VOCABULARY RESPONSE PATTERNS AND PROCESSES OF SEVENTH GRADE STUDENTS

by

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I hereby recommend that this dissertation prepared under my direction by Malcolm Wetherill Wilson

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ABSTRACT

It was the purpose of this study to explore the vocabulary response patterns of seventh grade students, and to note the relationships which exist between their response patterns and their reading achievement and intelligence.

Two hypotheses were tested. The first predicted that there would be no significant differences between the vocabulary response patterns of subjects of higher reading achievement and those of lower reading achievement who belong to the same grade level in school. The second predicted there would be no significant differences between the vocabulary response patterns of subjects of higher intelligence and those of lower intelligence who belong to the same grade level group.

The subjects for this study were selected by a random sample of students entering the seventh grade of the same junior high school in a middle to higher socio-economic suburb of Tucson, Arizona.

The data collecting instruments consisted of a group administered standardized reading test, an individually administered intelligence test, a free-recall response to stimulus words, a multiple choice task using the same stimulus words, a sentence written by the subject with the stimulus word, a meaning

from context task with the stimulus word and introspective-retrospective questioning. All tasks except the reading test were administered during one interview session and tape recorded for verbatim transcription.

The free-recall responses the subjects made in defining the stimulus words were assigned to categories. Comparisons were then made between the vocabulary response patterns of subjects of higher reading achievement and those of lower reading achievement as well as those of higher intelligence and those of lower intelligence. Chi-square was used to establish significance of difference between groups and to find where within the categories the significance occurred.

The remaining tasks were analyzed in a non-statistical manner to determine by reading group and intelligence group how well subjects were able to deal with the tasks involved and to test their awareness of the processes they used.

It was found that higher reading group and higher intelligence group subjects used synonym-antonym and explanation type responses significantly more than subjects in the lower reading and intelligence groups. Lower reading group and intelligence group subjects used grammatical and contextual usage and error type responses significantly more than higher reading and intelligence group subjects. Neither group used description often and no significant differences were found in this category.

The lower reading and intelligence groups had more difficulty with the teaching-testing type tasks than did the higher

reading and intelligence groups. Neither the higher nor the lower groups of both intelligence and reading showed much awareness of the processes by which they acquired word meanings.

The findings of the study supported these conclusions:

1. Children of differing intelligence and differing reading achievement within a grade level demonstrate different group response patterns in a word defining task.
2. Children of lower reading achievement and lower intelligence demonstrate more difficulty in dealing with typical teaching and testing techniques for vocabulary development than do children of higher achievement and intelligence.
3. Few children are aware of the processes by which they acquire word meanings.

The conclusion arrived at in this study suggested the following implication: Teaching materials and methodologies for the development of word meaning might be more closely tailored to the thinking styles of the children with whom they are used by identifying the modal response patterns of children in free-recall responses to the meaning of words, and using the child's preferred style as the vehicle for teaching and testing and as a starting point for helping the child acquire and make use of other, perhaps more effective, styles.

CHAPTER 1

INTRODUCTION

Knowledge of word meaning is considered a prerequisite to the development of skill in reading for meaning, making the development of word meaning an important function of the teaching of reading.

To effectively help children develop knowledge of the meaning of words, teachers need to have available all the objective evidence possible concerning the ways in which such knowledge is required. Knowledge of the ways in which given children operate in the organization, storage, and retrieval of words should greatly benefit teachers in planning for the systematic growth of word meaning. Also important in vocabulary development are effective means of identifying and measuring growth in word meaning.

Need for Study

Much of the research currently available has concentrated on quantitative aspects of vocabulary which lend themselves to measurement by readily available testing procedures. While it is useful to know how many and what words are known by different groups of children, this knowledge contributes more toward the

preparation of textual materials and literature for children than it does toward the teaching of new word meanings. Therefore, new kinds of information regarding children's vocabularies are needed to improve the teaching of vocabulary through modifications of existing procedures and/or the development of new procedures.

Relatively little is known about the qualitative aspects of vocabulary, and yet these aspects may prove to be the most important sources of new information about vocabulary processes of children. What qualitative studies that have been done are few, and they have tended to focus on the qualitative changes or shifts that took place among children of differing age and grade levels. Feifel and Lorge (1950) studied the free-recall responses of children ranging in age from six through fourteen and found that the quality of children's responses changes as they increase in age. Kruglov (1953) found the same qualitative shifts using a multiple choice recognition type test. The limitation of these studies and others which followed the same pattern was that they were only concerned with the shifts which occur along an age continuum, and did not look within the grade or age levels to see what differences might be found among children of differing ability or reading achievement.

A vital concern of all teachers, regardless of content area, is the question of vocabulary development. The close relationship of thought and language makes imperative the development of adequate language facility to cope with the concepts to be

taught. Vygotsky (1962, p. 5) stated that: "There is every reason to suppose that the qualitative distinction between sensation and thought is the presence in the latter of a generalized reflection of reality, which is also the essence of word meaning." Langer (1969, p. 382) approached the problem somewhat more directly and said that, "To improve the reading-thinking process, an adequate association between the vocabulary of a subject and the essential concepts of that subject must be developed."

The extent of teacher concern is perhaps reflected by the multitude of approaches one finds in use in classrooms. It is to be supposed that these methods are intended to be of benefit in developing children's vocabularies. Strickland (1971, p. 152) emphasized the concern, and the kinds of methods used in the following quotation:

> All teachers recognize their responsibility to help students increase their vocabulary. Wide reading, visual aids, study of content fields, oral and written expression, exercises, "word campaigns," and direct teaching are common methods. Firsthand experience and opportunity to talk about it, to supplement it from books and reading and perhaps personal recording through writing or on tape follow logically the child's methods of learning in the preschool years and tend to integrate new words into the child's repertoire so that they are easily retrievable.

One source of information that can help add to the knowledge of how children react to vocabulary is the type of response which reveals the child's present stage of understanding word meanings. Free-recall responses of children fall into this category as they are often quite revealing of the processes which produce them. Adults have often been amused by children's misuse

of words and the misconceptions revealed therein. At the same time, these incidents often provide not only an opportunity for language development, but also insights and guidance as to appropriate methodologies for effecting the desired development.

As mentioned previously, studies of the qualitative response patterns of children have pursued the changes or shifts which occur along age or grade continuums. However, it would appear that knowledge of the qualitative changes and shifts which might occur within given ages or grades among children of differing achievement levels and abilities would be of more immediate benefit to classroom teachers.

It is apparent that teachers, in both the teaching and testing of vocabulary, use a variety of techniques. Some of these traditional procedures have perhaps resulted from adult perceptions of the processes involved, and such assessments may encompass considerable error. It would, therefore, seem important that there be some evidence as to the ability of given children to handle those tasks which are commonly used in teaching and testing vocabulary as well as knowledge of the qualitative changes or shifts which may exist within groups.

Free-recall responses to stimulus words followed by selected ancillary tasks, including introspection and retrospection, should be an effective way of adding to the understanding of the processes by which children acquire, organize, and retrieve word meaning. Such procedures may well provide a suitable means of

gaining the kinds of insights which would allow teachers to do a better job of planning vocabulary instruction. These same patterns, together with the information from the ancillary tasks could also serve as instruments with which to assess growth and change. Without due consideration to both of these phases, planning and assessment, a program of vocabulary development is likely to be less than effective.

Purpose of the Study

It was the purpose of this study to explore the vocabulary response patterns of seventh grade students, and to note the relationships which exist between their response patterns and their reading achievement and intelligence. To this end the following null hypotheses were tested:

1. There are no significant differences between the vocabulary response patterns of subjects of higher reading achievement and those of lower reading achievement who belong to the same grade level in school.
2. There are no significant differences between the vocabulary response patterns of subjects of higher intelligence and those of lower intelligence who belong to the same grade level group.

Limitations of the Study

This study was subject to the following limitations:

1. The extent to which the instruments used in assigning students to groups were reliable and valid measures of intelligence and reading achievement.
2. The reliability and validity of the techniques used to elicit subject responses and to assign those responses to categories.
3. The degree to which the word list used represented an appropriate selection of stimulus words.
4. The limited number of subjects involved, and the single locale from which they were chosen.

Definitions of Terms

The following definitions applied throughout the study:

1. "Intelligence" means that which is tested by Form A of the Peabody Picture Vocabulary Test.
2. "Reading Achievement" means that which is reflected by the total score on Form A of the Nelson Reading Test.
3. The term "qualitative" means the characteristics of depth, use, and richness of response to vocabulary as opposed to "quantitative" which refers to numerical quantities of either number of words known or the frequency of their use.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter reviews quantitative and qualitative studies of vocabulary development and discusses their contributions to understanding the processes by which knowledge of word meaning is acquired and measured. Also included is a brief review of previous uses of introspective and retrospective techniques in reading research, since these techniques were used in a portion of this study.

Quantitative Studies of Vocabulary Development

Most vocabulary studies to date have been quantitative in nature and have dealt with numbers of words known by subjects of various age levels and the frequency of occurrence of these words. Leavell and Marcum (1944) divided frequency studies into six categories and provided examples for each as follows:

1. Words which occur in written materials of children.
2. Words which occur in written materials of adults.
3. Words which occur in printed materials for children.
4. Words which occur in printed materials for adults.
5. Words which occur in spoken language of children.
6. Combinations of some or all of these types of studies.

Although these types of studies give information, with reasonable accuracy, as to which words are used most frequently in the media from which they are drawn, there are some shortcomings to these lists. They do not take into consideration the wide range of variations which may occur within a given age or grade range nor do they assess the extent of understanding which subjects possess about the meanings of the words which comprise the lists. In addition, frequency counts provide no insights into the meanings evoked in the minds of subjects by the words they contain.

Studies of the number of words known by children at various ages and grade levels also reveal shortcomings. One early study (Smith 1926) places the number of words known by a child entering school at 2,800, with increases of about 1,000 words a year through the primary grades and 2,000 through the intermediate. At the other extreme, Seashore (1947) claimed that the child at six years of age will know some 24,000 words and add to his vocabulary at the rate of about 5,000 words per year. Bryan (1953) found somewhat lower numbers than Seashore, but his figures were still higher than other earlier studies with a median size for second grade of 4,080 and a median size for sixth grade of 25,573.

Many of the apparent differences in these estimates of the size of children's vocabularies may be due to the methods used by the investigators, the time element between the studies,

their definitions of vocabulary, the sources of information, and perhaps especially in the differences in the educationally historical period in which they were made. Whatever the reason for such differences the resultant figures offer little help to the teacher concerned with the development of meaning vocabularies and ultimately the ability of children to read for meaning and understanding.

The studies previously mentioned neither focus on nor reveal the quality of response, the number of words known by individual children, or the variations among children of the same age. Also, while both the frequency counts and the estimates of size of vocabularies have been extensively studied and utilized in the preparation of textbooks and vocabulary tests, they have revealed little insight regarding the ways in which individual children develop their knowledge of word meanings and the extent of their understanding of words in their vocabularies.

Watts (1944, p. 31) summarized the shortcomings of both frequency counts and numbers of words known as follows:

> In studying the growth of children in the mastery of the vocabulary of English, we may proceed in two ways: we may consider it as revealed in an increase in the number of words available for spoken or written use, or as a development in the range and quality of the words themselves. Nearly all the research so far done in the field of children's vocabularies has been of the former kind and has been centered in word-counts . . . . Counting words, however, yields evidence only indirectly of the degree to which a language has been learned. It would, indeed, be a poor sort of linguistic research which was based on the assumption that a child who wrote, for example, the sentence "He did not know which

> place he would have to go in the end" has thereby shown by writing thirteen different words that he possessed a fuller vocabulary than another child who, by writing instead "His ultimate destination was uncertain," had limited himself to five. It is clear, therefore, that vocabulary research will have to take into account to an increasing extent the range and quality of the words which children use . . . .

Qualitative Studies of Vocabulary Development

Qualitative knowledge of vocabulary development is important in the consideration of the relationship between language and thought. This relationship has been emphasized by a number of prominent educators (Piaget 1932, 1937, Russell 1956, Vygotsky 1962). Vygotsky (1962, p. 5) stated that:

> There is every reason to suppose that the qualitative distinction between sensation and thought is the presence in the latter of a generalized reflection of reality, which is also the essence of word meaning; and consequently that meaning is an act of thought in the full sense of the term. But at the same time, meaning is an inalienable part of word as such, and thus it belongs in the realm of language as much as in the realm of thought.

It has been established that the language of the child changes qualitatively as well as quantitatively with maturity, and that the quality of a child's associations with different words may be of more importance than the number of words he recognizes superficially (Russell and Saadeh 1962).

One of the first major studies to examine the successive stages in the development of children's knowledge of word meaning through analysis of their unaided responses to vocabulary words was the study by Feifel and Lorge (1950). Nine hundred children

ranging in age from six through fourteen were compared through an analysis of their verbatim responses to the Form L Vocabulary Test of the Revised Stanford-Binet Scale. Five categories for the classification of responses were established and the means and standard deviations for each of the five qualitative categories at each age level were computed. The five categories established by Feifel and Lorge (1950, pp. 4-5) were as follows:

1. Synonym Category

    (a) Synonym unmodified: Orange = a fruit
    (b) Synonym modified by use: Straw = hay that cattle eat
    (c) Synonym modified by description: Gown = long dress
    (d) Synonym modified by use and description: Eyelash = hair over the eye that protects you
    (e) Synonym qualified as to degree: Tap = touch lightly

2. Use, Description, and Use and Description Category

    (a) Use: Orange = you eat it
    (b) Description: Straw = it's yellow
    (c) Use and description: Orange = you eat it and it is round

3. Explanation Category

    (a) Explanation: Priceless = it's worth a lot of money - Skill = being able to do something well

4. Demonstration, Repetition, Illustration, and Inferior Explanation Category

    (a) Demonstration: For words like tap, eyelash, etc.
    (b) Repetition: Puddle = a puddle of water
    (c) Illustration: Priceless = a gem
    (d) Inferior explanation: Scorch = hot

5. Error Category

(a) Incorrect demonstration: Eyelash = points to eyebrow
(b) Misinterpretation: Regard = protects something
(c) Wrong definition: Orange = a vegetable
(d) Clang association: Roar = raw - Skill = skillet
(e) Repetition without explanation: Puddle = puddle
(f) Omits: When the word is left out

The results of this study showed that the quality of children's responses change as they increase in age. As children get older, they use the "synonym" types of response more and more often with the result that it is more frequently used than any other type of definition from age nine and higher. Children at ages six and seven typically gave the "use" and "description" types of response more often. Older children gave these same responses less frequently than in any other category except number four, "demonstration, repetition, illustration, and inferior explanation." "The "explanation" category, number three, was least used of all types of response by the six through nine age groups, but ranked next to the synonym responses for the older age groups. The "demonstration, repetition, illustration, and inferior explanation" type, category number four, did not appear often at any age. The "error" category showed a steady decline in frequency with increase in age.

Further support for the existence and significance of qualitative differences in the knowledge of word meaning among children of different ages was provided by Wolman and Barker

(1965) who used a recall technique similar to that employed by Feifel and Lorge. Familiar and tangible nouns which were not characterized exclusively by a single function or use were presented orally to a group of 117 children ranging in age from four through twelve years. The results revealed a decline in the percent of "use" definitions given as the age of the children increased. Seventy-eight percent of the responses from four-year olds were of this type while only 25 percent of the responses from twelve-year olds were "use" definitions.

These findings approximate those of the Feifel and Lorge study with the exception that only two categories were used--definition by use and definition by basic qualities. No significant sex differences were found on any of the variables and intelligence was found to play a minor role, if any, in influencing the number of words defined by use. Age and number of words known were factors which did seem to correlate with the type of definition given. The transition from "use" definitions to "basic qualities" was found to be gradual with the transition point coming between ages eight and nine.

The Feifel and Lorge (1950) study drew its data from the unaided recall of the children through such questions as "What does ORANGE mean?" and the Wolman and Barker (1965) study used a similar recall approach. However, Kruglov (1953) raised the question as to whether, the range of a child's recognition vocabulary exceeding his recall vocabulary, these same qualitative

differences would be revealed by a multiple-choice, recognition type test in which all the choices were correct, but of different conceptual levels. Would the child, on the multiple-choice test, choose a response typical of a higher conceptual level or choose one characteristic of his own conceptual level, as revealed by answers given in unaided recall. Kruglov was also interested in the practical advantages of using a multiple-choice test with its easier scoring and resultant saving of time.

The Kruglov (1953) study utilized a ten item multiple-choice test constructed with items from the Stanford-Binet Form L Vocabulary Test. Each item was followed by five options carefully chosen to control the vocabulary difficulty and each representative of the verbatim responses to the recall-type items. The test was then administered to children at the third, fifth, seventh, and eighth grades, and to fifteen college graduates. Because the subjects were required to read this test, the lower end of the age range was restricted. The test was administered to a total of 149 subjects. The percent of each type of response chosen at each grade or age level was obtained. These percents were then recomputed on the basis of the total number of correct responses to avoid penalizing the lower age levels for the higher number of "omits" and "errors." The significance of differences between percentages was determined by the critical ratio technique, using a one-tailed test.

When the analysis was based on the total number of responses, the results of the multiple-choice test agreed with those of the recall type test for the "synonym, use and description" category as well as the "demonstration, repetition, illustration, inferior explanation" category. When based only on the correct responses, the results agreed for the "synonym" and the "use and description" categories. While her results did not always result in the same significance as those of the Feifel and Lorge (1950) recall test, Kruglov attributed the difference to the reduced sample size and the limited length and difficulty of the test. Kruglov (1953, p. 242) stated that: "The most significant finding is the fact that even though a definition of a higher conceptual level is presented to the young child, he tends to choose the response characteristic of the lower conceptual level--his own conceptual level."

Russell and Saadeh (1962), in a study growing out of Russell's (1954) earlier study and designed to enlarge upon the Feifel and Lorge (1950) investigation, studied the qualitative levels of response in recognition situations. Categories were developed which were different from those used by Kruglov and related in part to Piaget's (1932) pioneer language study. The following categories were developed: (a) concrete, (b) functional, (c) abstract, and (d) incorrect. The purpose of the Russell and Saadeh study was to discover which of several meanings the child would choose as the "best" meaning--concrete,

functional, or abstract. A multiple-choice test of forty items was used for this purpose. The choices for each item were checked for agreement by two judges. The results indicated ninety-two percent agreement on the choices going in the four categories listed above. The test was then administered to 257 children in three third-grade, three sixth-grade, and three ninth-grade classes in Berkeley, California.

The results of the Berkeley sample were then computed, using the "t" test of the significance of differences of the means between age groups for the three categories--concrete, functional, and abstract. The significant findings were as follows:

1. The sixth graders and the ninth graders chose fewer concrete definitions as "best," the differences between sixth and third, and ninth and sixth grades were significant at the 0.01 level.
2. The mean number of errors decreased as the grade level increased.
3. The number of functional definitions chosen as best increased significantly from grade three through grade nine with significant differences found between the third grade and the sixth grade.
4. The number of abstract definitions chosen as best increased significantly from grade three through grade nine

with differences between grade levels being significant at the 0.01 level.

The investigators in this study were critical of their own procedures on two points. First, the test used placed a heavy reliance upon the form of the response, and therefore the differences obtained might be a function of the wording of the responses rather than the nature of the word or its definitions. Their second point indicated a reservation that a test of qualitative responses could reflect mental ability as much as knowledge of word meaning. In spite of these reservations by the investigators, the study did establish once again that qualitative differences in children's knowledge of word meaning exist and that they can be measured by recognition-type tasks in addition to the already established recall techniques.

While both previous types of study, recall and recognition, gave evidence of qualitative differences, Hurlburt (1954) compared recall-completion and multiple-choice recognition tests as measures of word meaning and found that they appeared to have only a limited number of factors in common. He also found that achievement on either test form cannot be used to predict achievement on the other with any certainty. Hurlburt further stated that it was possible that both recognition and recall types of responses were necessary to adequately measure vocabulary ability.

Introspective and Retrospective Techniques in Reading Research

Several studies of the reading process have utilized introspective and retrospective techniques thus establishing these techniques as useful procedures in reading research. Reading patterns and interests of adolescent and adult readers were investigated by Strang (1942) using introspective and retrospective techniques. Piekarz (1954) explored the reading processes of twenty-two sixth graders by asking them to verbalize their thoughts and feelings concerning a reading selection on child-parent relationships. Jenkinson (1957) used the cloze procedure as a stimulus for introspection with twenty-two high school students from the tenth, eleventh, and twelfth grades to gain insights about the processes they used in reading. More recently, Rogers (1965) explored the reading processes of above average eleventh graders in reading short stories.

Summary

The preceding investigations have illustrated the shift that has taken place from quantitative assessments of vocabulary development at different age levels toward an assessment of the quality of the meanings attached to the words known and the qualitative shifts that occur at different age or grade levels. It has been established that there are measurable qualitative differences that exist between members of different age groups, that

they can be measured by either recall or recognition tests, and that a combination of both measures would probably be best.

The qualitative studies have shown that children consistently utilize responses indicative of the same level of cognitive development whether questioned by recall or recognition type techniques. In addition, prominent educators have suggested that language may be a reflection of thought. By extension, it may be that language, seen as a reflection of thought, also serves as an indicator of the cognitive style of the user.

Both the quantitative measures, numbers of words known and frequency of occurrence, and the qualitative measures of word meaning knowledge focused on differences that occurred at different age or grade levels, and on what was typical of a given age without examination of the variations within a given age or grade level. It is on these variations that occur within a given grade level that the present study focused in the belief that the response patterns of children are not only useful in grouping them as equivalent to given grade or age norms, but are also, as reflections of thought, useful guides to the style of thinking that is typical of the child being tested.

It has been established that introspective and retrospective techniques can be used effectively as a means of gaining insights into the processes used by readers.

CHAPTER 3

METHOD OF STUDY

This chapter describes the subjects of the study, the way in which they were selected, and the ways in which they were assigned to groups to allow identification of vocabulary response pattern differences between higher and lower intelligence groups and higher and lower reading groups.

The selection of stimulus words for the study is discussed and a detailed description of the step-by-step procedures for the administration of the free response use of the stimulus words is provided. Also included is a description of the ancillary tasks including introspective and retrospective questioning which were included to aid understanding of the free response performances of the subjects in regard to the basic hypotheses of the study.

Finally, the procedure for categorization of vocabulary responses is explained and the procedures for analysis of data are described together with the rationale for their use.

The Subjects

A total of fifty subjects was selected for the study by drawing names at random from the total list of students entering

the seventh grade of the same junior high school. From the original fifty subjects selected randomly, forty-two were finally used in the investigation. Of the eight deleted, two were dropped because of inaudible portions of their tapes and the remaining six because they moved before complete data could be collected.

All subjects participating in the study had completed the sixth grade of school in one of the feeder elementary schools of a largely middle to higher socio-economic area of Tucson, Arizona, and fell into an age range of 11 years 8 months to 13 years 7 months. The mean age of the group was 12 years 3 months. There were twenty-nine boys and thirteen girls included in the study.

Since a major portion of this study was concerned with discovering relationships between individual vocabulary response patterns and the intelligence and reading achievement of the subjects, it was necessary to have sufficient information available to classify each subject according to reading achievement and intelligence.

Reading

To establish the reading achievement level, the Nelson Reading Test, grades 3-9, was used. This test was part of the regular testing program of the school attended by the subjects and the scores used were obtained from the school records. The Nelson Reading Test was administered between one and two months

after the other tests were administered. Reading achievement of the subjects ranged from a high of 97th percentile to a low of 4th percentile as measured by total scores on the Nelson Reading Test.

The subjects were divided into two groups based on their reading achievement. The first group was called the "higher reading group" and was composed of twenty-three subjects, sixteen boys and seven girls, who had achieved a percentile score of 63 or above on the Nelson Reading Test. The second group, called the "lower reading group," contained nineteen subjects, thirteen boys and six girls, whose reading achievement scores fell below the 63rd percentile on the Nelson Reading Test. The 63rd percentile represents a grade equivalent score of approximately 8.5 or 1.5 years above the actual grade placement of the subjects. The 1.5 year above grade placement dividing point was selected to insure that the higher reading group contained only those subjects who could be assumed to have a reading achievement well beyond the expected norm for their school grade placement.

Intelligence

Because of its ease of administration and non-threatening format, the Peabody Picture Vocabulary Test was chosen as a means of obtaining a measure of intelligence on the subjects. It was administered by the examiner as the initial step of each subject interview. The range of intelligence quotients was from 82 to 150 with a mean intelligence of 113.

The subjects were divided into two groups based on their intelligence quotients as derived from the Peabody Test. The first group, called the "higher intelligence" group, was composed of nineteen subjects, seventeen boys and two girls, whose intelligence quotients placed them in the rapid and very rapid learner categories of the Peabody Picture Vocabulary Test. The second group, called the "lower intelligence" group, was composed of the twenty-three subjects, twelve boys and eleven girls, whose intelligence quotients placed them in the average and slow learner classifications of the Peabody Picture Vocabulary Test. According to the Peabody classification system: very rapid learners are those whose IQ's are 125 and above; rapid learners have an IQ range of 110 to 124; average learners have an IQ range of 90 to 109; and slow learners are those whose IQ ranges from 75 to 89.

Vocabulary Response Instruments

The major portion of this study concerns the identification of response patterns of individual subjects to vocabulary words presented to them and the differences which may occur between the responses of the different groups of the subjects. To accomplish this end the testing procedures involved the use of free response to stimulus words; a multiple choice check on the free response; subject composed sentences using the stimulus words; and responses to sentences using the stimulus word within a given context.

Stimulus Words

To identify vocabulary response patterns of the subjects it was necessary to develop a list of words which met two criteria. First the words would need to be within the range of words of which subjects entering the seventh grade could reasonably be expected to have some understanding. Secondly the words should hopefully be arranged to ascending order of difficulty, thus providing a challenge at the higher levels of performance while at the same time allowing some words with which all subjects would be familiar.

List 3 of the word lists which comprise a part of the Diagnostic Reading Scales (Spache 1963) was chosen as an appropriate list to meet the specified criteria. From List 3, every other word was selected starting with the first. This reduced the number of words used from forty to twenty, a move necessitated by the considerable amount of time needed for the subject to complete the tasks associated with each word. List 3 is graded in difficulty and, according to the manual for the Diagnostic Reading Scales (Spache 1963, pp. 13-14), is probably most appropriate for fourth to sixth grade students. Approximate grade placement for List 3 when used for pretest indication of reading level is from 3.8 to 6.5. Thus the criteria for this study were met by the use of this word recognition list.

Previous related studies of vocabulary response patterns had used only tangible nouns. It was decided, however, that in

this study, no attempt would be made to impose such a restriction upon the words used in order to see if words representing a variety of functions would produce vocabulary response patterns which would discriminate between identifiable groups of subjects. Also, if the patterns of response produced are indicative of the thought patterns in operation, one would want to know the pattern for a wider spectrum of word types than simply the tangible noun group.

Procedure for Administration of Stimulus Words

Each stimulus word was typed on a 3 x 5 inch card and shown to each subject. The subject was then asked, "What does this word mean?" The verbatim response of each subject to each stimulus word was tape recorded and later transcribed.

As an additional check on the free-response aspect of the study, each of the typed stimulus words was pronounced orally by the examiner to see if there were any additions or alterations to the previous response. This was done for all words with all subjects regardless of the original response. Inclusion of this step was used to avoid errors arising from an incorrect reading of the stimulus word by a subject, or the inability of the subject to recognize the word in its printed form.

Multiple Choice Procedures

Following the free response phase for each word, the subject was presented with another 3 x 5 inch card containing

the same stimulus word plus four choices of meanings. The subject was asked to choose the alternative which he felt to be the best definition of the stimulus word.

In order to devise definitions and detractors which were stated in language typical of the subjects in the study, the stimulus words were presented in a pilot study to sixty-eight end-of-6th-grade students with instructions that they were to write what they thought the words meant. From this list of verbatim responses, four alternatives were selected for each of the stimulus words.

The set of alternatives for each stimulus word contained at least one, but not more than two choices which represented responses falling within the error category. In selecting the error alternatives, the most commonly occurring errors made on each stimulus word by the pilot group were those chosen.

Alternatives other than the errors were chosen from the more frequently given correct choices among the pilot group. It was the original intent that the multiple choice test would indicate the extent to which the subject's recognition vocabulary paralleled his recall vocabulary in terms of response categories utilized. However, examination of the responses of the 6th grade pilot group indicated that for certain stimulus words, only one or two of the five categories used to classify the full list of words were actually used by the pilot group subjects.

It was, therefore, decided to somewhat alter the function of the multiple choice portion of the study. Instead of serving only as a direct comparison of response category used for free recall and response category chosen for multiple choice recognition, it would be used for two purposes. First, and closely related to the original intent, in those circumstances where a subject was provided with an alternative of the same category as that given on free response plus other choices including the error category, the item would be checked to see if the subject selected a response which was of the same category as the free response. Secondly, for those subjects who were unable to provide any response to the free response stimulus, the multiple choice would serve as a follow-up check in a recognition situation. For example, it would be possible to identify subjects who were unable to produce a correct response in either the free recall or the recognition, and this information would be useful in analyzing the subject's use of context during a later step in the interview. (See Appendix A for Multiple Choice Test.)

Subject Sentences

In addition to the free response and multiple choice tasks, each subject was asked to write a sentence using the stimulus word then read the sentence orally to determine if there were grasp of the meaning of the stimulus word sufficient to allow the subject to use it correctly in context.

Use of Context Clues

After the subject had written a sentence of his own with the stimulus word, he was presented with another 3 x 5 inch card upon which was typed a sentence using the stimulus word. These sentences were composed by the investigator and each presented the stimulus word in a context which could be used to derive a meaning for that stimulus word. For example: thoughtfulness--carefully cleaning his shoes before entering the house was typical of Fred's thoughtfulness. (See Appendix B for complete test.)

In nine of the twenty sentences produced the stimulus word was used in a context calling for a meaning which was unusual or different from the usage commonly employed by the pilot group. This was done to see if the subjects persisted in previous meanings or were able to shift to the new meanings. The use of this context task was also intended to identify those subjects who, having failed to achieve a correct response on any previous task, were able to make use of context to discover the meaning of the stimulus word.

Introspective and
Retrospective Questioning

Introspective and retrospective questioning techniques were used to try to identify the processes used by the subjects in arriving at their understandings of the meanings of words used in the study. These questions followed the subject's completion

of the context usage portion of the different tasks associated with each stimulus word.

The examiner questioned each subject about the responses given. The first question was usually, "How did you know what _____ meant?" This question was followed by questions such as "On the first response you said that _____ meant _____. How did you happen to remember that?" Then, depending upon the responses provided, the examiner might retrace the response pattern for any given word and question further in a sequence such as: "When I first showed you the word, you said it meant _____, then on the multiple choice question you chose a different answer, _____. Why was that?" Or, "What made you change your mind?" Finally, the subject was asked to try to recall how he acquired the meaning of each stimulus word. (See Appendix C for a Sample Protocol.)

Procedures for Analysis of Data

Classification of Responses

In addition to selecting stimulus words, a scheme had to be developed which would provide a basis for classification of the subject's free responses into response categories. Examination of the written responses of the sixty-eight pilot group students whose grade placement was the same on the subjects in the main study resulted in the development of five categories for the classification of the responses in the main study.

The categories developed for the classification of the free responses were as follows:

Category I Synonym-Antonym

The set of all definitions which:

a. contain a correct synonym for the stimulus word
e.g.: canary - a songbird

b. contain a correct synonym for the stimulus word plus modifying statements
e.g.: canary - a yellow colored songbird

c. contain a correct antonym
e.g.: it is the opposite of . . . .

Category II Description

The set of all definitions which:

a. describe usage or function
e.g.: wrenches - things used to loosen bolts

b. describe appearance
e.g.: shingle - a thin piece of wood

c. describe both appearance and usage or function
e.g.: single - a thin piece of wood used to form part of a roof

Category III Explanation

The set of all definitions which:

a. explain by showing the relationship of the word to an action
e.g.: broadcast - talk over the radio or something

b. explain by showing the relationship of the word to a situation
e.g.: thoughtfulness - when you are buying somebody a present and they don't know about it

c. explain by comparison with something else - including analogies
e.g.: cargo - like refrigerators and stoves or things you would put on a train and take somewhere

Category IV Grammatical and Contextual Usage

The set of all definitions which:

a. are statements containing correct grammatical and correct contextual usage of the word
e.g.: practice - it means when a boy is going out for football and he has to practice all day

b. are statements containing incorrect grammatical usage, but correct contextual usage
e.g.: delayed - it means when you are supposed to be somewhere and you have car trouble and delay getting there

Category V Error

The set of all definitions which are in error.

Category I, Synonym-Antonym, was developed by modification of the "Synonym" category (Category 1) of the Feifel and Lorge (1950) study. The modifications made were used to accommodate the inclusion of words other than the tangible nouns which were used by Feifel and Lorge. The changes which were made were the addition of an antonym element and the deletion of the synonym modified by description. Descriptions occurred with enough frequency in this pilot sample to indicate the need for a separate category, and the antonym element was considered as being of the same nature as the synonym in terms of processes used in its production.

Category II, Description, evolved as a modification of another Feifel and Lorge category--the "Use, Description and Use and Description" category (Category 2). In this instance the

changes were used to clarify the parameters of the category and to allow inclusion of examples from the pilot study's responses.

Category III, Explanation, is an elaboration of the Feifel and Lorge "Explanation" category and details the conditions which must be met in order for a response to qualify for inclusion. Again, the modifications were made in order to accommodate the non-noun words which were used in this study.

Category IV, Grammatical and Contextual Usage, was a new category developed to encompass those responses in which either the stimulus word was used in such a way as to indicate that the subject had enough knowledge of the word's meaning to make use of it in a sentence which reflected that knowledge.

Category V was developed as an error category to take care of all the responses which did not give an indication of any knowledge of the meaning of the stimulus word. Also included in this category were those instances of no response on the subject's response of "I don't know."

Procedures for Classification of the Free Responses

The investigator examined the transcribed verbatim responses of each subject to the stimulus words and placed each response in the one category out of the five described earlier which seemed to provide the best fit. To determine the reliability of the placement of the responses into categories a judge, after training in the use of the category system, was asked to

examine the 840 responses and, using the categories provided, independently place each response in the category which it best fit. The judge and the investigator agreed on all but 118 of the responses for a percentage of agreement of 85.9. In each instance of disagreement, the categorization used for the study was that of the investigator.

When each free response had been categorized, tables were set up for the quantification of responses. The first table grouped the subjects according to intelligence. Opposite the number representing each subject was recorded the number of responses that subject made which fell into each of the five categories. The other table grouped the subjects according to reading achievement. As with the grouping by intelligence, the number of responses a subject made in each category was recorded opposite the number representing the subject.

From the tables the data were translated into chi-square contingency tables. Chi-square was chosen as the most appropriate statistical instrument for evaluating two or more differences at the same time when the data are expressed in frequencies and no assumptions are being made about the shape of the parameter distribution. Downie and Heath (1965, pp. 160-161) have demonstrated the use of chi-square in testing null hypotheses of no significant differences between or among responses of individuals in two or more groups. In this instance, the two hypotheses to be listed are the null hypotheses that: (1) reading

achievement and responses given in the five categories are essentially unrelated or independent; and (2) intelligence and responses given in the five categories are essentially unrelated or independent.

Chi-square and degrees of freedom were calculated for each contingency table and then compared with a chi-square table (Garrett 1965, p. 450) to determine the degree of significance.

To ascertain where within the two original contingency tables the significance occurred, five 2 x 2 fold contingency tables were formed for each of the original tables. In each of the 2 x 2 fold tables the first column was made the category in question and the second column the sum of the other categories. Use of the chi-square procedure in this manner is described by Downie and Heath (1965, p. 170) and is appropriate only in instances where the overall chi-square was found to be significant. For all the statistical tests the .05 level of confidence was chosen for determining significance.

Procedures for Analysis of Ancillary Tasks

To analyze the multiple choice task according to the rationale previously described, a record sheet for each subject was developed listing the stimulus words, the category of the free response made for each stimulus word on the list, and the response chosen on each multiple choice task by each subject. In addition, the categories of response possible for each

multiple choice task were recorded so that it was possible to determine if the subject had been offered a multiple choice response which matched the category given for free response. The results of this analysis were then compared for the two reading groups and the two intelligence groups.

The subject sentences were recorded according to reading groups and intelligence groups and then analyzed to determine if the context provided was syntactically correct and semantically correct. Comparisons were then made between the reading groups and the intelligence groups.

The ability of the subjects to use context effectively was determined by recording the responses of the subjects according to reading and intelligence groups. It was then determined which subjects were: (1) able to derive an appropriate meaning from context after previously having failed to arrive at a correct meaning from either the free response or the multiple choice tasks, and (2) able to arrive at a correct meaning of the stimulus words in those nine instances where they were used in a context calling for meanings which were unusual or different from common usage.

Information from introspective and retrospective questioning was recorded according to reading groups and intelligence groups to allow comparison of awareness of process between subjects in sub groups of the two major classifications.

Analysis of these ancillary tasks was in keeping with the purposes described previously and while the information was quantified where possible, it was not statistically treated but was used as secondary information relative to the major hypotheses for purposes of interpretation.

CHAPTER 4

FINDINGS OF THE STUDY

This chapter contains the findings relative to each of the two major hypotheses of the study and provides interpretations of the results.

Findings Regarding Vocabulary Response Differences by Reading Groups

Previous studies have shown that children of differing chronological ages produce significantly different patterns of response when presented with stimuli words in a free-recall response situation, and certain of these patterns have been identified as being typical of children of given chronological age groupings. These previous studies left unresolved, however, the question of whether similar differences in response pattern might be found among children of the same age group or grade level who differed in their reading achievement and intelligence. Hypothesis 1 approaches this question in regard to children of the same grade level who are grouped according to differing levels of reading achievement. The following null hypothesis was tested: There will be no significant differences between the vocabulary response patterns of subjects of higher reading achievement and

those of lower reading achievement who belong to the same grade level group.

The data relevant to this hypothesis are contained in Table 1. Statistical treatment of data on the response patterns of higher reading group subjects versus lower reading group subjects yielded a chi-square of 35.92 which was significant at the .001 level. Thus the null hypothesis was rejected and significant differences were found to exist between the higher and lower reading groups.

Further tests to discover where among the five categories the significance occurred (see Table 2) showed that one category was significant at the .001 level, two were significant at the .01 level, and one was not significant.

The highest level of significance was found in category IV, grammatical and contextual usage. Subjects in the lower reading group defined significantly more words by using the word or a form of it in sentences where knowledge of meaning was indicated by grammatical function and context than did subjects from the higher reading group. This seems to suggest that while less able readers may recognize the way in which given words operate in context, and may possess some understanding of the meanings of those words, they do not have available as many options for response and thus as rich an understanding of meaning as do those in the higher reading group.

Table 1. Frequency of Free-Recall Vocabulary Responses by Category Type for Higher and Lower Reading Groups

Reading Achievement Group	Response Category I Synonym-Antonym	II Description	III Explanation	IV Grammatical and Contextual Usage	V Error
Higher Reading Group	131	27	200	42	60
Lower Reading Group	77	15	133	76	79

Table 2. Chi-Square Analysis of Differences Within Category Type of Free-Recall Responses for Higher and Lower Reading Groups

Category		Chi-Square Value	Significance Level
I.	Synonym-Antonym	7.54	.01
II.	Description	1.62	Not significant
III.	Explanation	6.25	.02
IV.	Grammatical and Contextual Usage	20.36	.001
V.	Error	9.04	.01

Further support of this supposition that better readers possess a qualitatively richer vocabulary in a recall situation is provided by the data obtained for category I, synonym-antonym, for it was found that higher reading group subjects used significantly more synonym-antonym type responses than did subjects in the lower reading group. Category III, explanation, was also significant with subjects in the higher reading group producing more explanation type responses than subjects in the lower reading group. Again, this suggests, together with categories IV and I, the availability of a wider range of response options among the higher reading group, and a deeper level of understanding of the meanings of the stimulus words.

Category V, the error response category, also showed significance at the .01 level. In this instance the lower reading

group produced more errors than did the higher reading group, suggesting that lower reading group subjects possess a quantitatively weaker vocabulary as well as a qualitatively weaker vocabulary.

Category II, description, was the least used response category for both reading groups, and no significant differences between the groups were found for this category. Apparently subjects in both reading groups use the description type of response with approximately the same frequency with neither group making much use of this means of defining words.

Multiple Choice Task

In the comparison of consistency of responses between the higher reading group and the lower reading group, it was found that the higher reading group chose multiple choice responses of the same type as their free response to the stimulus words in 53.5 percent of the 355 opportunities which occurred. With the lower group there were 258 opportunities for matching responses and a 50 percent occurrence of matching response types. There was not enough difference found in the performance of the two reading groups on this particular task to aid in the interpretation of the major hypothesis; however, these figures did show that neither group was highly consistent.

In 79.7 percent of those instances where the higher reading group made an error for the free-recall task, they chose a correct response on the multiple choice task for the same

stimulus word. The lower reading group made correct multiple choice selections for 69.1 percent of the words missed on the free-recall task. These results seem to confirm that children's recognition vocabularies exceed their recall vocabularies. They also indicate that the subjects in the higher reading group have a somewhat better recognition vocabulary than those in the lower reading group.

Subject Sentences

Higher reading group subjects were found to have been able to use the stimulus words in semantically and syntactically correct sentences with 82.6 percent accuracy while lower reading group subjects were only able to achieve 71.8 percent accuracy. This finding was of particular interest. Higher reading group subjects were more accurate in the writing of sentences which were semantically and syntactically correct, but it was the lower reading group which used this type of response most frequently for the free-recall task. This seeming paradox indicates that while the higher reading group was more capable of using grammatical and contextual usage as a means of defining words than was the lower reading group, they used alternative means of defining words in a free-recall situation. The lower reading group did not seem to have those options as readily available and relied on grammatical and contextual usage in the free-recall situation more frequently than the higher reading group.

Context Usage

Comparison of performance on the context tasks for higher and lower reading group subjects who had previously failed to achieve correct answers for either free response or multiple choice tasks on any given stimulus word yielded 26.7 percent accuracy for the higher reading group and 42.9 percent accuracy for the lower reading group.

In those nine instances where stimulus words were used in a context calling for meanings which were unusual or different from common usage, higher reading group subjects achieved 75.8 percent accuracy compared to 60.7 percent for the lower reading group.

The figures dealing with the unusual usage in context seem to suggest that higher reading group subjects can more readily accept that a word may have multiple meanings and can therefore shift to a new meaning gleaned from context. Lower reading group subjects do not seem to make this shift as easily.

No logical explanation is apparent for the higher accuracy of the lower reading group in making use of context in arriving at meanings for words previously missed on both free-recall and multiple choice tasks. This seems to be contrary to what would be expected when the rest of the data is considered.

Introspective-Retrospective Results

Examination of the responses to the introspective-retrospective questioning revealed few differences between higher

reading group subjects and lower reading group subjects. Neither group demonstrated much awareness as to the processes by which they acquired the meanings which they attached to the stimulus words. However, higher reading group subjects reported use of the dictionary as a method for acquiring word meaning more often than did subjects from the lower reading group.

Certain words such as janitor, canary, wrenches, and shingle evoked clear cut responses as to source from subjects who knew their meaning in both groups. Janitor was reported as being a word learned from associating the label with the person in a school setting. Canary was almost always identified as having been learned through knowing someone who owned one as a pet. Wrenches, defined as a tool or a specific kind of tool, was usually recalled from a home instance in which a family member asked the subject to "Hand me that wrench." And, most of those subjects who correctly identified a shingle as a material used in making a roof or repairing a roof could recall having either assisted or observed someone in shingling a roof.

No subject in either group reported systematic vocabulary study as a means by which meaning was acquired, although several reported having learned words "in school."

Findings Regarding Vocabulary Response Differences by Intelligence Groups

Hypothesis 2 was concerned with the question of whether differences in vocabulary response patterns such as those found

in earlier studies which compared children of differing chronological age would also exist among children of the same age or grade level who differed in their intelligence. The following null hypothesis was tested: There will be no significant differences between the vocabulary response patterns of subjects of higher intelligence and those of lower intelligence who belong to the same grade level group. The data relevant to this hypothesis are contained in Table 3.

Statistical treatment of data on the response patterns of higher intelligence group subjects versus lower intelligence group subjects yielded a chi-square of 57.88 which was significant at the .001 level with the result that the null hypothesis was rejected and significant differences were found to exist between the higher and lower intelligence groups.

Further tests to discover where among the five categories the significance occurred (see Table 4) showed that three categories were significant at the .001 level, one was significant at the .01 level, and one was not significant.

Category I, synonym-antonym, yielded a high level of significance indicating that subjects in the higher intelligence group used significantly more synonym-antonym type responses than did subjects in the lower intelligence group. This performance suggests that higher intelligence group subjects possess a qualitatively richer vocabulary which enables them to label a concept in a variety of ways while lower intelligence group subjects resort to use of other means of defining words.

Table 3. Frequency of Free-Recall Vocabulary Responses by Category Type for Higher and Lower Intelligence Groups

	Response Category				
Intelligence Group	I Synonym-Antonym	II Description	III Explanation	IV Grammatical and Contextual Usage	V Error
Higher Intelligence Group	121	23	169	30	37
Lower Intelligence Group	87	19	164	88	102

Table 4. Chi-Square Analysis of Differences Within Category Type of Free-Recall Responses for Higher and Lower Intelligence Groups

Category		Chi-Square Value	Significance Level
I.	Synonym-Antonym	18.67	.001
II.	Description	1.62	Not significant
III.	Explanation	6.77	.01
IV.	Grammatical and Contextual Usage	21.76	.001
V.	Error	23.31	.001

Further support for the supposition of a qualitatively richer vocabulary on behalf of the higher intelligence group is provided by the data obtained for category IV, grammatical and contextual usage. These data showed that lower intelligence group subjects rely significantly more on using words in a sentence as a means of defining them than do higher intelligence group subjects. This reliance on contextual usage seems to suggest an absence in the lower intelligence group of the depth of meaning necessary to provide alternatives for the use of the words themselves when attempting to convey the concepts they represent.

Category III, explanation, was significant with the higher intelligence group using the category more frequently than the lower intelligence group. This indicated that higher intelligence

group subjects seemed to have a greater depth of understanding of the meaning of the stimulus word which allowed them to make greater use of explanation as a means of defining.

The error category, category V, was used significantly more by the lower intelligence group than by the higher intelligence group. The vocabularies of the subjects in the lower intelligence group thus seemed to be quantitatively weaker as well as qualitatively weaker than subjects in the higher intelligence group.

Category II, the description category, was used less than any other category by subjects in both the higher and lower intelligence groups and did not produce significant differences.

Multiple Choice Task

Comparison of the consistency of response between the higher intelligence group and the lower intelligence group showed that both groups chose multiple choice responses of the same type as their free response to the stimulus words in 52 percent of the opportunities which occurred. There were no apparent differences between groups in this aspect of the task with neither group showing a high level of consistency.

In 88.6 percent of the instances where the higher intelligence group made an error response for the free-recall task, they made a correct response on the multiple choice task for the same stimulus words. The lower intelligence group made correct multiple choice selections for 68.3 percent of the words missed

on the free-recall task. These results show that the recognition vocabularies of both groups exceed their recall vocabularies, and it appears that the higher intelligence group has a somewhat better recognition vocabulary than the lower group.

Subject Sentences

Higher intelligence group subjects were found to have been able to use the stimulus words in semantically and syntactically correct sentences with 87.1 percent accuracy while lower intelligence group subjects were only able to achieve 70 percent accuracy.

This findings contrasts with the finding for category IV where the lower intelligence group relied more heavily on grammatical and contextual usage as a means of defining words than did the higher intelligence group subjects who on the subject sentence task demonstrated more ability in correct use of stimulus words in sentences.

It appears as though the higher intelligence group has more options for response available to it than the lower intelligence group, including the option of grammatical and contextual usage, and exercises those options. Lower intelligence group subjects, being more restricted in options, tend to stick with using the word in a sentence.

Context Usage

Comparison of performance on the context task for higher and lower intelligence group subjects who had previously failed to achieve a correct answer for either free response or multiple choice tasks on any given stimulus words yielded 14.3 percent accuracy for the higher intelligence group and 41.7 percent accuracy for the lower intelligence group.

In the nine instances where stimulus words were used in a context calling for meanings which were unusual or different from common usage, higher intelligence group subjects achieved 77.8 percent accuracy while the lower intelligence group subjects achieved 63.3 percent accuracy.

The results in regard to the stimulus words being used in unusual contexts showed the higher intelligence group to be better able to shift to a new meaning than the lower intelligence subjects. This may reflect a somewhat better awareness of the concept of multiple meanings of words.

Again, as with the reading groups, there seems to be no logical explanation evident in the data to account for the higher intelligence group doing less well than the lower intelligence group when it came to using context to arrive at the meaning of words which had previously been missed on both the free-recall and the multiple choice tasks.

Introspective-Retrospective Results

Examination of the responses to the introspective-retrospective questioning revealed few differences between higher intelligence group subjects and lower intelligence group subjects. Neither group demonstrated much awareness as to the processes by which they acquired the meanings which they attached to the stimulus words. Subjects in the higher intelligence group did, however, mention use of the dictionary as a method of acquiring word meaning more often than did subjects in the lower intelligence group.

As with the reading groups, subjects in both intelligence groups who knew the meaning of the words produced clear cut responses as to the sources of meaning of the words janitor, canary, wrenches, and shingle. These sources reflected concrete, firsthand experiences with the words and the concepts they represented.

Neither group reported systematic vocabulary study as a means by which word meaning was acquired, although several reported having learned words "in school."

Summary

The results of this study have shown that there are identifiable patterns of vocabulary response to a free-recall stimulus word which are significantly different for subjects of differing reading achievement and differing intelligence when grade level is held constant.

Analysis within the major divisions showed that the response patterns reflected a close association between reading achievement and intelligence. The types of response patterns used most frequently by the subjects in the higher reading group and the higher intelligence group were similar as were those used by subjects in the lower reading group and the lower intelligence group.

It appeared that subjects in the higher reading group and subjects in the higher intelligence group had available to them a qualitatively and quantitatively richer vocabulary than did subjects in the lower reading and intelligence groups.

The recognition vocabularies of all groups were found to exceed their recall vocabularies with the higher reading and intelligence groups appearing to have larger recognition vocabularies than the subjects in the lower groups.

It further appeared that none of the groups possessed very much awareness of the processes by which they acquired their knowledge of the meanings of words.

CHAPTER 5

SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

The summary, findings, conclusions, implications, and suggestions for further research are included in this chapter. The findings, conclusions, and implications are organized in keeping with the two major hypotheses of the study.

Summary of the Study

Vocabulary is a vital concern of teachers in all content areas. In order to teach vocabulary most efficiently, these teachers need to have available as much information as possible concerning the processes involved in learning word meanings. Quantitative studies have been widely utilized in the preparation of textual material and literature for children, but they have contributed little to the understanding of the processes involved in learning vocabulary. Qualitative studies have added a new dimension to understanding vocabulary development by tracing changes or shifts which occur as children increase in age. Study of these changes and shifts has helped clarify aspects of children's behavior with language at different age levels, and has provided insights as to the processes involved. However, these studies were not concerned with differences within age or grade

levels in identifying the patterns of response of subjects of varying reading achievement and intelligence levels. The purpose of this study was to examine differences within the seventh grade level in order to identify free-recall response patterns to stimulus words and thus to gain insights into the processes involved in vocabulary development.

Hypotheses

The two major hypotheses of this study were:

1. There are no significant differences between the vocabulary response patterns of subjects of higher reading achievement and those of lower reading achievement who belong to the same grade level in school.
2. There are no significant differences between the vocabulary response patterns of subjects of higher intelligence and those of lower intelligence who belong to the same grade level group.

Related Research

Studies by Smith (1926), Seashore (1947), and Bryan (1953) investigated numbers of words known by children at various age and grade levels. Some rather large discrepancies were found in these studies in the estimates of vocabulary size. A number of other studies identified the frequency of occurrence of words in different kinds of materials. These frequency studies were divided into six categories by Leavell and Marcum (1944)

according to the sources from which they were drawn. While these quantitative studies have been extensively used in the preparation of textual materials and literature for children, they have provided few insights into the processes involved.

Qualitative studies by Feifel and Lorge (1950) and Wolman and Barker (1965) identified vocabulary response patterns which were typical of children of various age and grade levels. It was found that there were shifts and changes which occurred as the children increased in age with an increase in the use of synonym type responses and decreases in the use and the error type responses. These studies were based on free-recall responses to stimulus words. Similar studies by Kruglov (1953) and Russell and Saadeh (1962) used recognition type tasks and found the same types of vocabulary response pattern shifts and changes occurred as children increased in age.

Neither the quantitative nor the qualitative studies looked within age or grade groups to ascertain the differences which might occur among children of differing reading achievement levels and of differing intelligence.

Procedures

In this descriptive study the sample was drawn from the incoming seventh grade of a junior high school in Tucson, Arizona. All of the subjects in the study had completed the sixth grade in one of the elementary schools feeding into the junior high school used. The subjects fell into an age range of

11 years 8 months to 13 years 7 months with a mean age of 12 years 3 months. Twenty-nine boys and thirteen girls were included in the sample.

The data collecting instruments consisted of two standardized tests and a series of five tasks. The Nelson Reading Test was used to obtain reading achievement scores and was a part of the regular school testing program. The Peabody Picture Vocabulary Test was administered individually by the investigator during the testing interview to obtain a measure of intelligence. The five tasks were administered during the testing interview and were designed by the investigator.

The first task called for a free-recall response to the twenty stimulus words which were obtained by using every other word of List 3 of the Diagnostic Reading Scales by George Spache (1963). This and all tasks were tape recorded for later verbatim transcription. The second task called for the subject to select the "best" definition from among four choices in a multiple choice presentation of the stimulus words. The third task required the subject to write a sentence using the stimulus word, and the fourth task called for the subject to identify the meaning of the stimulus word as it was used in a given context. The fifth task consisted of introspective and retrospective questioning.

The free-recall responses of the subjects were analyzed and assigned to category types. Comparisons were then made of the categories of response used by subjects in a higher reading

group and those in a lower reading group. Comparisons were also made for subjects in a higher intelligence group and those in a lower intelligence group. For both reading and intelligence groups, chi-square tests were used to establish significance of difference and to find where within the categories the significance occurred.

The multiple choice task performances of the subjects were analyzed to note whether, in those instances where they were offered a choice of the same type as the subject's free-recall response, the subject did maintain the same type of response.

The subject sentences were analyzed to determine if the context provided were syntactically and semantically correct. Comparisons were then made between the reading groups and the intelligence groups.

The context sentences were used to determine which subjects were able to derive a correct meaning from context after having previously failed to arrive at a correct meaning from either the free-recall or multiple choice tasks. In addition, they served to identify those subjects who were able to arrive at correct meanings of the stimulus words in the nine instances where they were used in a context calling for meanings which were unusual or different from common usage. Comparisons were then made for the reading groups and the intelligence groups.

Information from introspective and retrospective questioning was recorded according to reading groups and intelligence

groups to allow comparison of awareness of process between subjects in sub-groups of the two major classifications.

Findings of the Study

Findings Relative to Hypothesis One

1. Categories one and three, synonym-antonym and explanation, were used significantly more by the higher reading group than by the lower reading group in free-recall responses.
2. Categories four and five, grammatical and contextual usage and error, were used significantly more by the lower reading group than by the higher reading group in free-recall responses.
3. Category two, description, was least used by both reading groups and no significant differences were found between groups for this category.
4. On the multiple choice task, little difference was found between the consistency of response for the two reading groups. Each group achieved consistency about 50 percent of the time between the category used in free-recall and the category chosen for multiple choice.
5. The higher reading group achieved 10.6 percent more accuracy than did lower reading group subjects in making correct multiple choice responses for words previously missed in free-recall.

6. Higher reading group subjects produced semantically and syntactically correct sentences with 10.8 percent more accuracy than did lower reading group subjects.
7. The lower reading group did 16.2 percent better than the higher reading group in deriving meaning for stimulus words from the context sentences in those instances where they had previously been unable to respond correctly on both the free-recall and multiple choice tasks. However, the higher reading group did 15.1 percent better when it came to deriving meaning using context when the word was used in a context calling for an unusual meaning or a meaning different from common usage.
8. Neither reading group revealed much awareness of the processes by which they acquired their understanding of word meanings during the introspective and retrospective questioning.

Findings Relative to
Hypothesis Two

1. Categories one and three, synonym-antonym and explanation, were used significantly more by the higher intelligence group than by the lower intelligence group in free-recall responses.
2. Categories four and five, grammatical and contextual usage and error, were used significantly more by the

lower intelligence group than by the higher intelligence group in free-recall responses.

3. Category two, description, was least used by both intelligence groups and no significant differences were found between groups for this category.
4. On the multiple choice task, no difference was found between the consistency of response for the two intelligence groups. Each group achieved consistency between the category used in free-recall and the category chosen for multiple choice 52 percent of the time.
5. The higher intelligence group achieved 20.3 percent more accuracy than did lower intelligence group subjects in making correct multiple choice responses for words previously missed in free-recall.
6. Higher intelligence group subjects produced semantically and syntactically correct sentences with 17.1 percent more accuracy than did lower intelligence group subjects.
7. The lower intelligence group did 27.4 percent better than the higher intelligence group in deriving meaning for stimulus words from the context sentences in those instances where they had previously been unable to respond correctly on both the free-recall and multiple choice tasks. However, the higher intelligence group did 14.5 percent better when it came to deriving meaning using context when the word was used in a context calling for

an unusual meaning or a meaning different from the common usage of the stimulus word.

8. Neither intelligence group revealed much awareness of the processes by which they acquired their understanding of word meanings during the introspective and retrospective questioning.

Conclusions and Implications of the Study

The following conclusions and implications are limited to populations and conditions similar to the ones studied.

Conclusions

1. Children of differing intelligence and differing reading achievement within a grade level demonstrate different group response patterns in a word defining task.
2. Children of lower reading achievement and lower intelligence demonstrate more difficulty in dealing with typical teaching and testing techniques for vocabulary development than do children of higher achievement and intelligence.
3. Few children are aware of the processes by which they acquire word meanings.

Implications

The conclusions arrived at in this study suggested the following implications:

1. Teaching materials and methodologies for the development of word meaning might be more closely tailored to the thinking styles of the children with whom they are used by identifying the modal response patterns of children in free-recall tasks. The child's preferred style could then be used as the vehicle for teaching or testing, as well as a starting point for helping the child acquire and make use of other, perhaps more effective, styles.
2. In teaching or testing vocabulary it will be necessary either to develop new tasks which will allow children to perform more effectively, or find some way of strengthening their ability to cope with traditional procedures.
3. If it can be substantiated that children's awareness of the processes they use in gaining the meanings of words can contribute to more effective vocabulary development, then procedures must be undertaken to increase their awareness.

Suggestions for Further Research

During the analysis of the data of this study several questions arose for which there are as yet no answers. Therefore, the suggestions for further research are as follows:

1. This study should be replicated using children of different ages and grade levels.

2. This study should be replicated using other seventh grade populations in different socio-economic and geographic areas.
3. This study should be replicated using different word lists and vocabulary tasks.
4. An experimental study should be done to see if vocabulary teaching can be improved by using vocabulary response patterns to guide the methodology used.

APPENDIX A

MULTIPLE CHOICE TEST

Each of the following items was contained on an individual 3 X 5 card and did not contain the category type.

Test Item	Category Type
1. Difference	
A. disagreement	I
B. unlike appearance	II
C. not the same	III
D. something that's not alike	V
2. Broadcast	
A. radio show	I
B. announce	I
C. to spread over a large area	II
D. news	V
3. Janitor	
A. one who cleans	I
B. person employed to care for a building, etc.	II
C. a helper for schools	V
D. clean up man	I
4. Unloading	
A. taking off	III
B. unpacking	I
C. taking out	V
D. emptying	I
5. Thoughtfulness	
A. the act of thinking something over	III
B. doing things for others	II
C. to think of	V
D. considerateness	I

Test Item		Category Type
6.	Postpone	
	A. to wait some days or hours	III
	B. call off	V
	C. delay	I
	D. to put off to a future time	III
7.	Imagine	
	A. make believe	I
	B. to form a mental idea of	III
	C. dream of	V
	D. think up	I
8.	Flown	
	A. taken somewhere by plane	III
	B. a sad smile	V
	C. to fly	V
	D. to have passed swiftly	III
9.	Pretend	
	A. imagine	I
	B. not real	V
	C. simulate	I
	D. make believe	I
10.	Smolder	
	A. burn slowly	I
	B. to burn and smoke with little smoke and no flame	III
	C. smoke	I
	D. a big furnace used to make steel, etc.	V
11.	Shingle	
	A. decoration on a window	V
	B. signboard	I
	C. a thin flat piece of wood or other material used to cover roofs	II
	D. part of a roof	II
12.	Nephew	
	A. relative	I
	B. the son of your sister or brother or sister-in-law or brother-in-law	III
	C. the son of an uncle or aunt	V
	D. the son of your sister or brother	III

Test Item		Category Type
13.	Delayed	
	A. held up	I
	B. canceled	V
	C. put off	I
	D. detained	I
14.	Practice	
	A. study	V
	B. to drill as a means of acquiring skill	III
	C. rehearse	I
	D. to do over and over	III
15.	Canary	
	A. a place where they can feed	V
	B. a yellow colored song bird	II
	C. a light yellow color	II
	D. a bird	I
16.	Strengthen	
	A. fortify	I
	B. take out the bends	V
	C. to get more muscle	III
	D. to make more powerful	III
17.	Freight	
	A. to load with goods for transportation	III
	B. afraid	V
	C. train	I
	D. cargo	I
18.	Wrenches	
	A. joints	V
	B. to tighten things	V
	C. tools	I
	D. instruments for exerting a twisting strain	III
19.	Triumphant	
	A. a brass instrument	V
	B. joyous	I
	C. rejoicing for, or celebrating victory	III
	D. exultant	I
20.	Standardize	
	A. average out	V
	B. make better	V
	C. set at a standard	III
	D. equalize	I

APPENDIX B

COMPLETE TEST--CONTEXT SENTENCES

Each of the following sentences appeared on an individual 3 X 5 card for presentation to the subjects.

1. When he subtracted what he owed from what he had earned, Phil found that the difference was enough to buy the new rifle he wanted.

2. Tel-Star helped many people see the broadcast who would not have seen it otherwise.

3. When the water pipe broke in the apartment, my friend called the janitor.

4. Probably the most unpleasant thing associated with a long trip is the unloading of the car when you return home.

5. Carefully cleaning his shoes before entering the house was typical of Fred's thoughtfulness.

6. Because the roads were icy, Jane's mother advised her to postpone her trip home.

7. Jon tried to imagine what it would be like to live in America.

8. Ralph glanced at the clock and was surprised to see how the time had flown while he was reading.

9. The boys tried to pretend that they did not hear their mother call them.

10. A fire may smolder in the forest for days before it bursts into flame.

11. How long do you think it would take a carpenter to shingle our roof?

12. My nephew will visit for a week before returning home to my sister and her husband.

13. Bad weather delayed the departure of the airliner.

14. Fred made it a practice to complete his work on time.

15. Of all the colors that she had tried, Mary decided that canary suited her best.

16. The knowledge that help was on the way helped strengthen the surrounded marines.

17. The freight was $25 for each hundred pounds of goods sent.

18. A dictator often wrenches power away from the rightful government of a country.

19. With a triumphant cry, the soldiers captured the enemy headquarters.

20. Manufacturers standardize the parts of an automobile so that they may be easily replaced when worn out.

APPENDIX C

SAMPLE PROTOCOL

I.* What does this word mean? [difference]

S.**Something not the same.

I. Something not the same? Difference [no further reply from the subject]

I. Which of these choices would you choose as the best meaning of difference? [presented multiple choice card]

S. Something that's not alike.

I. What letter is that? D?

S. Yes, D.

I. Now, would you write me a sentence using <u>difference</u>? Then would you read it to me?

S. Oops! [corrected the spelling of between] There is a lot of differents [sic] between the cat and the dog.

I. Good! Now I am going to give you a sentence and I would like for you to tell me what the word means as it is used in this sentence. [read sentence aloud]

S. There wasn't too much difference between the two prices?

I. How did you know that difference meant something not the same?

S. Well--you usually know the word, and when you get older--I mean, it is just different. The two things weren't the same.

I. How do you think that you learned that the two things weren't the same--that the word difference meant that?

---

*Investigator
**Subject

S. Well--cause you've--you usually hear it quite a lot, and you hear it in school, and they teach you.

I. Okay.

S. And you hear it in reading where they use examples and things like that.

I. Where else might you hear it?

S. Arguments!

I. Arguments? Okay!

S. Debates.

I. Debate.

S. In kennels.

I. Why kennels?

S. Because a man might say, "This dog is different because such and such."

I. Yes, but how might he use the word difference?

S. Difference? Oh! I thought it was different. [pause] There is a lot of difference between this dog and that dog?

I. Okay. You would use it then for comparison?

S. Uh huh.

Item 2

I. Alright, I think that is enough on the word, what does this word mean? [broadcast]

S. To tell.

I. Alright, the word is broadcast. [pause] Think of anything else broadcast means.

S. Emergencies?

I. [pause] If you had to choose one of these as the best answer which would you choose? --as being the best meaning for broadcast.

S. [pause] Announce.

I. And which letter is that?

S. B.

I. B, okay, now would you write me a sentence using broadcast? Now will you read that sentence to me?

S. The broadcast was sudden on the T.V.

I. Okay, now would you tell me what the word means as it is used in that sentence? Tel-Star helped many people see the broadcast who would not have seen it otherwise.

S. [long pause] Sending messages?

I. Alright, sending messages. Okay, can you remember how you knew that broadcast meant to tell?

S. I usually hear broadcast, like maybe radio or T.V. and it is usually something that just happened, and they're telling you all about it.

I. How do you know that they use the word broadcast for that?

S. Well, you usually send it, they are sending it to you.

I. Do you hear them say broadcast? On the radio?

S. Sometimes I hear them.

I. Where else might you hear the word broadcast? Or see it?

S. I wouldn't know any.

I. You said, "It could mean emergencies." How do you know that broadcast could mean emergencies?

S. Well, when there--is uh--when it is near a--I had it in my mind just a little while ago. Well, there is usually an emergency in your town--and like broadcast it over the T.V. or something like that.

I. I see. You said in that sentence, they are sending messages. How did you know that was what it meant in that sentence?

S. [long pause]

I. Do you want to see the sentence again?

S. Yeah! [pause] What did I say there?

I. Sending messages.

S. From other countries--they might build--help other countries or the sending messages across from Tel-Star to another country.

I. Okay, and what clue is there that broadcast meant sending messages?

S. [silence]

I. Could you put sending messages in place of broadcast?

S. No. Not too well!

I. It has little bit of the same idea though.

S. Yeah!

I. What made you think of sending messages? Was there some word?

S. Tel-Star. Helping.

I. Okay, and you know what Tel-Star is?

S. It's a satellite.

I. And that makes you think of sending messages?

S. I saw it on T.V. programs or something--they have.

I. Okay, can you think of any other things that might help you remember where you might have first heard broadcast?

S. Hmmm.

I. Or, where you first knew what it meant?

S. In school? In school I heard broadcast.

Item 3

I. Okay, let's try another one. What does this word mean? [janitor]

S. Uh, a person who cleans up buildings.

I. Alright, janitor. [pause] Can you think of anything else you would like to add to that meaning?

S. It would be almost the same as a person being paid to clean.

I. [pause] Alright.

S. Except you could always get maid in there too. I figure it would have to be uh, uh, a person who is being paid to clean buildings. Or something like that cause you could always have maid in there.

I. [pause]

S. Of course you don't see janitors in houses.

I. Okay. Which one of these meanings would you choose now? [multiple choice]

S. Number B, A person who--A person employed to take care of a building, etc.

I. Okay, now will you write me a sentence using janitor? Will you please read your sentence to me?

S. The janitor is cleaning the building all day.

I. Now, how about this sentence? What would you say janitor means in this sentence?

S. Called a fixit man, or a plumber?

I. Okay, how did you know that a janitor was a person who cleans up buildings?

S. I've seen him in schools, clean up schools. Hotels you see them cleaning up apartments and things.

I. How did you know they were called janitor?

S. Pardon?

I. These people you've seen cleaning, how did you know they were called a janitor?

S. At first?

I. Can you remember when you first knew they were called janitors?

S. I'd have to say in school.

I. Okay, you heard somebody say in school? --that they were called janitors?

S. Yeah, you would usually say "Hi" to the janitor or something. Usually in kindergarten the janitor used to come in and clean up a little bit and the teacher would tell you to say "Hi" to the janitor.

I. You said that it would be almost the same as a person being paid to clean, but not quite, because that would include maids too. How would a janitor differ from a maid?

S. He does more things, than usually a maid does.

I. He does more things?

S. He usually cleans up whole buildings like houses--probably buildings, cleans up buildings.

I. In the sentence, when the water pipe broke in the apartment, my friend called the janitor. You said that the janitor became a plumber or a fixit man there. What made you think that?

S. Well janitors usually can fix most anything.

I. And you think that would be part of his regular duties?

S. Uh huh.

Item 4

I. Okay, what about this word, what does it mean? [unloading]

S. To take off?

I. To take off. Okay, unloading.

S. Hmmm.

I. Think of something else?

S. No. I just think it means take off.

I. Okay. Which of these will you choose?

S. I might in unloading--remove.

I. Remove. Okay. Now which of these would you choose? [multiple choice]

S. Take off--"A".

I. "A" is taking off, is that the one you would choose anyway?

S. Uh huh.

I. Okay.

S. Hmmm. Here is another one too.

I. Well, you see you are to choose the best answer. They could be all right, or all almost right. You pick the best one.

S. I think emptying.

I. Emptying.

S. Cause taking off would just be--uh--more or less just taking it off the table or something.

I. Emptying is "D" isn't it?

S. Yeah!

I. Now, will you write me a sentence with unloading? Okay, will you read that sentence to me please?

S. They were unloading the car after the trip.

I. Very good.

S. Uh.

I. What do you think unloading means in that sentence? [read sentence]

S. Emptying?

I. Okay. Now at first you said it meant "take off." How did you happen to think of take off as a meaning for unloading?

S. Well let's see, in a truck you are usually taking off the load.

I. Okay, how did you know that was called unloading?

S. [long pause]

I. Think of situations in which you might have heard somebody use unloading or unload.

S. When our next door neighbors were moving. No, hold it. That wouldn't be it. When somebody is moving in, they are unloading a moving van.

I. How did you know they were unloading it?

S. Because all the furniture and everything was coming out.

I. You knew the furniture was coming out, but how did you know that was called unloading. That is what I should have said. You knew what they were doing. You could see what they were doing, but how did you know that you call that unloading?

S. Friends told me.

I. See what I am getting at? I'm trying to find if you can recall at all how you know what certain words mean. Now, I realize that with all of these words it won't be possible, but maybe we can get some insight somewhere.

S. Wow! It was a long time ago. At school they teach you words, and at home. You usually hear other people saying it.

I. You don't remember all of the words that you are taught at school or at home do you?

S. No.

I. How is it that you remember this word when you wouldn't remember some others?

S. You just think back and you see or you heard somebody saying it or somebody is trying to learn it to you.

I. In arithmetic, the answer when you subtract one number from another is called what?

S. Subtraction--oh, adding! What was that sentence again?

I. The answer when you subtract one number from another is called what?

S. Oh! Adding.

I. The answer is called the difference. When you take one number away from another, the answer is called the difference. When you add the answer is called the sum. Remember? You had these words in arithmetic and some of them you don't remember. And other words like unloading you remember. What makes the difference--between whether you remember the word and what it means or you don't? Can you tell me that?

S. [pause] Well, just learned arithmetic a couple of years ago and--

I. Why do you think you would be more likely to remember unloading than you would that particular meaning of difference?

S. Well, we have been using mostly times and dividing, and when you get out of adding you sort of forget.

I. Why didn't you forget unloading?

S. Because you use--use it a lot. Use it in sentences and use it around home and--

I. Okay, where might you use it around home?

S. Well, unload the car.

Item 5

I. That is a good one. Alright, let's try this next word here. What does this word mean? [thoughtfulness]

S. Hmmm. Somebody remembering?

I. Somebody remembering. [pause] Okay, thoughtfulness.

S. [shaking his head as though trying to remember] Okay, trying to remember that word. I don't know--means two things. Helping?

I. Helping. Uh huh. What other meaning were you looking for there? You said it meant two things.

S. I was kind of thinking it meant doing the wrong thing or doing the right thing but I think it means doing the right thing.

I. You think it is doing the right thing?

S. [no further response]

I. How about choosing one of these as the best example of the meaning of thoughtfulness? [multiple choice]

S. "C"--think of.

I. Okay, will you write me a sentence with that one? [pause] Read it please.

S. The boy was very thoughtfulness, of his mother, after he took the trip.

I. Okay. Would you read this sentence and tell me what it means as it is used here.

S. Very kind. Kindness.

I. How did you know that the word thoughtfulness meant somebody remembering?

S. Because usually when you're on a long trip or something you might buy him a present if he couldn't go.

I. Okay, and remembering them would be thoughtfulness?

S. Yes.

I. How do you know that?

S. Because I've done it before.

I. Yes and what happened when you did it?

S. They were very happy.

I. Did they say anything to you? Did they use this word?

S. Yes! My--sometimes my parents say, well when I give it to my brother he might say, "Boy, someone is sure thoughtful."

I. Good! You said "It could be helpful, too." [pause] In doing wrong or doing right, you thought it was doing right.

S. Well, I've learned it at home. And, uh usually your mom cleans the house real hard and you try to help her and you clean--you help your neighbors or something.

I. That is thoughtfulness isn't it? It shows in here, "to think of" on the multiple choice, thoughtfulness means to think of. How did you know it meant to think of, doing things for others? Why did you choose <u>to think of</u>?

S. Because you are thinking of what the other person would probably do.

I. Okay and then you said that in the sentence it meant very kind or kindness. How did you know that? [repeated the sentence]

S. Well, he was very kind to do it. Then his mother wouldn't have to clean up the mess.

Item 6

I. Okay! Now what does this word mean? [postpone]

S. Is that postponed?

I. What do you think that word means?

S. Oh! Delay.

I. Alright, it is postpone. [pause]

S. Later date?

I. Later date. Okay, which of these meanings would you choose as the best meaning of postpone? [multiple choice]

S. Delay.

I. Okay, you are going to stick with delay. Would you now write me a sentence using postpone? Read it please.

S. The birthday was postponed to a later date. Let's make that party.

I. Okay, the birthday party was postponed to a later date. Now, will you read this sentence and tell me what the word means in the sentence?

S. Wait until they are safe.

I. Wait until they are safe, until what are safe?

S. The roads are safe.

I. Okay, how did you know what postpone meant, how did you know it meant delay?

S. It is sort of hard to think back.

I. It is hard--very difficult.

S. A lot of times you hear your mother use postpone--like a trip or--

I. Okay, you might hear your mother use postpone, and how did you associate the word delay with postpone?

S. Because delay meant later on. Hmmm.

I. Postpone means the same thing?

S. Sort of. Delay and postpone are the same thing.

I. Can't remember when you were first aware that you knew postpone then?

S. [pause] Well, all I remember is that I've heard it around home and gradually learned.

I. Okay, have you ever had to postpone anything?

S. Yes.

I. And do you use the word when you have to delay something?

S. Sometimes.

I. When would you be most likely to use it?

S. When you are telling your friends about the trip. You had to postpone it.

I. Okay, what would be some things that might cause you to have to postpone it?

S. Bad weather! Or else some business came up.

Item 7

I. Alright, what does that word mean? [imagine]

S. Dream?

I. Alright, dream. [pause] Imagine.

S. To hope.

I. To hope, to dream--

S. To exaggerate.

I. Okay, what is the best answer there? [multiple choice]

S. To dream of.

I. That's "C" isn't it?

S. Yes.

I. Can you give me a sentence with that one? Okay?

S. I imagine a lot of things at home.

I. Now what do you think it means in this sentence?

S. Think. Or, to dream.

I. Why do you think it might be to dream--to think? [Jon tried to imagine . . .]

S. The two might go pretty good in the sentence.

I. Alright. Is there any difference in meaning between the two?

S. A little bit.

I. How do you think the difference might come in?

S. Well, in dreaming you really don't have to think. And, when you want to think you usually have to think pretty hard.

I. What other differences might you see between them? Might they be alike sometimes?

S. Sometimes.

I. How would they be different?

S. When you think, you try to remember something. But when you dream you try to imagine.

I. Okay, how did you know it was imagine then to dream?

S. Ummm, cause I usually dream a lot too.

I. How did you know that was called imagine?

S. I [long pause] -- I wouldn't know.

I. Okay. You said it might mean exaggerate. Why do you think it might mean exaggerate?

S. Cause he is trying to put himself in this place.

I. Trying to put himself in the place of someone else?

S. Yes. And trying to hope he will get there.

I. Okay and how did he--how did you know that is called imagine? Do you hear the word used? Can you remember when you heard it used?

S. When I was a little kid.

I. Uh, huh.

S. When I was at school and at home I always used to dream up things. I liked to do, and, and, my dad used to say "Boy, you sure like to imagine things." You usually like to make up things.

Item 8

I. You remembered now where that came from, didn't you? Now what is this word? [flown]

S. What is that word, I've never seen it before. Flown? Is that flown?

I. What do you think that word means?

S. To ride in.

I. To ride in. Okay, the word is flown. You got it right.

S. [long pause] Fly it yourself.

I. Fly it yourself?

S. That is the only thing I can think of.

I. Okay, which of these choices do you think would be best? [multiple choice]

S. "A" taken somewhere by plane.

I. Do you want to give me a sentence? With flown?

S. I flown in planes before.

I. Good! Now, what do you think it means in this sentence? [Ralph glanced at the clock and was surprised to see how the time had flown while he was reading.]

S. How time flies? Ummm. How fast it went.

I. Alright you said at first that flown meant to fly. What made you think it meant to fly? How did you know it meant that?

S. Because I usually hear the word when we are talking about planes or when you've ridden in a plane.

I. Then you said it means to fly it yourself. Why yourself?

S. Because you can use it in a sentence too. Like flown in a plane before.

I. Uh huh. [pause] Then you chose taken somewhere by plane from the multiple choice part. Why did you choose that one?

S. Because you were flown somewhere by plane!

I. Alright, then on the sentence I gave you--Ralph glanced at the clock and was surprised to see how the time had flown while he was reading--you changed and said how fast time flies, how fast it went. How did you know it meant how fast it went rather than to ride in a plane or to fly it yourself?

S. By the way the sentence said it. He was surprised to see how the time had--cause the time can't fly in an airplane. It has to be fast.

I. Why do you think it must be fast?

S. Cause of the way the sentence is.

I. What in the sentence makes you think fast here?

S. [long pause] He was surprised?

I. He was surprised. Do you think that has something to do with it? How would you know it wasn't slow? --time has flown.

S. [no response]

I. Why would you associate fast with the word flown?

S. An airplane or something?

Item 9

I. Okay, let's try the next word. [pretend]

S. Imagine.

I. Imagine, alright, the word is pretend. [pause]

S. Hmmm. I can't think of another word except for imagine.

I. Which of the four responses here would you choose as the best meaning of pretend?

S. Imagine.

I. You choose imagine?

S. Or else you could use make believe.

I. Which do you think is the best?

S. I think imagine.

I. Will you write me a sentence with pretend?

S. Oh! I have to use and ending on this. I can't? An ending ing sound.

I. [made no comment]

S. I can pretend too.

I. Okay. How about this sentence? What does pretend mean as it is used here? [pause] The boys tried to pretend that they did not hear their mother call them. What does pretend mean here?

S. You're trying to escape. It's not--Oh! Not believe that they called.

I. First you said that it meant imagine. Why did you think pretend meant imagine?

S. It is almost like--uh--pretend sort of means dream and imagine sort of means dream too.

I. Okay. Then you said--you stuck with your imagine--then you said not believe in the sentence. How did you know that you had to change the meaning--when you got to that sentence?

S. By the way they used the words in the sentence. Cause you couldn't have used imagine. Ha ha! The boys tried to imagine--Oh! You could!

I. Do you still think "not believe" would be better than imagine in the sentence?

S. Yes.

I. Okay, how did you know that pretend meant this? Do you remember when you first knew what pretend meant?

S. No. Not really.

I. Where have you heard it used?

S. Well, in playing when I was a little kid. We used to say "Let's pretend we are Army men," or something like that.

I. Good. How did you pick that word up do you suppose?

S. From hearing it from other people from the way they use it.

Item 10

I. Fine. Now what does this word mean? [smolder]

S. I've heard that word before, but I've never used it. To drown [after a pause]--that's the only thing I can think of. To cover.

I. To drown, to cover--

S. Or to smother.

I. The word is smolder.

S. Hmmm. Then I said the wrong thing.

I. What would you say now?

S. A little bit of smoke.

I. Okay. [shown multiple choices]

S. Number "B"--to burn and smoke with a little smoke and no flame.

I. Will you write me a sentence using smolder?

S. [very long pause] I can't think of anything except, the fire smoldered.

I. Why don't you go ahead and put that down.

S. I almost said the fire smoldered through the night, except that would have to be "ed" at the end. I couldn't use that could I?

I. That is alright. Now look at the word as it is used in this sentence.

S. [no response]

I. What do you think it means in the sentence?

S. Smoke--the fire may smoke in the forest for days.

I. How did you know? This is an interesting one because at first you said that you heard it before but never used it. Then you thought it meant to drown, or to cover or to smother. Then when I said the word you said, "Hmmm, I said the wrong thing." A little bit of smoke. How did you know it meant that, a little bit of smoke?

S. You hear your parents use it sometimes when you have a fire someplace, or when you are burning trash sometimes it smolders.

I. Okay, can you think of anything else to help to remember what that word means?

S. No. I didn't really use it that much.

I. Do you think using a word helps you remember it?

S. Yes, it does.

Item 11

I. What does this word mean? [shingle]

S. Covering.

I. Shingle.

S. Protection--that's all.

I. Which of these would you choose? [multiple choice]

S. [long pause] I'd have to use "A"--there are shingles on a roof though too.

I. Haven't heard that word around here too much. Have you lived in Tucson most of your life?

S. No, just got here. We used to have shingles on our old house. There's two shingles.

I. Which do you think is the best answer?

S. I think it'd be on the roof.

I. So you want to change it from "A" to what? Which one is it?

S. I think it is "C."

I. Okay! Now, will you use shingle in a sentence?

S. The man on the roof slipped on a loose shingle.

I. Good! What does shingle mean in this sentence? [How long do you think it would take a carpenter to shingle our roof?]

S. To cover.

I. Very good! You said that shingle is a covering, how did you know that?

S. On windows sometimes you can cover the window.

I. Are shingles what you cover a window with?

S. Could.

I. You said that your old house had shingles on it. Were they on the roof?

S. Yes.

I. What were they like?

S. Wooden shingles.

I. How did you know that they were called shingles?

S. Hmmm. Well, I just thought about it for a little bit. Then I remembered that we did have shingles of the roof.

I. How did you know that these things you had on the roof were called shingles?

S. All I know is that I remembered.

I. Did you hear someone call them that or--

S. Well, I've heard them before. It just came to my mind, what they are called. Some of them you can't think of, then one word pops out of your head.

I. Can't remember where you might have heard it?

S. On our old house sometimes I would go up on the wooden shingles on top of the roof and clean out the rain pipes or whatever you call them.

I. Did anybody every call them--

S. Don't slip on the shingles.

I. Don't slip on the shingles? Well, you would certainly know what not to slip on wouldn't you. Anything else?

S. No.

Item 12

I. What does this word mean? [nephew]

S. Never even heard of--never even seen that word.

I. You have never seen that one?

S. No, right off I can't recall it. [pause] NEPHEW! Took me a little while to sound it out.

I. Okay, what about nephew? What does nephew mean?

S. Relative? Person in your family--that's like relative though isn't it?

I. Anything else? What would you choose here then? [multiple choice]

S. [pause] Uhhh "D".

I. "D" the son of your sister or brother?

S. I think so.

I. Now, will you write me a sentence using nephew?

S. My brother's nephew is called Bob.

I. Good, now how about this one. [My nephew will visit for a week before returning home to my sister and her husband.] What does nephew mean there?

S. [long pause] My sister's son.

I. Okay. How did you know what nephew was?

S. Hmmm.

I. You said it was a relative. How did you know it was a relative? A person in your family?

S. That's hard! Cause I usually think of my aunt and uncle and they have cousins. When you have a nephew you usually think of a person who is your relative or your family.

I. I see, and then later on you chose "D" which was the son of your sister or brother. How did you know it was the son of your brother or sister and not the son or daughter of your uncle or aunt or something like that?

S. Those are my cousins. I just thought better, that's all. Well, it just had to be.

I. How did you know it wasn't your sister or brother's daughter?

S. It didn't say in there [the multiple choice].

I. Well, could it be?

S. It couldn't, a nephew is a boy. I think a girl is called something else, I'm not exactly sure.

Item 13

I. How about this next word. [delayed]

S. Delayed. Didn't we already have delayed? No, we didn't. What does delayed mean?

I. Postpone. Can I use a smaller word? Well, what do you think it means?

S. [long pause] Wait, to a later date.

I. Delayed.

S. Later date.

I. Okay, think of anything else? How about choosing one from this? [multiple choice]

S. Ummm. "C" put off.

I. Now will you write me a sentence with delayed?

S. We delayed the party to a later date.

I. Very good. What would you say delayed meant in that sentence? [Bad weather delayed the departure of the airliner.]

S. Held back.

I. Okay, you said that delayed meant postponed, wait to a later date. How did you know that? What delayed meant?

S. Cause I've used it a lot.

I. You've used it a lot. Where have you used it?

S. School, at home, friend's house. How did I use it?

I. What would you use delayed in? Can you think of situations in which you use it?

S. Uh, as I said before, vacations, parties.

Item 14

I. Okay, let's try this next one. [practice] What does that word mean?

S. I've used that word so much!

I. You've used that word so much. What does it mean?

S. To learn.

I. To learn, okay. Practice.

S. To exercise.

I. Okay, which of these would you choose? [multiple choice]

S. "D" to do over and over.

I. Alright, will you give me a sentence with practice.

S. Mom. I'm going to practice baseball at school.

I. Good. Now, what would you say it means in this sentence? [Fred made it a practice to complete his work on time.]

S. Job, made it a job.

I. Okay, how did you know that it meant to learn? exercise?

S. Well, when you usually hear the word, you usually--when they use a sentence like go practice your organ or something like that--go practice your piano they want you to learn or to exercise or tell you to practice or exercise the point they are trying to get to you.

I. You said to do over and over. How did you know it meant to do over and over?

S. Trying to practice and doing it over and over until you get the idea. What they're trying to, or what they want to be able to do it well.

I. Then you said in the sentence, Fred made it a practice. . . made it a job. How did you know that that meant made it a job, instead of do it over and over?

S. Cause it was one of his daily jobs to get his work completed.

I. How did you know it was a daily job?

S. He had to work every day.

I. Why would the word practice be different in this sentence than it was in your sentence, for example?

S. Whew! [long pause]

Item 15

I. Well, let's let that one go. How about this word? [canary]

S. Bird! I think it is canary.

I. The word is canary. Can you think of any other meaning?

S. Tropical bird? Pet.

I. Okay, which of these would you choose? [multiple choice]

S. I'd say "B"--a bird.

I. "B"?

S. No, I meant "D". It couldn't be "B" because a canary can be orange colored.

I. Will you write a sentence with canary in it? It is number fifteen.

S. How do you spell saw?

I. S-a-w.

S. Oh, yeah! That's right. [pause] We saw a canary at the zoo.

I. Alright, what does it mean in this sentence? [Of all the colors that she had tried, Mary decided that canary suited her best.]

S. A shade of color. A certain color.

I. How did you know that canary was a bird?

S. Because I've seen it.

I. How did you know that this bird was called a canary?

S. A lot of times it said it on the cage.

I. Said it on the cage? Okay, can you think of anything else?

S. A house pet, I've seen.

I. But, how did you know that it is called a canary?

S. Because I was told.

I. When you got to the sentence, you knew it was a color. How did you know it was a color? Did you know it was a color before you read the sentence?

S. No.

I. How did you know it was a color after you read it?

S. Cause of the way the sentence was written.

Item 16

I. Okay, now how about this word? [strengthen]

S. Harder.

I. Harder?

S. Yeah.

I. Alright, strengthen.

S. Tougher. That's all.

I. Okay, which do you choose as the best meaning out of these? [multiple choice]

S. "A" fortify.

I. Fortify?

S. Make more powerful, too. Hold it! I think it would be "A".

I. Okay, now can you use that in a sentence for me?

S. The rope we bought was strengthen.

I. What does it mean in that sentence? [The knowledge that help was on the way helped <u>strengthen</u> the surrounded marines.] [sentence repeated]

S. Kept their morale up.

I. Kept their morale up. Very good. [pause] Okay, how did you know that strengthen meant to make harder or tougher?

S. I've heard it. Heard other people use it, in sentences. And, sometimes you have to strengthen--fix a wall and make it stronger or something.

I. Then in the sentence you said that strengthen meant to keep their morale up. How did you know that?

S. Cause I saw it on T.V.

I. Did it say strengthen on T.V.?

S. No, but you usually know that if someone is going to help you it keeps your morale up.

<u>Item 17</u>

I. Very good. What does this word mean? [freight]

S. Cargo.

I. Freight, think of anything else for it?

S. Materials.

I. What would you choose here? [multiple choice]

S. "D" cargo.

I. Can you use freight in a sentence?

S. The freight was on the train by the time we left.

I. What does freight mean in this sentence? [The freight was $25 for each hundred pounds of goods sent.]

S. The cost?

I. In this case the freight means the cost? The cost of what?

S. Of the freight. The cost of how many pounds.

I. Okay, how did you know that freight meant cargo?

S. I've seen it on T.V.

I. It's called cargo?

S. Sometimes freight. Sometimes cargo. My friends, their hobby is trains and they have a great big set up and they usually say load the freight or something like that.

Item 18

I. Good! What do you think this word means? [wrenches]

S. I think of machinery, except that wrenches aren't machinery. I can tell you that much.

I. Okay, what would you choose out of here? [multiple choice]

S. "C" tools.

I. Write a sentence with wrenches, please.

S. The store had ten more wrenches on sale.

I. What do you think wrenches means in this sentence? [A dictator often wrenches power away from the rightful government of a country.]

S. Harden. Oh, no. Strengthen or forces.

I. How did you know that that meant tools, wrenches?

S. Cause we usually have them around the house. And, use them quite a lot fixing parts to the house or machinery.

I. How did you know that they were called wrenches?

S. I've heard them around the house. Go get wrenches. And, I had to learn.

I. And, how did you know that it changed to "forces" down here.

S. Because of the way the sentence was written.

Item 19

I. Okay, now here is the next to the last one. You have been very patient. [triumphant]

S. Oh! I don't really know what the word means so I couldn't tell you.

I. Triumphant.

S. Strong?

I. Strong. Which meaning would you choose as best?

S. "C" rejoicing for, or celebrating victory.

I. Could you use that in a sentence for me right quick?

S. The Army triumphant made happiness in the land.

I. Now read this sentence and tell me what you think it mwans in that sentence.

S. A loud cry.

I. How did you know that triumphant meant strong? Or, you thought it meant strong. Why did you think it meant strong?

S. Because it is taking over.

I. Then you chose "C" down here. How did you know it was that one instead of one of the others?

S. Cause when you usually take over something, or if you win the war or something you usually rejoice or celebrate the victory.

I. How did you know that triumphant meant that though?

S. I've seen it on T.V. [shrugs]

Item 20

I. Let's try this last one. [standardize]

S. More modern?

I. Standardize.

S. Make stronger?

I. Which one of the choices given do you think is the best answer?

S. Make better--"B".

I. Okay, can you give me a sentence with standardize?

S. They standardized the products.

I. What does standardize mean as it is used in this sentence? [Manufacturers standardize the parts of an automobile so that they may be easily replaced when worn out.]

S. Oh, yeah. I've heard it [standardize] on car commercials.

I. What do you think it means in that sentence?

S. Able to take apart.

I. Okay, can you tell how you know what that word means?

S. Cause in news, in ads and stuff like that they always have these commercials on Chevrolet, like on Bonanza. Always we standardize new cars or something!

I. Okay, thank you. You have been a big help.

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