	0.008	0.023
7	-0.104	0.023	-0.016	-0.010
8	-0.037	0.037	-0.088	0.006
9	0.006	-0.097	0.011	0.027
10	-0.035	-0.023	-0.016	0.087
11	-0.006	-0.036	0.081	0.076
12	0.024	0.094	-0.032	-0.046
13	-0.023	0.021	0.022	-0.104
14	-0.051	0.016	-0.008	-0.081
15	0.016	0.049	0.083	0.010
16	0.038	0.026	0.053	-0.046
17	0.029	-0.029	0.080	-0.029
18	0.037	-0.048	-0.001	-0.081
19	-0.011	-0.001	0.106	-0.012
20	0.021	-0.014	-0.094	0.070
21	0.109	-0.044	-0.022	0.014
22	0.102	0.045	0.009	0.009
23	-0.082	-0.077	-0.013	-0.035
24	0.005	0.074	0.008	0.067

The null hypothesis was supported. No dimensions of word meaning were evinced by either good or poor readers at grade seven.

Hypothesis Four: Grade Eight

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade eight.

Table 13.--Projections of categories on dimensions--grade eight:
poor readers.

Categories	Dimensions			
	1	2	3	4
1	-0.069	0.095	-0.050	-0.025
2	0.094	0.049	0.021	0.066
3	-0.059	0.039	0.088	-0.072
4	-0.026	-0.123	0.063	-0.011
5	0.031	-0.116	-0.019	-0.037
6	0.052	0.033	-0.094	-0.047
7	-0.044	0.044	-0.046	-0.086
8	-0.013	0.002	0.032	-0.114
9	0.124	-0.035	-0.005	0.032
10	-0.033	-0.063	-0.008	-0.097
11	0.059	-0.113	-0.039	0.040
12	0.102	0.012	-0.041	-0.012
13	0.047	-0.015	0.112	0.025
14	-0.013	0.007	0.120	0.041
15	-0.046	-0.006	-0.002	0.115
16	0.026	-0.003	0.025	0.099
17	-0.129	-0.004	-0.019	0.016
18	-0.077	0.037	0.102	0.012
19	-0.081	-0.045	-0.020	0.076
20	0.029	0.120	-0.004	0.035
21	0.003	0.020	-0.117	0.047
22	0.034	0.134	0.021	-0.032
23	-0.054	-0.033	-0.110	0.032
24	0.042	-0.036	-0.008	-0.102

Table 14.--Projections of categories on dimensions--grade eight:
good readers.

Categories	Dimensions			
	1	2	3	4
1	0.050	-0.023	0.043	0.084
2	0.024	0.070	0.079	-0.015
3	-0.057	0.006	0.111	0.013
4	0.077	-0.008	0.056	-0.088
5	-0.038	0.015	0.039	-0.115
6	-0.001	-0.036	-0.089	-0.057
7	0.027	-0.003	-0.084	0.078
8	-0.022	0.017	0.019	0.128
9	0.102	-0.079	-0.014	0.035
10	-0.027	-0.062	-0.067	0.050
11	0.015	-0.124	-0.042	-0.051
12	0.035	0.097	-0.001	0.065
13	0.046	-0.012	0.131	-0.010
14	0.074	0.056	-0.062	-0.002
15	-0.048	0.111	-0.001	-0.009
16	-0.043	0.096	0.012	-0.022
17	-0.039	-0.082	0.039	0.013
18	-0.134	0.005	-0.005	0.005
19	-0.024	-0.099	0.060	0.003
20	0.038	0.021	-0.046	-0.088
21	-0.076	0.033	-0.052	0.065
22	-0.035	0.046	-0.137	-0.016
23	0.133	0.006	0.017	-0.002
24	-0.079	-0.050	-0.007	-0.066

The null hypothesis was supported. No dimensions of word meaning were evinced by either good or poor readers at grade eight.

Interpretation of Data Regarding Dimensions of Word Meaning

The previous research in this area, as reported by Evanechko and Maguire (1972), found a progression from fifth to eighth grade in the dimensions of children's word meanings from concrete to abstract.

These dimensions were not found in this research, even though the same statistical analysis of nonmetric multidimensional scaling was used. It is thought by this researcher that the main contributing factors were (1) the homogeneity of the population and (2) the preferred categories were similar within the group.

The homogeneity of the population consisted of students who were similar in reading ability. Poor readers at grades five, six, seven, and eight consisted of readers scoring at least two grade levels below their grade placement on either the vocabulary subtest or the comprehension subtest of the ITBS. Good readers at grades five, six, seven, and eight consisted of readers scoring at least two grade levels above grade placement on either the vocabulary subtest or the comprehension subtest of the ITBS. Since these students were at both extremes of the "normal" curve, their performance is usually masked when included in a larger group. Thus, Evanechko and Maguire were able to report a progression from concrete to abstract because their data included the majority of students who make up the center of the curve. To verify this conclusion, it would be necessary to conduct research using as a comparison group those who are reading at grade level.

When one looks at the category preferences of good readers and poor readers, it becomes evident that good readers chose primarily abstract categories and poor readers chose primarily concrete or relational categories at all four grades. Thus, the categories would cluster closely together in each dimension. A look at each of the tables reporting dimensions of word categories verifies this finding.

In Table 5, the furthest point from .000 is .244. In no other table can one find a point from .000 greater than .244. This supports the conclusion that the categories chosen by good readers or poor readers are similar in type. In other words, good readers' category preferences fell primarily in the abstract dimension, while poor readers' category preferences fell primarily in the concrete dimension at all four grades.

Further Research

Educational research in this area has reported a progression in word meaning from concrete to abstract for certain groups of students. Further research needs to be conducted comparing different types of readers. This research would allow us to see what type of reader is making the progression through the various levels, e.g., does the at-level reader progress from concrete to abstract as he moves through the grades? It would be most useful if these studies would be conducted in a longitudinal manner.

Implications for Teaching

This research raises the question of cognitive style. We have assumed that all the readers are progressing through the stages (concrete to abstract) at the same time. This study would suggest there are separate groups reaching stages at different times. Therefore, what is done in the classroom should address these separate cognitive styles. No longer can we assume that teaching more abstract categories

to the good reader or average reader will be of use to the poor reader still using concrete categories. Separate strategies for the poor readers need to be devised, taking into account their word category preferences.

CHAPTER V

SUMMARY AND CONCLUSIONS

The Problem

The research (Al-Issa, 1969; Evanechko & Maguire, 1972; Kruglov, 1970) has presented evidence that children progress through three general stages of word definitions, concrete, functional, and abstract, when there are no differentiations of reading levels. The researcher hypothesized that good and poor readers would show a different progression through these stages. It was also thought that good and poor readers might differ in their word category preferences. The research problem became a series of hypotheses in these two areas.

The first set of hypotheses posited that there are differences between good and poor readers in preferences for certain categories of word meanings. The second set of hypotheses posited that good and poor readers differ in their dimensions of word meaning categories.

Method

The study used a cross-sectional survey design. This design was constructed to study the relationships between students' reading achievement and their abstractness and concreteness of word meaning, as well as the relationship between students' reading achievement and

their choices of word categories. The setting of the study was a middle-class midwestern suburb.

Students in grades five, six, seven, and eight were administered the comprehension and vocabulary subtests of the Iowa Test of Basic Skills to obtain a sample in which good and poor readers would be differentiated. Students who scored two or more grades above grade placement on either of the two subtests were classified as good readers. Students who scored two or more grades below grade placement on either of the two subtests were classified as poor readers. Based on these selection criteria, the following sample was obtained: grade five, 26 poor readers and 49 good readers; grade six, 32 poor readers and 83 good readers; grade seven, 37 poor readers and 98 good readers; and grade eight, 65 poor readers and 93 good readers.

The sample population was administered the Semantic Features Test to determine the abstractness and concreteness of word meaning dimensions, as well as the relationship between their choices of word categories and reading achievement.

The statistical analysis to determine word category preference was a two-tailed t-test, and to determine the dimensions of word meanings a nonmetric multidimensional scaling technique was used.

Findings

Word Category Preferences

Hypothesis One: Grade Five.

Good readers will not differ significantly in their choice of word categories from poor readers at grade five.

Good readers preferred explanatory and abstract categories. Poor readers preferred functional and concrete categories and, to a lesser degree, abstract categories.

Hypothesis Two: Grade Six.

Good readers will not differ significantly in their choice of word categories from poor readers at grade six.

Good readers preferred functional and abstract categories. Poor readers preferred concrete categories.

Hypothesis Three: Grade Seven.

Good readers will not differ significantly in their choice of word categories from poor readers at grade seven.

Good readers preferred functional and abstract categories. Poor readers preferred concrete categories.

Hypothesis Four: Grade Eight.

Good readers will not differ significantly in their choice of word categories from poor readers at grade eight.

Good readers preferred functional and abstract categories. Poor readers preferred concrete categories.

Conclusions. The overall pattern of word category preferences appears to be abstract for good readers at grades five, six, seven, and eight. Poor readers at grades five, six, seven, and eight showed a pattern of concrete word category preferences.

Dimensions of Word Meaning

Hypothesis One: Grade Five.

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade five.

The hypothesis was supported.

Hypothesis Two: Grade Six.

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade six.

The hypothesis was supported.

Hypothesis Three: Grade Seven.

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade seven.

The hypothesis was supported.

Hypothesis Four: Grade Eight.

Good readers will not differ from poor readers in their organization of meaning categories into dimensions at grade eight.

The hypothesis was supported.

There were no dimensions of word meaning differences across grade levels as described by Evanechko and Maguire (1972). The dimensions clustered around $\pm .00$. Due to the homogeneity of the population and the homogeneity of their category preferences, the dimensions did not emerge. The researcher suspects this is due to the masking of these subgroups in the general population as tested by Evanechko and Maguire.

Limitations

A stratified population was required for this study; therefore, a random sample was not used. Also, intelligence was controlled only in that the sample did not have scores below 80 on the verbal section of a group intelligence test.

The Semantic Features Test had face validity, but no reliability measurements were reported by the authors. The 276 items did provide

for test-construction validity because there were 24 examples of each category. Due to the length of the test and testing schedule of the school district, the data were not all collected at the same time. Evanechko and Maguire (1972) argued for the validity of multidimensional scaling as a measurement of dimensions of semantic meaning. However, this technique is controversial. The cross-sectional design used in this research was criticized by Fletcher and Satz (1979). However, prior to this study, there were no data to support a longitudinal study along these lines. Therefore, this study was designed as a first step in establishing the baseline measure for future longitudinal studies. Because of the test's length, an additional issue would have been the use of the Semantic Features Test administered to the same population over a period of years.

Implications

The following section discusses the implications of the findings for further research and for vocabulary instruction. Further research should be conducted along the following lines:

1. determine word category preferences for at-grade-level readers;
2. conduct a longitudinal study of students' reading achievement and how it relates to the progression from concrete to abstract in word meaning.

The data from this study suggest two principal issues of concern to the teacher. First, given that poor readers' category preferences are primarily functional and concrete and that good readers' category

preferences are primarily functional and abstract, actual content should be specific to each reading level. There should be a closer fit between reader category preferences and the content of vocabulary instruction. Too often, words are dealt with at an abstract level without the concrete experiences which are the foundation for the abstractions. With schooling, the student should have vocabulary instruction that builds from the concrete to the abstract. This is particularly true in the content areas with their highly specialized vocabulary. Second, this research addressed the issue of teacher expectations. Teachers have assumed the progression from concrete to abstract to be applicable to all students, regardless of reading level. This research brought into question this assumption. It appears that good readers and poor readers differ in that each group reaches the specific stages at different times. Poor readers may not complete their progress through all the stages by grade eight. Thus, different strategies need to be devised by the teacher which take into account the level of functioning word meaning for each group. Students of various levels of functioning could be placed together so that those functioning at concrete levels could have higher-level functioning modeled for them by students who are operating at abstract levels.

APPENDIX

SEMANTIC FEATURES TEST

Directions to the Student:

This is a test to find out how you look at the meanings of words. You will be given many pairs of statements made up of words and their meanings. These meanings will be of many different kinds. For example, some words will be put together with their opposites, such as "hot - cold." Others will be matched with single words which could take their place, such as "car - automobile." Still others will be described, such as "skill - being able to do something well." There will be many other such statements. You will be asked to rank each pair of statements depending on how well you think the words on the left are described. These pairs are to be ranked by filling in the space on the answer sheet that stands for the word or statement you think is closer in meaning to the word it describes and leaving blank the space that stands for the word or statement you think is not as close. There is no one best way to answer these questions. We simply want to see what you think are the best ways of giving meanings of words. Remember you are to compare the different ways you can give meanings for words. Do not worry whether the word has a complete meaning since each word is described in a different way. Think only of the kind of meaning given for each word and choose the one which is nearer what you think the word means in each pair of statements.

Here is an example of what one ranking might look like:

TEST

1. a. ____ big - large
b. ____ cone - like an ice-cream cone

ANSWER SHEET

1.  ____
b. ____

Be sure to carefully fill in only one space for each question.

1. a. ____ big - large
b. ____ small - tiny
2. a. ____ hungry - starving
b. ____ bird - robin
3. a. ____ fruit - apple
b. ____ chair - table
4. a. ____ beets - peas
b. ____ lemon - sour
5. a. ____ turtle - slow
b. ____ hard - easy
6. a. ____ loud - soft
b. ____ dog - bark
7. a. ____ baby - cry
b. ____ sweep - floor
8. a. ____ throw - ball
b. ____ bird - wing
9. a. ____ hand - finger
b. ____ wall - floor
10. a. ____ arm - head
b. ____ dog - bone
11. a. ____ farmer - tractor
b. ____ orange - for eating
12. a. ____ envelope - for putting letters in
b. ____ drink - a drink of water
13. a. ____ tap - a tap on the wall
b. ____ apple - grows on a tree
14. a. ____ late - you can see by the clock
b. ____ carry - heavy
15. a. ____ enjoy - fun
b. ____ royal - strong
16. a. ____ modern - good
b. ____ rule - to control people
17. a. ____ lengthen - make a thing longer
b. ____ cones - from a pine

18. a. ____ bunk - it has two levels
b. ____ bugs - beetles or flies
19. a. ____ farming - crops and animals
b. ____ sharpen - sharpen the knife till it cuts well
20. a. ____ bitten - bitten by a snake
b. ____ tickle - you make someone laugh
21. a. ____ selfish - all for yourself
b. ____ scorch - burn
22. a. ____ cup - dishes
b. ____ cone - like an ice-cream cone
23. a. ____ stool - a sort of chair
b. ____ sipped - drank a little at a time
24. a. ____ notice - see and remember
b. ____ steal - rob
25. a. ____ equal - same
b. ____ vegetable - carrot
26. a. ____ good - better
b. ____ knife - fork
27. a. ____ industry - factory
b. ____ elephant - heavy
28. a. ____ necklace - earrings
b. ____ wet - dry
29. a. ____ diamonds - expensive
b. ____ hockey player - skate
30. a. ____ unhealthy - well
b. ____ play - piano
31. a. ____ crocodile - swim
b. ____ face - eye
32. a. ____ cat - apple
b. ____ door - window
33. a. ____ book - page
b. ____ cripple - crutch
34. a. ____ hand - leg
b. ____ scissors - for cutting

35. a. ____ student - pencil
b. ____ ring - ring the bell
36. a. ____ shotgun - for shooting
b. ____ stove - found in a kitchen
37. a. ____ approach - approach the door
b. ____ happen - did
38. a. ____ cartoon - found in comics
b. ____ incorrect - bad
39. a. ____ listen - quiet
b. ____ loosen - to make less tight
40. a. ____ immovable - strong
b. ____ community - it has many people
41. a. ____ memorize - learn and remember something
b. ____ seaman - ships and sailing
42. a. ____ fruit - from an orchard
b. ____ enlarge - enlarge the hole with this shovel
43. a. ____ alphabet - A, B, C
b. ____ unfasten - you undo something
44. a. ____ invent - invent a new machine
b. ____ water - liquid
45. a. ____ unlock - when you open the lock
b. ____ boar - a kind of pig
46. a. ____ pork - food
b. ____ advice - helpful information
47. a. ____ refreshments - like something to eat
b. ____ vacant - empty
48. a. ____ album - book for pictures
b. ____ smile - laugh
49. a. ____ active - lively
b. ____ sweater - jacket
50. a. ____ cool - cold
b. ____ flame - hot
51. a. ____ animal - deer
b. ____ hot - cold

52. a. ____ pipe - cigar
b. ____ lion - roar
53. a. ____ whale - large
b. ____ chew - gum
54. a. ____ strong - weak
b. ____ shoe - heel
55. a. ____ rabbit - hop
b. ____ pedal - handlebars
56. a. ____ wash - hands
b. ____ baby - rattle
57. a. ____ tree - branch
b. ____ acid - for eating things away
58. a. ____ collar - sleeve
b. ____ believe - believe in it
59. a. ____ carpenter - nail
b. ____ comma - placed in a sentence
60. a. ____ ankle - for joining foot to leg
b. ____ prepare - ready
61. a. ____ borrow - borrow something from him
b. ____ fantastic - dangerous
62. a. ____ farmhouse - where farmer lives
b. ____ mention - talk to others about something
63. a. ____ sit - down
b. ____ airline - it has passenger planes
64. a. ____ unequal - bad
b. ____ baggage - suitcases and packages
65. a. ____ shortly - happening in a little while
b. ____ shiver - shake and shiver in the cold
66. a. ____ bait - it attracts animals
b. ____ brag - you talk about yourself
67. a. ____ furniture - chairs or tables
b. ____ basketball - game
68. a. ____ beyond - he went beyond the fence
b. ____ arctic - like the north

69. a. ____ convince - you talk a person into believing
b. ____ alphabet - set of letters
70. a. ____ perch - a fish
b. ____ adult - grown up
71. a. ____ bomber - a kind of large airplane
b. ____ damp - wet
72. a. ____ gizzard - bird's second stomach
b. ____ furniture - sofa
73. a. ____ usual - regular
b. ____ icecube - cold
74. a. ____ comfortable - very satisfied
b. ____ tall - short
75. a. ____ building - skyscraper
b. ____ cat - purr
76. a. ____ statue - painting
b. ____ eat - bread
77. a. ____ mouse - small
b. ____ bicycle - wheel
78. a. ____ old - young
b. ____ headlight - brake
79. a. ____ bandit - rob
b. ____ soldier - rifle
80. a. ____ wear - blouse
b. ____ blanket - for covering
81. a. ____ house - window
b. ____ brighten - brighten the color
82. a. ____ foot - knee
b. ____ farmyard - land surrounding a farmhouse
83. a. ____ shoemaker - boots
b. ____ belong - yours
84. a. ____ bumper - for protecting a car
b. ____ certain - good
85. a. ____ beautify - beautify the room
b. ____ amuse - make smile and laugh

86. a. ____ pianist - plays in a band
b. ____ bumper - part of car
87. a. ____ deceive - receive
b. ____ cosmetics - lipstick and powder
88. a. ____ unprotected - weak
b. ____ shrink - shrink it down to size
89. a. ____ arrest - to take prisoner for wrongdoing
b. ____ brave - when you show courage
90. a. ____ stub - part of ticket
b. ____ beetle - insect
91. a. ____ crime - stealing or killing
b. ____ dictionary - sort of a word book
92. a. ____ dock - dock the ship at the pier
b. ____ canal - man-made river
93. a. ____ drift - when you float along
b. ____ troubled - worried
94. a. ____ window - glass
b. ____ bold - very brave
95. a. ____ bulldog - a kind of dog
b. ____ farm - field
96. a. ____ grandparents - parents of parents
b. ____ oats - wheat
97. a. ____ awkward - clumsy
b. ____ deep - shallow
98. a. ____ good - expert
b. ____ hunter - shoot
99. a. ____ fish - salmon
b. ____ blow - harmonica
100. a. ____ pistol - rifle
b. ____ foot - toe
101. a. ____ plains - flat
b. ____ hoof - tail
102. a. ____ early - late
b. ____ pilot - airplanes

103. a. ____ horse - gallop
b. ____ stereo - for playing records
104. a. ____ paint - picture
b. ____ arrange - arrange all the pieces
105. a. ____ flashlight - battery
b. ____ bomb - dropped on targets in battle
106. a. ____ propeller - motor
b. ____ bitter - sour
107. a. ____ doctor - drug
b. ____ great - strong
108. a. ____ bank - for saving money
b. ____ moan - to make a low sound as in pain
109. a. ____ assemble - assemble the parts
b. ____ fishhook - it is attached to a line and rod
110. a. ____ suitcase - found in trains and planes
b. ____ merchant - buys and sells
111. a. ____ bright - light
b. ____ sneak - quietly sneak away
112. a. ____ harmless - soft
b. ____ blast - something which explodes at you
113. a. ____ combine - put things together in groups
b. ____ chisel - tool
114. a. ____ egg - from a chicken
b. ____ globe - like a ball
115. a. ____ romance - love and kisses
b. ____ glance - look at quickly
116. a. ____ soften - pound the piece to soften it
b. ____ breezy - windy
117. a. ____ vanish - you see it disappear
b. ____ trained - highly educated
118. a. ____ giraffe - animal
b. ____ planet - Mars
119. a. ____ elastic - like rubber
b. ____ ring - bracelet

120. a. ____ nostril - opening in the nose
b. ____ skeleton - brittle
121. a. ____ uncooked - raw
b. ____ insect - crawl
122. a. ____ slim - skinny
b. ____ report - news
123. a. ____ science - chemistry
b. ____ eyelid - eyelash
124. a. ____ lantern - flashlight
b. ____ fins - gills
125. a. ____ icebox - cold
b. ____ pupil - scribbler
126. a. ____ serious - funny
b. ____ camera - for taking pictures
127. a. ____ baby-sitter - watch
b. ____ attach - attach the ends together
128. a. ____ shorten - dress
b. ____ electricity - carried by wires
129. a. ____ ship - anchor
b. ____ hard - rock
130. a. ____ window - roof
b. ____ pleasing - soft
131. a. ____ baker - bread
b. ____ murmur - whisper to someone
132. a. ____ galoshes - for wearing on your feet
b. ____ sparkplug - it has to do with the motor
133. a. ____ attract - attract his attention
b. ____ sculpture - statues or stone animals
134. a. ____ scientist - works in a laboratory
b. ____ stolen - stolen by robbers from the bank
135. a. ____ high - up
b. ____ wade - you walk in the water
136. a. ____ playful - good
b. ____ cinnamon - flavoring

137. a. ____ openly - do in plain sight
b. ____ grove - like a small woods
138. a. ____ fuel - it burns in a stove
b. ____ blink - open and close eye quickly
139. a. ____ community - people and homes
b. ____ disgraceful - shameful
140. a. ____ support - it can support the weight
b. ____ jump - leap
141. a. ____ sign - you write your name
b. ____ flavoring - vanilla
142. a. ____ poplar - tree
b. ____ newspaper - magazine
143. a. ____ silvery - like silver
b. ____ peacock - colorful
144. a. ____ doughnut - small cake with hole
b. ____ splendid - awful
145. a. ____ hurriedly - speedily
b. ____ sing - song
146. a. ____ nice looking - beautiful
b. ____ body - belly
147. a. ____ footwear - slipper
b. ____ cup - bowl
148. a. ____ pencil - pen
b. ____ scientist - microscope
149. a. ____ mountain - immovable
b. ____ horse - for riding
150. a. ____ here - there
b. ____ beat - beat the others
151. a. ____ beaver - dive
b. ____ paddle - moves a canoe
152. a. ____ attack - enemy
b. ____ pleasant - happy
153. a. ____ shotgun - trigger
b. ____ disloyal - bad

154. a. ____ yolk - eggshell
b. ____ invent - develop something new
155. a. ____ logger - timber
b. ____ thunderstorm - it brings clouds and rain
156. a. ____ dice - for playing games
b. ____ dairying - milk and butter
157. a. ____ bravely - act bravely
b. ____ surrender - surrender or be caught and killed
158. a. ____ basement - goes under the house
b. ____ interfere - when you get in the way
159. a. ____ slow - turtle
b. ____ hippopotamus - animal
160. a. ____ dishonest - bad
b. ____ liquid - like water
161. a. ____ perform - to act out a part
b. ____ cider - apple juice
162. a. ____ playpen - a baby's toys are found there
b. ____ singly - alone
163. a. ____ motor - gas and oil
b. ____ under - far below
164. a. ____ disobey - don't disobey, do as I say
b. ____ musical instrument - guitar
165. a. ____ eagerly - you act because you like it
b. ____ mosquito - fly
166. a. ____ mosquito - insect
b. ____ mystery - strange
167. a. ____ reflect - sort of give off light
b. ____ upward - downward
168. a. ____ coast - edge of land by an ocean
b. ____ housekeeper - cleans
169. a. ____ surely - definitely
b. ____ eyeglass - lens
170. a. ____ well - perfectly
b. ____ caboose - boxcar

171. a. ____ metal - gold
b. ____ sailor - ship
172. a. ____ scarf - mittens
b. ____ magnet - for picking up iron
173. a. ____ swamp - wet
b. ____ often - too often is too much
174. a. ____ somewhere - nowhere
b. ____ pebble - found lying on the ground
175. a. ____ blade - cut
b. ____ safely - home
176. a. ____ love - friends
b. ____ unafraid - good
177. a. ____ broom - handle
b. ____ practice - do again and again
178. a. ____ lung - heart
b. ____ cookbook - it has many recipes
179. a. ____ waiter - menu
b. ____ jewel - diamond or ruby
180. a. ____ saw - for cutting
b. ____ thicken - thicken the gravy by adding more flour
181. a. ____ quote - quote the words
b. ____ perform - when you do something
182. a. ____ train - runs on rails
b. ____ mushroom - plant
183. a. ____ obey - yes
b. ____ memorize - sort of learn
184. a. ____ unborn - soft
b. ____ brand - special mark
185. a. ____ pretend - make believe that something is real
b. ____ hard - difficult
186. a. ____ musician - he has an instrument
b. ____ gradually - at once
187. a. ____ jewelry - rings and bracelets
b. ____ human - boy

188. a. ____ through - it went through the window
b. ____ comma - period
189. a. ____ upstairs - when you climb the stairs
b. ____ germ - invisible
190. a. ____ pamphlet - book
b. ____ first - last
191. a. ____ lodge - like another home
b. ____ children - play
192. a. ____ aspirin - drug for curing headaches
b. ____ roam - road
193. a. ____ sadly - unhappily
b. ____ burner - oven
194. a. ____ idly - lazily
b. ____ jeweler - ring
195. a. ____ grandparents - grandfather
b. ____ eyeglass - for helping to see better
196. a. ____ red - green
b. ____ mash - mash it down
197. a. ____ cartoon - funny
b. ____ mathematics - working with numbers
198. a. ____ longer - shorter
b. ____ sadly - tear
199. a. ____ pickpocket - steal
b. ____ uncertain - weak
200. a. ____ celebrate - birthday
b. ____ earning - working to make money
201. a. ____ book - chapter
b. ____ shampoo - it has suds
202. a. ____ bulb - switch
b. ____ business - stores and garages
203. a. ____ thinker - ideas
b. ____ trample - crush and trample the grass down
204. a. ____ suitcase - for travelling
b. ____ elect - when you choose by voting

205. a. ____ begin - begin at the beginning
b. ____ moth - insect
206. a. ____ dock - where ship ties up
b. ____ grin - a kind of smile
207. a. ____ usually - quickly
b. ____ beaver - small furred animal
208. a. ____ confess - good
b. ____ again - once more
209. a. ____ refund - return money
b. ____ great - excellent
210. a. ____ education - it needs schools and teachers
b. ____ crowd - man
211. a. ____ juggle - toss and flip
b. ____ oranges - apples
212. a. ____ cheaply - buying cheaply saves money
b. ____ arctic - cold
213. a. ____ wander - you walk here and there
b. ____ excellent - terrible
214. a. ____ apple - fruit
b. ____ cripple - limp
215. a. ____ clam - a kind of shellfish
b. ____ rejoin - group
216. a. ____ bomb - explosive material
b. ____ grain - oats
217. a. ____ whole - complete
b. ____ postmaster - mail
218. a. ____ often - hourly
b. ____ multiplication - for use in arithmetic
219. a. ____ flower - rose
b. ____ blind - a blind person
220. a. ____ breakfast - supper
b. ____ here - in this place
221. a. ____ hail - cold
b. ____ believe - tell

222. a. ____ later - earlier
b. ____ unexpected - good
223. a. ____ borrower - ask
b. ____ order - tell others to obey
224. a. ____ test - skills
b. ____ grain - from fields of crops
225. a. ____ violet - petal
b. ____ appearance - face and clothing
226. a. ____ trigger - barrel
b. ____ attack - soldiers attack the enemy
227. a. ____ plumber - wrench
b. ____ frequently - you do it often
228. a. ____ spool - for winding thread on
b. ____ oyster - shellfish
229. a. ____ blond - a blond girl
b. ____ jigsaw - a kind of puzzle
230. a. ____ iceberg - floats in the ocean
b. ____ bloodhound - breed of dog
231. a. ____ gleam - bright
b. ____ frequently - often
232. a. ____ unclean - bad
b. ____ long - stretched out
233. a. ____ outstanding - important work
b. ____ dog - collie
234. a. ____ knife - it has a blade
b. ____ cap - hat
235. a. ____ flavoring - vanilla and strawberry
b. ____ cliff - rocky
236. a. ____ finally - at last he finally went
b. ____ perfectly - poorly
237. a. ____ completely - you finish your work
b. ____ fire - burn
238. a. ____ daffodil - flower
b. ____ graze - grass

239. a. ____ rodeo - a kind of contest
b. ____ stream - rapids
240. a. ____ whisper - soft sound
b. ____ engine - boxcar
241. a. ____ seldom - not often
b. ____ shingles - for covering a roof
242. a. ____ trot - gallop
b. ____ bloody - a bloody knife
243. a. ____ direction - south
b. ____ branch - where the river divides
244. a. ____ doughnut - muffin
b. ____ crazily - dance
245. a. ____ liquid - wet
b. ____ unexplored - dangerous
246. a. ____ sooner - later
b. ____ quit - to stop
247. a. ____ stream - gurgle
b. ____ cobweb - from a spider
248. a. ____ crack - egg
b. ____ mine - dig and burrow
249. a. ____ envelope - flap
b. ____ forward - moving forward he advanced
250. a. ____ page - cover
b. ____ yawn - you open your mouth sleepily
241. a. ____ Indian - tomahawk
b. ____ submarine - ship
252. a. ____ blotter - for drying ink
b. ____ speedily - sort of quickly
253. a. ____ bold - a bold man
b. ____ garage - a building for cars
254. a. ____ bracelet - hangs at the wrist
b. ____ cheerfully - happily
255. a. ____ swift - fast
b. ____ soon - immediately

256. a. ____ love - good
b. ____ dessert - pie
257. a. ____ roam - to wander about
b. ____ shoes - boots
258. a. ____ iceberg - from a glacier
b. ____ cracker - crisp
259. a. ____ skeleton - bones and skull
b. ____ singly - as a group
260. a. ____ generally - generally it is so
b. ____ dice - roll
261. a. ____ sometimes - you do it now and then
b. ____ bake - bread
262. a. ____ grizzly - bear
b. ____ triangle - angle
263. a. ____ horsefly - sort of a large fly
b. ____ handle - spout
264. a. ____ lullaby - song for putting a baby to sleep
b. ____ banker - money
265. a. ____ gradually - slowly
b. ____ brand-new - a brand-new car
266. a. ____ badly - terribly
b. ____ sliver - sticks in your finger
267. a. ____ game - football
b. ____ thirsty - hungry
268. a. ____ bulldog - husky
b. ____ unkind - hard
269. a. ____ runway - long
b. ____ sufficiently - having done enough
270. a. ____ silently - noisily
b. ____ cider - from apples
271. a. ____ antelope - leap
b. ____ boating - sailing or rowing
272. a. ____ borrow - money
b. ____ boost - boost it up to the top

273. a. _____ album - picture
b. _____ gladly - you do something because you want to
274. a. _____ pocket - button
b. _____ vest - suit
275. a. _____ teacher - chalk
b. _____ opera - a kind of music
276. a. _____ ambulance - for carrying sick people
b. _____ lumber - wood for building

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