Quantity of Continuous Word Associations and their Relationship to Reading Achievement of First Grade Children

Linda Ayres

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QUANTITY OF CONTINUOUS WORD ASSOCIATIONS
AND THEIR RELATIONSHIP TO READING ACHIEVEMENT
OF FIRST GRADE CHILDREN

THESIS

Submitted to the Graduate Committee of the
Department of Curriculum and Instruction
Faculty of Education
State University College at Brockport
in Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Education

by

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The purpose of this study was to examine the ability of first grade children to generate verbal associations to both neutral and emotional stimuli and to determine if this ability is significantly related to reading achievement.

Word associations are one element of oral expressive language which has been studied in its relationship to reading. Studies to date have only begun to examine the many different aspects of word associations and the relationship that they have to such things as beginning reading, reading comprehension, sight vocabulary acquisition and reading rate.

Four scores from the Metropolitan Achievement Test were correlated with scores from a researcher designed continuous free association task.

It was found that there is no significant difference between the quantity of responses to emotional stimuli and the quantity of responses to neutral stimuli.

There was no significant relationship between the quantity of responses to emotional stimuli and reading.

There was a significant negative correlation between the quantity of responses to neutral stimuli and word knowledge.
The quantity of responses to emotional stimuli and quantity of responses to neutral stimuli were significantly related.

There was a significant negative correlation between the total number of responses to both neutral and emotional stimuli and word knowledge.

It was concluded that the type of stimuli did not affect the number of responses. Word knowledge was the only reading skill which was significantly related to the word association task probably because both tasks involve vocabulary. Relationships were negative possibly because the two tasks deal with two different types of vocabulary and two different types of cognitive style.

Further research is needed in the relationship of different aspects of word associations and language.

The word association task could easily be used by the teacher as an informal screening device of oral expressive language.
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CHAPTER I

Statement of the Problem

Purpose

The purpose of this study was to examine the ability of first grade children to generate verbal associations to both neutral and emotional stimuli and to determine if this ability is significantly related to reading achievement.

Questions to be Answered

This investigation was undertaken to examine the relationship between the ability to generate word associations and reading achievement. The study attempted to answer the following questions.

Is there a significant difference between the quantity of continuous verbal associations to emotional stimuli and the quantity of continuous verbal associations to neutral stimuli?

Is there a significant relationship between the quantity of continuous verbal associations to emotional stimuli and reading achievement?

Is there a significant relationship between the quantity of continuous verbal associations to neutral stimuli and reading achievement?
Need for the Study

Oral language is the first aspect of language with which an individual becomes familiar. For several years in a person's life, it is the only form of language available to the individual. It is not surprising then that researchers have been interested in the relationship between oral language and reading. Two well known research studies which established a significant relationship between oral language and reading were done by Strickland (1962) and Loban (1970).

Cramer (1968) has proposed that each individual possesses a general, nonspecific collection of verbal memories--a verbal universe--which is unique. The relationship of this verbal universe to other aspects of the individual's behavior raises many interesting questions. Linguists have debated for some time the type of relationship which exists between one's language and one's thinking.

One method of gaining an insight into this verbal universe is through word association tasks. The word association task as it is known today was first developed by Galton in 1872. His original aim was to study imagination but he soon realized that the technique could shed light onto the character of the subjects. Since then, the word association technique has traditionally been used in the field of psychology.

There are two main types of word associations--free association and controlled association. In free
association, the subject is free to give a response from any semantic or grammatical category. It is left unspecified as to what the response should be. In other words, the subject responds with the first word that comes to mind.

In controlled association, the subject is limited as to the type of response which is acceptable. The subject is instructed to give a response from a specific semantic or grammatical category. In other words, the subject must carefully consider each response that is given.

Free association and controlled association may each be broken down into three groups. Discrete association calls for a single response to a single stimulus. Continued association requires that the subject be presented with the same stimulus word a number of different times. One response is given each time the stimulus is presented. Continuous association consists of a stimulus word being presented to the subject who responds as many times as possible in a given period of time.

The connections between word associations and conceptual tasks and also the validity of word associations as indicators of linguistic development have been established in recent years. It has been shown, for instance, that persons producing more relevant associations are superior problem-solvers (Johnson, 1964). It has also been shown that word associations influence concept formation, with relevant associations facilitating and irrelevant
Numerous studies have shown that types of associations change as the child develops. Adults, when free associating, are more likely to respond with paradigmatic types of responses (a response fitting into the same grammatical category as the stimulus word). Young children on the other hand, are more likely to respond with a syntagmatic response (a response which would be syntactically correct if it were found next to the stimulus word in a sentence).

An example of a syntagmatic response to "deep" might be "hole." A paradigmatic response to the same stimulus might be "shallow." This seems to indicate that the child first learns "what-follows-what" and then learns "what-substitutes-for-what." Research shows that there is a sharp increase in the paradigmatic responses of children during the fifth grade (Entwisle, 1966).

Mickelson (1972) was one of the first to study word associations as they relate to reading achievement. Working with first graders, she determined a level of meaningfulness (a qualitative value) to their associations in a discrete free associational task. This measure, called associational verbal encoding (a/v/e), was found to have a significant relationship to reading achievement.

Hinze (1961) investigated the relationship between
word associations and reading comprehension. Working with junior high students, she determined that paragraphs containing words with high associational value to the student were comprehended better than those paragraphs containing words with low associational value.

Brescia and Braun (1977) focused on the role of meaning in the learning of sight words for beginning readers. They concluded that words with high meaningfulness (as determined by a discrete associational task) were acquired faster and retained longer than words which had less meaning to the subject. They suggested that associational fluency (response availability) is especially useful in contextual reading where rapid associations with words in the sentence may help the reader give the correct verbal response to an unknown word.

Reilly (1968) studied the effect that emotionally connotative stimuli have on emotionally disturbed and emotionally normal second grade children. He found that response time to emotional stimuli in a discrete free association task was significantly longer for both groups. However, the emotionally disturbed group was affected even more than the emotionally normal group. He suggested that this might indicate that reading material dealing with possible sources of emotional conflict could be a hindering factor when used with emotionally disturbed children and called for
more research in this area.

The ultimate value of word association studies depends a great deal on the extent to which results of the experiments can be generalized to language generated in normal situations. In an extensive cross-sectional study Howes (1957) concluded that the probability of a given word appearing as a response in a word association task is the same as the probability of the word occurring in general discourse.

The reasons for studying word associations are numerous. An understanding of an individual's associational habits is the first step in the study of other cognitive processes. Associations reflect the basic nature of the mind and its thought processes. Associative connections between words have shown empirically to be strong indicators of such behavior as organization in free recall, facilitation of transfer and ease of concept formation (Cramer, 1968).

**Definition of Terms**

The key terms used in this study are defined as follows.

**Continuous association** is the procedure by which a stimulus word is orally presented once, and the subject responds as many times as possible within an established
period of time.

Emotional stimuli are stimulus words related to an area of conflict in a child's life. They are assumed to connote some form of emotion.

Neutral stimuli are stimulus words not related to any area of conflict in a child's life. They are assumed not to connote any form of emotion.

Limitations of the Study

The conclusions and generalizations that can be drawn from this study are limited by the fact that the study dealt with only the quantity of responses and not the quality of the responses. Studies involved with meaningfulness or quality of response require a much larger sampling. Since this study was concerned only with the quantity of responses, individual responses were not taken into consideration. Any response was acceptable. Therefore only the volume of the child's oral language was studied rather than the quality of the child's oral language.

Summary

The relationship of oral language to reading achievement has been established. This study dealt with one aspect of oral language--continuous free word
association. Research involving word associations and reading achievement is not complete. A need to investigate the ability to generate associations has been indicated. This study took into consideration stimulus type and its relationship to quantity of responses.
CHAPTER II

Related Literature

It was the purpose of this study to compare the ability of first grade children to generate word associations with their reading ability. The effects of neutral and emotional stimuli on the quantity of responses were also examined.

Oral language facility has repeatedly been suggested as an important base for success in reading. One facet of oral language ability that has received particular attention has been word associations. Following is a review of the literature dealing with oral language, various aspects of word association tasks and their relationship to reading.

**Oral Language and Reading**

Hildreth (cited in Anastasiow, 1971) reviewed the literature relating the importance of oral language to reading. She stated that studies dealing with oral language have lead to four major conclusions. One major conclusion drawn was that the words children use in their own speech are easier for them to read in print than words they do not use in their speech. Also it was concluded
that the richness of the child's language is significantly related to reading success. Although these studies varied in their methods of determining language richness, they all reached the same conclusion. Students with a high quality of language are more likely to have a higher level of reading achievement. This supports the theory that oral language and reading are interrelated.

A third conclusion drawn was that deficient readers are deficient in oral language. And finally most of the studies agreed that speech defects are related to reading problems. The majority of children with speech defects are generally poorer readers.

From this review, Hildreth concluded that oral language should be developed prior to and along with reading lessons if children are to learn to read well. She also urged that children's oral language be taken into consideration in the preparation of reading materials for both beginning readers and older children.

An often cited study verifying the relationship of oral language to reading was done by Strickland (1962). This study was designed to analyze the structure of children's language in the first through the sixth grade, to compare it with the structure of the language in the
books in which children are taught to read and to ascertain at a selected grade level the influences of any apparent differences on the quality of the children's reading skill.

The spoken language of 575 children was analyzed and compared with the language in reading textbooks. Strickland found that children at all grade levels use a wide range of language patterns. The certain patterns which children use with great frequency appear to be basic building blocks of their language.

Concerning the relationship of spoken language patterns to language patterns found in reading textbooks, it was concluded that:

The basic subject, verb, object pattern was the only pattern to appear in the samples of practically all of the books. The patterns which appeared in the samples differed from book to book within a series as well as from series to series. Patterns of sentence structure appeared to be introduced at random in a rather haphazard manner. A pattern of structure, once introduced seemed not to be followed by any sort of repetition or effort at mastery. There appeared to be no scheme for the development of control over sentence structure which paralleled the generally accepted scheme for the development of control over vocabulary. (Strickland, 1962, pp.103-104)

The language patterns of sixth graders and second graders was compared to their reading skills. It was found
that the sixth grade children who ranked high in silent reading comprehension, oral reading interpretation, and listening comprehension made more use of the common structural patterns than did children who ranked low on these variables. Second grade children who made more use of simple patterns were in the lowest category of reading age while children in the highest category tended to use the patterns in extended and elaborated form and therefore in longer phonological units. This differed from the findings with the sixth graders so Strickland called for more intensive research to determine exactly what type of relationship existed among language patterns and reading skills.

Another major study in this same area was a longitudinal study conducted by Loban (1976). In this study Loban traced the development of oral language and reading ability of approximately three hundred children from kindergarten through twelfth grade. Loban was concerned with identifying the differences between children who ranked high in proficiency with language and those who ranked low in proficiency with language.

Language proficiency was determined by yearly individual oral interviews, written compositions, listening tests and teacher ratings. Reading scores were obtained from either the Stanford or California Test of Reading
Achievement. From fourth grade through twelfth grade, the subjects submitted a list of books read during the year.

Loban found that subjects in the high language proficiency group were high and subjects in the low language proficiency group were low in all the following attributes:

1. average number of words per communication unit
2. syntactical elaboration of subject and predicate
3. number of grammatical transformations
4. proportion of mazes to total speech
5. reading ability
6. writing ability
7. height and range of vocabulary
8. scores on listening tests
9. uses of connectors
10. uses of tentativeness
11. number of dependent clauses
12. use of adjectival clauses (Loban, 1976, p. 24)

Loban also found that those superior in oral language in kindergarten and grade one before they learned to read and write were the ones who excelled in reading and writing by the time they were in grade six. A strong positive relationship was found in speech, reading, writing and listening. Rarely did a subject show proficiency in one language art and lack proficiency in a second language art.

The work of both Strickland and Loban points out
that there is indeed a relationship between oral language and reading ability. The nature and implications of this relationship still are not totally clear. Much more research is needed into the various aspects of language proficiency and reading skills.

Both Ruddell (1965) and Tatham (1970) investigated the effect that different language patterns within reading materials would have on reading comprehension.

Ruddell presented fourth grade students with six different cloze passages to test silent reading comprehension. Three of the passages used the same language patterns that the students used in their oral language and three passages used the traditional textbook language structure. A significant difference in comprehension was discovered. Comprehension was significantly higher on the passages that used language patterns similar to the language patterns which the children used. Ruddell concluded that reading comprehension is a function of the similarity of patterns of language structure in the reading material to oral patterns of language structure used by children.

Tatham reported similar findings. Her study included both second and fourth graders. This study differed from Ruddell's in that comprehension was tested by individual sentences that were unrelated to each other rather than passages. She found that comprehension was significantly
higher on the sentences which utilized language patterns that were similar to those used by the children.

One element of oral language, vocabulary diversity, was studied by Moe (1974). Vocabulary diversity was defined as a measure either of the language spoken within a fixed-time period or of the total utterances, sentences or words. Moe hypothesized that vocabulary may be considered the most important aspect of language since words which make up a vocabulary provide the component parts of a language. The objectives of Moe's study were to compare the speaking vocabularies of beginning readers, the vocabulary of primers and the vocabularies of trade books. Vocabulary diversity was determined by dividing the number of different words found in a sample by the total number of words contained in the sample. Also used as a measure of vocabulary diversity were the number of words used only once within each sample.

It was found that the speaking vocabularies were much more diverse than the language of textbooks or trade books. This raises some questions dealing with the relationship of a child's speaking vocabulary to beginning reading. Does the vocabulary that a child brings to school affect the ability to learn to read? Should beginning reading materials contain vocabulary similar to the child's?

The possible effects that oral language has on reading
are virtually endless. Researchers have only begun to study the numerous effects of this relationship. Many different aspects of oral language have yet to be adequately investigated. Oral word associations are one such area. Oral language responses to a stimulus in a free association task have been subjected to various types of analysis for years. Psychologists have used these associations as an indicator of emotional disturbance. In recent years associations have been viewed by psychologists as a means of understanding communication. And now associations are being studied in terms of their relationship to reading achievement.

**Word Association Research**

**Types of Word Association Tasks**

There are two main types of word association tasks—controlled association and free association. Controlled association requires that the subject respond with a word which meets certain requirements that the examiner has established such as answering with a word from a specific word class. Free association allows the subject to respond with the first word that comes to mind with no restrictions.

Cofer (1967) compared the responses obtained from four different controlled association conditions with free association response distributions for the same stimuli. In the first controlled association task the subjects were
told to respond with a word that was similar in meaning to the stimulus word. The second task required them to respond with a word that was a part of the stimulus word. The third task called for a response that told the whole of which the stimulus was a part. And finally the fourth task called for a response which was in the same grammatical class as the stimulus.

After analyzing the data, Cofer found that a significant number of responses in the controlled association tasks also occurred in a free association task. He concluded that under the conditions of this study, there is substantial similarity in the responses obtained under controlled association and free association. He suggests that the mental processes behind controlled association are similar to mental processes behind free association.

Word association tasks may also differ in the manner that they are presented and the manner in which the subject responds. Stimulus words may be presented either orally or visually or individually or in a group. Responses may be written or given orally.

Entwisle and Forsyth (1963) studied the effect of method of administration on the word associations of children. They presented fifth grade students with two different types of word association tasks. One task was the individual/oral method. In this task the individual students were
presented orally with the stimulus word and they responded orally. In the group/written method the students as a group were orally presented with the stimulus words and they answered by writing their responses.

The commonality of response for each stimulus word was obtained by adding the frequencies of the three most common responses. Commonality of response is an indication of how often that particular response is likely to occur according to normative group word association data. It was found that the individual/oral method yielded the greatest commonality of response. That is to say that the subjects were more likely to respond with an expected response in the individual/oral method. The group/written method produced more idiosyncratic responses than the individual/oral method. This suggests that method of administration and method of response might affect results of a word association task.

Reynolds (1971) examined the effects of the mode of presentation of the stimuli on the type or quality of response. He used four different groups of subjects—18 institutionalized emotionally disturbed adolescents, 96 seventh and eighth grade boys and girls, 40 rural third grade boys and girls and 40 rural fifth grade boys and girls. Half of the subjects were orally presented with the stimulus words while the other half was visually presented.
with the stimulus words. All responses were written. Responses were analyzed and classified as either paradigmatic or syntagmatic.

Paradigmatic responses were classified as those that formed one of the following relationships: part-whole, substitute, superordinate, subordinate, or coordinate. All other responses were considered to be syntagmatic. Reynolds assumed that paradigmatic responses represented a higher form of response. (Studies dealing with paradigmatic and syntagmatic responses are discussed in the next section.)

It was found that for both males and females more paradigmatic responses were produced in the oral presentation than in the visual presentation except for the seventh and eighth graders. Mode of presentation did affect the results of the word association task.

Association tasks may also differ in terms of the number of times that a subject responds to a stimulus. Discrete association requires that the subject responds only once to the stimulus word. In continued association the subject is repeatedly presented with the stimulus and replies once each time the stimulus is presented. In continuous association the subject is presented with the stimulus word only once and responds as often as possible in a certain period of time.

Cofer (1958) compared word associations obtained
through discrete association and continued association. The continued association task consisted of a repetitive listing of stimuli down the left-hand margin of the paper. Forty-eight subjects responded once to each repetition of the stimulus for a period of one minute. The discrete association data was obtained by 1,000 subjects responding once to each of the same 25 stimulus words. It was found that the number of different responses given in continued association always exceeded that given in the discrete method. In general there was a considerable but not a perfect correspondence in the high ranking responses identified by the two methods. Most of the associations that were among the five most frequent responses to stimuli in single word association were also among the most frequently given responses in continued association. The average rank-order of emission in continued association corresponded closely to the rankings based on group frequency in the discrete association norms. Therefore, Cofer concluded that group normative data were valid when used to show the response hierarchy which one or more subjects might give successively to the same stimulus.

DeBurger and Donahue (1965) studied the similarity between stimuli and their responses in continued and continuous association. Thirty-two college students wrote their responses to both continuous and continued association tasks. Results showed that the meaning of the response
became progressively less similar to the stimulus with succeeding associations. The effect was more pronounced with continuous association. DeBurger and Donahue concluded that this supports discrete association studies in that the first response which a subject gives is the strongest.

As can be seen by these various studies there are many factors to be taken into consideration when designing a word association task.

**Types of Responses**

Linguists have been concerned with the types of responses to word association tasks. Responses are generally categorized as either paradigmatic or syntagmatic. A paradigmatic response is a response fitting into the same grammatical category as the stimulus word. A syntagmatic response is a response which would be syntactically correct if it were found following the stimulus word in a sentence.

Some researchers have recently begun to define paradigmatic responses as responses that fit one of the following relationships with the stimulus word: part-whole, substitute, superordinate, subordinate or coordinate. All other responses are considered to be syntagmatic. Whichever definition is used, there is generally agreement as to which category the response belongs.

Linguists have been interested in these two different types of responses mainly because the type of response given
changes as the person matures. Children are more likely
to give syntagmatic responses, and adults are more likely
to give paradigmatic responses.

Entwisle (1966) made an extensive investigation
into the types of responses given to a discrete association
task by first-graders through adults. She discovered that
the most noticeable increase in paradigmatic responses
occurred during the fifth grade. Nouns are most likely to
elicit a paradigmatic response even at the earliest ages.
Changes in responses for verbs proceeded at a slower pace
than for other form classes but was firmly established by
fifth grade.

Many researchers have attempted to explain the
reasons for this shift from syntagmatic to paradigmatic
responses. Brown and Berko (1960) suggest that this change
in word associations is a consequence of the child's gradual
organization of vocabulary into the syntactical classes.
They presented four groups of subjects (first graders, second
graders, third graders and adults) with thirty-six stimulus
words. The words were selected because of their high
frequency in the speech of elementary students. Then each
subject was given a word usage test which consisted of
identifying the word class of a nonsense word shown in two
sentences. Scores on both tests regularly increased with
age. They concluded that the linguistic skills required to
correctly perceive and use a part of speech were highly correlated with the frequency of paradigmatic responses.

Masters (1969) reports that the change in type of word associations that children give as they grow older is related to a reduced tendency to give functional definitions of words. A functional definition requires the use of a sentence to define a word in terms of what it does or how it is used. Children are more likely to define a word in this manner while adults are more likely to define a word by giving a synonym. For this study, Masters used 76 children between the ages of four and nine. After testing the children with an oral individual discrete association task and a word definition task, he noted that there was a significant correlation between syntagmatic responses and functional definitions. Both functional definitions and syntagmatic responses decreased with increasing age. It should be pointed out here that although the two factors are related it does not necessarily imply that one causes the other.

Other researchers have been interested in the implications that this change in type of response has for other behaviors of the individual. Bickley, Dinnan and Bickley (1970) attempted to determine if there was any relationship between verbal responses, either paradigmatic or syntagmatic, and performance on an intelligence test. Subjects in this study included 65 nineteen and twenty year old
college students and 65 nineteen and twenty year old prison inmates. Both groups were given the Otis Quick Score Mental Maturity Test in a group situation. They were also given a thirty word discrete association task individually. It was found that for both groups of subjects, those designated as high IQ had significantly fewer syntagmatic responses than those with low IQ. They concluded that a person with more paradigmatic responses is more likely to score higher on an IQ test than a person with more syntagmatic responses.

Dinnan, Neilsen and Crable (1976) compared the performance of "slow learners" on an intelligence test and a discrete word association test. Fifty eighth-graders with an average IQ of 68 responded to a thirty word discrete association test. Their responses were categorized as either paradigmatic or syntagmatic. It was found that at least half of the responses were outside of the expected general response of those students who succeed academically. The suggestion was made that training in paradigmatic responding may have a positive affect on academic achievement.

Routh (1972) wanted to see if paradigmatic responses could be increased with training. A free association task was given to thirty kindergarten and thirty fifth grade students and was followed by systematic training in producing paradigmatic associations. Training involved instructing, prompting and examples. Candy rewards were given. Under
all conditions fifth graders produced more paradigmatic responses than did kindergarteners. Training led to a slight increase in paradigmatic responding to verbs and adjectives for both groups. However, there was also a slight decrease in noun responses given to noun stimulus words by kindergarteners. It does appear then that paradigmatic responding is a skill that can be taught.

Although extensive research has been done in the area of paradigmatic and syntagmatic responding, it is still unclear as to why this difference exists, what causes it, and what the implications are for other aspects of behavior.

Commonality of Responses

Commonality of response is another aspect of word associations that is often studied. Commonality is generally defined as the degree of agreement between an individual's response and the standard. The standard being in most cases data from a large population gathered by means of a discrete association task. Data of this type are generally listed according to the three most common responses to certain stimuli.

Kjeldergaard and Carroll (1963) investigated commonality of response as it related to verbal ability and personality factors. The first fifty stimulus words from the Kent-Rosanoff group data list were given to two hundred thirty-seven senior high school students. They
found that correlations between word associations and personality measures were low. But commonality of response was significantly related to twenty-six different verbal abilities. Those who scored higher on tests of verbal ability gave responses with a higher degree of commonality.

Doak (1970) studied the commonality of response to 100 stimuli by eighty kindergarteners. He theorized that any group of subjects will have certain common backgrounds, interests, education and vocabulary; therefore, they should give some like responses to the stimulus words. He found that three-quarters of the responses obtained were common and only one-quarter were unique.

Doak's study appears to support the theory that there are certain responses which subjects can be expected to give. However, Champion (1971) duplicated Doak's study and found contradictory results. Her study was identical to Doak's except that her subjects included deprived children. All of the children were white and their families had been categorized by local social agencies as living at a poverty level economically. She found that three-quarters of the responses were unique and only one-quarter were common. She concluded that deprivation results in a reduced verbal facility and that when the child is faced with a stimulus word for which the language experience has provided no ready associate, the subject picks some object in the room or any
perceptual cue as a response rather than disappoint the examiner by giving no response. This would account for the large number of unique answers she was given.

Still others have viewed the uniqueness of response as an indication of creativity. Since unusual associations are ordinarily considered to be diagnostic of psychiatric disturbances it is difficult to determine which responses indicate creativity. Associations of moderate but not extreme uniqueness may furnish a better index of creative potential than very rare or distant responses.

Saronoff Mednick (Mednick, Mednick, and Jung 1964) developed the Remote Associates Test (RAT) as a measure of creativity. He theorizes that creative thinking consists of the forming of associative elements into new combinations which either meet specified requirements or are in some way useful. The more mutually remote the elements, the more creative the solution. Therefore, the RAT requires the subject to find a fourth word which could serve as an associate link between three other words. For example, the answer to electric-wheel-high would be "chair". The RAT consists of thirty such associations.

Mednick, Mednick, and Jung tested this theory with forty-eight college juniors and seniors. The subjects were individually administered a word association task which consisted of thirty-two stimulus words typed on a 3x5 card.
They were allowed two minutes to respond verbally to each stimulus. The subjects were also administered the RAT and on the basis of the results of this test were designated as either high creativity, medium creativity or low creativity. The data from the two measures were then analyzed. It was found that the level of the RAT score was directly related to continuous association output. The speed of association was positively related to level of creativity. The conclusion reached was that the sheer number of associations to the elements of a problem is directly related to the probability of reaching a creative solution to the problem. This suggests that highly creative individuals will respond with a greater number of associations to a stimulus than less creative individuals. Therefore it is not simply a matter of giving unique or common responses but rather giving a large number of responses.

Rothenberg (1973) also compared the results of word association tasks to creativity level. However, he determined creativity for 115 college undergraduates by means of a questionnaire which the subjects completed prior to the word association task. The students were not aware that they were being tested for creativity. One hundred stimulus words were presented orally and the subjects responded once to each stimulus. Their response time was measured. The results showed that unusual responses did not have a significant
relationship to creativity but that rapid opposite responding is associated with the highly creative group.

It appears from the results of these studies that commonality of response or uniqueness of response is not a true indicator of creativity.

Effect of Stimulus Type

Another element of word associations that is frequently the object of study is the effect that the type of stimulus has on the response. Do certain characteristics of the stimulus affect the results of the word association task?

Cofer and Shevitz (1952) attempted to determine if word frequency of the stimulus affects the word association task. Word frequency is the amount of times that the word occurs in everyday usage. Their subjects included sixty-eight male college students and thirty-eight female college students. The subjects were asked to write all the words which they could associate with the word pronounced aloud and shown on a card by the examiner. Ten minutes were allowed for each stimulus. Every two minute interval was noted. There was found to be no difference between the male and female group as far as the total number of associations was concerned. Most of the responses were given in the first two minutes of the response period. The total number of responses was greater for high frequency words irrespective of whether
it was a noun or adjective. The results clearly indicate that there is a relationship between word frequency count and number of associations given to stimulus words of varying frequency. They concluded that word frequency is related to degree of response availability.

Other researchers have been concerned with the effect that emotional and non-emotional stimuli have on responses. Veness (1962) attempted to induce slips of the tongue and word association faults by introducing an element of time pressure to the word association task. Her study was designed to compare neutral and affectively toned words for their power to elicit stumblings and slips of the tongue. The subjects were thirty-two female college students. Three judges independently labeled 120 words as either very emotional, emotional, or neutral. The subjects were asked to respond to the stimuli in beat with a metronome (to induce pressure). "Slips" comprised stumblings, in saying either the given word or the response word, omissions and misreadings of the stimulus word. "Faults" comprised missing the beat on either saying the words or responding, repetitions and failure to respond. She found that there were no differences in slips of the tongue for emotional and non-emotional words but the individual differences for slips of the tongue were great. Veness concluded that this shows that certain people are more liable than others to make slips, irrespective of
the content of the words. However, emotional words did produce 65% more faults than neutral words. There were also more faults with less familiar words. Veness concluded that although affectively toned words did appear to influence results in the word association task, there were other factors which should also be taken into consideration such as experimental embarrassment, difficulty and availability of strategies and personal and particular relevance of the material.

Doris, Sarason and Berkowitz (1963) considered the effects of emotional and non-emotional stimuli on word associations as part of a larger study on test anxiety and performance on projective tests. Four clinical psychologists categorized a list of 60 words into five groups of words: neutral (presumably not related to any of the conflict areas in a child's life) and four groups of words dealing with different conflict areas in a child's life (aggressive words, dependency words, school words and words related to the body image). Ninety-six third graders took the word association test and their reaction times were measured. It was found that the emotional words elicited longer reaction times. For children who were designated as high anxiety the reaction time was greater than for children who were designated as middle anxiety and the reaction time of the middle anxiety group was greater than for the low anxiety
group. The affectivity of the stimulus effected the high anxiety students more than the other two groups.

Cramer (1965) investigated which factor would affect response variability more—frequency of the stimulus or emotionality of the stimulus. Response variability is the range of different responses to the same stimuli. This study consisted of two parts. In Experiment I a written word association test was given to 167 college students. Twenty of the stimulus words were traumatic and forty were neutral. There was found to be significantly more responses to the traumatic stimuli. No significant difference was found between familiarity of the stimuli and the number of responses. High frequency stimulus words did not necessarily produce more responses. Experiment II consisted of the same word association task but used 200 psychiatric patients as subjects. The results were the same as the results in Experiment I. The findings clearly support the hypothesis that the affective quality of a stimulus word determines the number of different responses elicited by that word to a greater degree than word frequency.

Reilly (1968) conducted a similar experiment but with emotionally disturbed and non-emotionally disturbed second graders. The word association task consisted of fifteen emotional stimuli and fifteen neutral stimuli presented in random order. Both groups had significantly
slower reaction times to emotionally connotative words than to neutral words but the emotionally disturbed group was affected more. Reilly concluded that in the reading situation therefore, one could expect that emotionally disturbed children or possibly children predisposed to such disturbances could be adversely affected by the connotations associated with the reading material. Reading material that deals with possible sources of emotional conflict is probably not the best to use with emotionally disturbed children.

These studies do seem to indicate that the nature of the stimulus does indeed play a part in the word association task.

**Word Associations and Reading**

The word association task as it was first developed was used primarily by psychologists. Educators have now become interested in this technique. Its usefulness to the educational researcher is rapidly becoming accepted. Specifically many researchers have studied the word association task and its relationship to beginning reading as well as to specific reading skills.

Mickelson (1972) is one researcher that has been especially interested in this area. She introduced the term associative verbal encoding a/v/e to indicate an aspect of language performance relating to an individual's ability to
verbalize the word associations in one's repertoire. She wanted to determine if verbal associational fluency is related to reading achievement and if so, how it is related. Specifically, will a/v/e improve with training and will this cause an improvement in reading achievement?

Subjects used in this study were 423 elementary school children. Associative verbal encoding was determined by the following formula: \( a/v/e = \frac{[4(z)10 + 50]}{12} \). It should be noted that a/v/e is measurement of quantity. This was compared with meaningfulness which is a measurement of quality of response. Meaningfulness was determined by Mickelson's Table of Meaningfulness which constitutes an empirical basis for comparing an individual's a/v/e with that of the norm group. Reading achievement was measured by the Metropolitan Achievement Test. The results indicated that a/v/e does improve with training and this is associated with an improvement in reading achievement. Mickelson uses these results to support the linguistic viewpoint that any aspect of language performance might be related to verbal associational fluency. Therefore, a readily available verbal response would be an essential part of reading theory which relies on hypothesis-testing behavior in the reader's search for meaning. This can be expanded to imply that the decoding process of reading and the encoding process of language expression, might both be indicative of language competence.
Brescia and Braun (1977) studied a/v/e as it relates to sight vocabulary acquisition and retention. Forty-eight nouns were randomly arranged in sets of six. First grade students were then asked to respond to one set daily over a two week period. The children were individually exposed to an oral presentation of each stimulus and instructed to provide associative responses in a sixty second interval. Meaningful indices were determined for each stimulus by calculating the average number of responses to each stimuli. The students were then given sight vocabulary training with six high meaningful words and six low meaningful words. Some of the subjects were given sight vocabulary training which included training in a/v/e. When they were presented with a sight word they were also presented with an associate word and the relationship of the two words was discussed. It was found that words with high meaningfulness were learned faster and retained longer than words with low meaningfulness. The a/v/e training did not significantly influence the rate of sight vocabulary acquisition. This study implies that words appear more or less meaningful to children as a function of their ability to verbalize the associations evoked by that word.

To determine the effects of word associations on reading, Samuels and Wittrock (1969) provided first grade students with word association training. Associative
training consisted of the examiner and subject alternately saying the word pairs. Associative strength was determined by the number of times that this procedure was repeated. All of the subjects were able to read the first word in the word pairs but not the second. They were then trained to read pairs of words either the same as, or different from, those pairs of words they had memorized during word training. Reading was superior when the same word pairs they had memorized during word training were used in the reading. Word pairs having low strength associations and also word pairs having high strength associations facilitated reading when compared to word pairs with zero strength associations. There was no difference between high and low strength associates. Samuels and Wittrock suggest that when new vocabulary is introduced it should be used with a word already known.

The results of this study led Samuels and Wittrock to hypothesize that each word in a sentence functions as a stimulus for the next response. If the associative strength between words in the text is high, it is probable that when a reader reaches an unknown word, contextual cues will provide the correct verbal response of the word.

There have also been some studies done on paradigmatic and syntagmatic responding as they relate to reading. Bickley, Bickley and Cowart (1971) attempted to determine the effectiveness of oral language responses as a predictor of
the reading performances of intermediate school students. Thirty stimulus words were given orally and the subjects responded to each stimulus once. The responses were categorized as either paradigmatic or syntagmatic. Reading ability was determined by the California Reading Test. It was found that students who gave paradigmatic responses scored higher on the reading test. Bickle, Dinnan and Jones (1971) conducted a similar experiment using first grade students. The same results were found here, also. The low reading ability group had significantly more syntagmatic responses. The implications are that the word association task can be used as a predictor of reading ability. This also raises the possibility that training in paradigmatic responding may help improve reading performance.

To determine if training in paradigmatic responding would improve reading achievement, McNinch (1972) presented twelve lessons thirty minutes long to sixth graders. All of the subjects were reading below grade level and were pretested with a word association task. The subjects were given pairs of words and they discussed the relationship. They had to perform such tasks as matching related words or making sentences using opposites. A placebo group received the same amount of training but their training included language experience tasks such as dictating stories or
writing rhyming words. Training in paradigmatic language responses did not significantly affect achievement in word meaning or paragraph meaning. However, training in paradigmatic responding did significantly affect measured achievement in paradigmatic responding. It appears then that paradigmatic responding is a skill that can be taught if training is directed toward this end. However, training of this type does not appear to improve reading achievement.

Hinze (1961) explored the relationships between the meaning an individual attaches to certain words and the interpretation of paragraphs containing those words. Twenty-five college freshmen were given a continuous free association task. The stimulus words for the word association task were key words found in two paragraphs that the subjects were asked to read and interpret. One paragraph was affective and the other was non-affective in nature. The particular meaning which the individual attached to the word in context could in each case be found among the associations that the subject gave for that word in isolation. If an individual responded positively to a word in isolation, a positive response was also given when the word appeared in context. It was found that the affective paragraphs were misinterpreted more often then the non-affective. Hinze drew the conclusion that some words evoke certain kinds of responses in individuals which then interfere with their
ability to analyze objectively the meaning of what they are reading. It appears that this is something that the classroom teacher must keep in mind when asking students to interpret what they have read.

Tinker, Hackner and Wesley (1940) studied the relationship of speed and quality of association as measures of vocabulary knowledge. They theorized that a stimulus word must be clearly comprehended to give rise to an association that is a synonym, an antonym, a definition or a word that is connected through usage in a logical manner to the stimulus. It would seem that vocabulary knowledge might be adequately measured by free association. The speed with which a subject responds might also indicate how strongly the word is comprehended. One hundred college students were given a word association task consisting of words categorized as either hard or easy. The subjects were asked to read the stimulus word out loud and give a response. Their response was then compared to scores on a vocabulary test. There was not a significant relationship between speed and quality of associations when compared to general vocabulary knowledge. However, there was a significant relationship when associations were compared to knowledge of specific words that were on the association test. Tinker, Hackner and Wesley concluded that application of the free association technique to measure either vocabulary knowledge or intelligence seems
to be rather limited. The word association technique does seem adequate to measure specific vocabulary knowledge.

Traxler (1934) investigated the relationship of rate of reading with speed of association. He correlated scores from a rate of reading test with free association scores and controlled association scores. Words in the free association test were administered by a tachistoscope. As soon as the subject responded, the tachistoscope showed a new word. For the controlled association task the subjects were told to give antonyms when the stimulus appeared on the tachistoscope. Traxler found significant relationships for both controlled and free associations. Those subjects who responded more rapidly to the association tasks also had a higher reading rate. Traxler hypothesized that some people read rapidly partly because they are able to associate ideas quickly.

These studies discussed here indicate the many possibilities that the word association technique has as an educational research tool.

**Summary**

Due in part to the extensive studies of Loban and Strickland it is generally accepted that oral language is a factor related to reading ability. Word association is one element of oral language that is often studied by the linguist and educator.
There are two main types of word association tasks—controlled association and free association. Research has shown that both types of association task appear to tap the same mental processes. Discrete association tasks require that the subject respond only once to a stimulus. Continuous and continued association call for repeated responses to the stimulus. Research has shown that the first response given in either continuous or continued association is likely to be the same response that is given in discrete association. Method of presentation and method of response appear to affect the results in word association.

Responses to word association tasks may be classified as either paradigmatic or syntagmatic. Paradigmatic responses are responses that fall in the same grammatical class as the stimulus word and syntagmatic responses are responses that would be grammatically correct if they followed the stimulus word in a sentence. It has been found that children are more likely to give syntagmatic responses than adults. The reason for this change in type of response is not clearly understood.

Commonality of response has been found to be significantly related to verbal ability. That is to say that a person with high verbal ability is more likely to give a common response. However, some researchers have attempted to use the degree of uniqueness of response as an indication of
creative ability.

The type of stimuli used has been shown to affect the responses given. Stimulus words that are frequently used in everyday language elicit a greater number of responses than unfamiliar words. Emotional stimuli have been shown to cause a longer response period than neutral words but generate more responses than neutral words.

Associative verbal encoding (the ability to verbalize word associations) has been shown to be significantly related to reading achievement. Sight words are learned faster and retained longer if they are words that are meaningful (as determined by a word association task) to the child. Poor readers are more likely to produce syntagmatic responses rather than paradigmatic responses. Training in paradigmatic responding does not appear to improve reading ability although paradigmatic responding is increased with training. A word association task may be used to measure specific vocabulary knowledge. Comprehension of a paragraph may be affected by an individual's associations to words found in that paragraph. People who can make faster associations are usually faster readers.

This review of the research dealing with oral language and reading and also word associations and reading shows the many different areas open to investigation. Many of these studies could have implications for beginning
reading and general reading instruction if they were duplicated using younger subjects. It can be seen from this review that the word association task is a useful tool for the educational researcher.
CHAPTER III

Design of the Study

Purpose

This study was a correlational one intended to examine the relationship between the quantity of continuous free associational responses to both emotional and neutral stimuli and reading achievement of first grade students. It was hypothesized that an examination of this relationship would lead to a better understanding of oral language development and reading.

Hypotheses

The null hypotheses tested in this study were:

1. There is no significant difference between the quantity of continuous verbal associations to emotional stimuli and the quantity of continuous verbal associations to neutral stimuli.

2. There is no significant relationship between the quantity of continuous verbal associations to emotional stimuli and reading achievement.

3. There is no significant relationship between the quantity of continuous verbal associations to neutral stimuli and reading achievement.
Subjects

This study included twenty-two first grade children in a middle class suburban community. The sample consisted of twelve females and ten males. This was a heterogeneous group with an average range of age and intelligence.

First graders were chosen to be studied because of the implications of the effect that word associations might have on beginning reading.

Instruments

Reading achievement was measured by the Metropolitan Achievement Test. Four scores were obtained from this test—word knowledge, word analysis, reading (comprehension), and total reading.

The continuous free association task was designed by the researcher and consisted of twenty words. The stimulus words were among those used by Doris, Sarason, and Berkowitz (1963). Four clinical psychologists categorized these words into two main categories for their study. The stimulus words were designated as either neutral or emotional. Emotional stimuli were words related to areas of conflict in a child's life. Neutral stimuli were words not related to any area of conflict in a child's life.

For the purpose of this study, twenty stimulus
words were used to obtain raw scores for the number of responses to neutral stimuli and number of responses to emotional stimuli. For a list of stimulus words used, see Appendix A.

Procedures

The Metropolitan Achievement Test was administered in a group situation by the classroom teacher. Testing was conducted in May, 1979.

The word association task was administered by the researcher on an individual basis during May, 1979. Each of the subjects was presented alternately with neutral and emotional stimuli. However, half of the population began with a neutral stimuli and half began with an emotional stimuli. This procedure was used to negate any possible effects of beginning with a specific type of stimuli. Stimulus words were presented orally.

Subjects were presented with practice words before testing began to ensure that they understood the task. Practice words were presented until the subject had a clear understanding of what was expected. The practice words used were: balloon, hamburger, boat, dog, clown. Some subjects required only one practice word while some required as many as five. The researcher was confident that each subject understood the task before beginning the testing.
Instructions given the subjects were as follows:

"I have a word game that we are going to play. Now I'm sure you know what a balloon is. When I say 'balloon,' tell me some of the words that it makes you think of. Tell me as many words as you can."

(Responses were encouraged. Other practice words were presented if necessary. Examples of responses were given by the researcher if the child did not appear to understand the task.)

"That's how we play the game. Every time I say a word, I want you to tell me all of the words that it makes you think of. After I say each word, I will wait thirty seconds for you to say as many words as you can think of. This clock will tell me when thirty seconds is over and then I will tell you to stop saying words. Do you understand what I would like you to do?"

If a subject gave only a few responses, more responses were encouraged by the researcher saying, "Can you tell me more?" Responses were hand recorded as well as tape recorded with a cassette recorder.

Raw scores for this task were obtained by counting the number of responses to emotional stimuli and the number of responses to neutral stimuli.

Single word responses were encouraged. However,
if the subject responded with a phrase, it was counted as a single response. That is, if the child responded to "sickness" with "feeling bad," it was counted as one response. This scoring procedure was used since it is generally recognized by researchers that a phrase as a response indicates one main thought.

**Statistical Analysis**

The four subtest scores from the Metropolitan Achievement Test and the two scores from the word association task were intercorrelated to identify significant relationships between the various factors.

The data used were raw scores for each of the tasks.

**Summary**

Three hypotheses were tested by intercorrelating scores from the Metropolitan Achievement Test and a continuous free word association task. These intercorrelations provided insight into the ability of first grade children to generate verbal associations and the relationship of this ability to reading achievement.
CHAPTER IV

Statistical Analysis

Purpose

The purpose of this study was to examine the ability of first grade children to generate verbal associations to both neutral and emotional stimuli and to determine if this ability is significantly related to reading achievement.

Principal Findings

Hypothesis I - There is no significant difference between the quantity of continuous verbal associations to emotional stimuli and the quantity of continuous verbal associations to neutral stimuli.

As seen in Table 1, there is no significant difference between the quantity of responses to emotional stimuli and the quantity of responses to neutral stimuli. The data failed to reject this hypothesis. The type of stimulus did not significantly affect the number of responses.

Table 1

Mean Responses to Emotional and Neutral Verbal Stimuli

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<tr>
<th></th>
<th>Responses to emotional stimuli</th>
<th>Responses to neutral stimuli</th>
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<tr>
<td>Mean</td>
<td>46.23</td>
<td>46.36</td>
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<td>t-ratio</td>
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\[ t(21) = 2.08, \ p < .05 \]
Hypothesis II - There is no significant relationship between the quantity of continuous verbal associations to emotional stimuli and reading achievement.

The data failed to reject this hypothesis. Correlation coefficients calculated between responses to emotional stimuli and total and subtest scores of the Metropolitan Achievement Test failed to reach significance (r = .422, p < .05).

However, it should be noted that word knowledge and quantity of responses to emotional stimuli were very close to being significantly related. (See Table 2)

Table 2

Correlations Between Responses to Verbal Stimuli and Reading Scores on Metropolitan Achievement Test

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<td>Total neutral assoc.</td>
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<tr>
<td>Word Knowledge</td>
<td>-.428*</td>
<td>-.401</td>
<td>-.431*</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Word Attack</td>
<td>-.321</td>
<td>-.286</td>
<td>-.343</td>
<td>.817</td>
<td></td>
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<tr>
<td>Reading Comp.</td>
<td>-.371</td>
<td>-.327</td>
<td>-.401</td>
<td>.957</td>
<td>.867</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total Reading</td>
<td>-.396</td>
<td>-.358</td>
<td>-.417</td>
<td>.983</td>
<td>.857</td>
<td>.994</td>
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*p < .05
Hypothesis III - There is no significant relationship between the quantity of continuous verbal associations to neutral stimuli and reading achievement.

This hypothesis was rejected. Table 2 shows a significant relationship between the quantity of responses to neutral stimuli and word knowledge. This is a negative correlation indicating that those students who gave large numbers of responses to neutral stimuli were more likely to have low word knowledge scores. Total reading and the other aspects of reading achievement that were measured were not significantly related to quantity of responses to neutral stimuli.

Incidental Findings

It was found that there was a high correlation between the quantity of responses to emotional stimuli and the quantity of responses to neutral stimuli. Students who gave large numbers of responses to emotional stimuli also gave large numbers of responses to neutral stimuli.

It was also discovered that the total number of responses to both emotional and neutral stimuli was significantly related to word knowledge. This was a negative correlation indicating that students who had a large number of total responses were more likely to have lower scores on the word knowledge subtest.
The order of administration of stimuli (neutral stimuli first or emotional stimuli first) did not significantly affect the results of the word association task.

Summary

This study examined the relationships among first grade students' reading achievement and their abilities to generate verbal associations to both neutral and emotional stimuli.

It was found that there is no significant difference between the quantity of responses to emotional stimuli and the quantity of responses to neutral stimuli.

There was no significant relationship between the quantity of responses to emotional stimuli and reading achievement.

There was a significant relationship between the quantity of responses to neutral stimuli and word knowledge. This was a negative correlation.

It was also discovered that quantity of responses to emotional stimuli and quantity of responses to neutral stimuli were significantly related. There was a significant negative correlation between the total number of responses to both neutral and emotional stimuli and word knowledge.
CHAPTER V

Conclusions and Implications

Purpose

This study examined the relationship between the quantity of continuous free associational responses to both neutral and emotional stimuli and reading achievement of first grade students. It was hypothesized that an examination of this relationship would lead to a better understanding of oral language development and reading.

Conclusions

In examining Hypothesis I it was found that there was no significant difference between the number of responses to neutral stimuli and the number of responses to emotional stimuli. The mean number of responses to the two different types of stimuli were virtually identical. In this study the type of stimuli did not affect the number of responses.

Previous studies have shown that stimulus type can have an effect on a word association task. Studies involving discrete associational tasks have shown that emotional stimuli tend to have slower response times than do neutral stimuli (Doris, Sarason, and Perkowitz, 1963; Reilly, 1968).

Cramer (1965) showed that with college students,
emotional stimuli elicited a greater number of responses than neutral stimuli. This is in contradiction of the findings reported by this author. The discrepancy might be explained by the fact that two different age groups were involved. Also Cramer's study required that the subjects write their responses. This tends to decrease impulsive responses and might allow the subjects to be more influenced by the emotional nature of the stimuli.

Since stimulus type did not affect quantity of responses one might expect that the quantity of responses to emotional stimuli would have similar relationships to the various measures of reading achievement. This was not the case. There was a significant negative correlation between word knowledge and total number of responses. However, when total responses were broken down into responses to emotional stimuli and responses to neutral stimuli, word knowledge was significantly related only to responses to neutral stimuli. The correlation between number of responses to emotional stimuli and word knowledge was very close to being significant.

The word knowledge subtest of the Metropolitan Achievement Test relies mainly on neutral stimuli. This may be a factor in analyzing the relationship between number of responses to emotional stimuli and word knowledge. Perhaps the use of emotional words on the word knowledge subtest would
have affected the results of this test and therefore the relationship between the number of responses to emotional stimuli and word knowledge.

Of all the reading skills measured, word knowledge was the only one which was significantly related to the word association task. This seems reasonable since the word association task and the word knowledge subtest both involve vocabulary.

The relationships found in this study were negative. That is to say that students who gave large numbers of responses tended to have the lower word knowledge scores. One might expect just the opposite. However, it must be kept in mind that the two different tasks involve two different types of vocabularies—expressive and receptive. It is not reasonable to assume that a person with a large receptive vocabulary would necessarily be able to generate large numbers of associations.

It is also possible that personality factors must be taken into consideration when studying the results of a word association task. The word association task does threaten some students and these students might be able to respond better to a traditional word knowledge test.

The two different tasks involved here also require two different cognitive styles. The word association task calls for impulsive responses while the word knowledge test
calls for reflective responses.

It was discovered that students who were able to give large numbers of responses to emotional stimuli gave large numbers of responses to neutral stimuli. It appears that the type of stimuli did not inhibit responses. Students with large expressive vocabularies could respond equally as well to emotional and neutral stimuli.

Half of the subjects responded to an emotional stimulus first and half of the subjects responded to a neutral stimulus first. There was no difference in the number of responses between the two groups. Therefore it can be assumed that the initial stimulus in the word association task did not affect subsequent responses.

Implications for Research

The area of word associations invites many opportunities for further research. There are still many aspects of word associations which are not clearly understood.

Since the word association task measures expressive language, correlations between this type of task and other measures of expressive language might be examined.

Additional relationships between word associations and reading might be discovered if the quality and type of responses were studied. Is commonality of response related to reading achievement? Does the ability to generate responses from a variety of grammatical classes
indicate a wider and larger oral vocabulary?

Cognitive style may have been a factor in the negative correlations found in this study. Therefore, a study dealing with the effect that various cognitive styles have on word associations would be suggested.

Along this same line, the effect that various personality factors have on word associations might be examined.

This study considered only the quantity of responses. A study also taking into consideration response times to neutral and emotional stimuli might be valuable.

Implications for Classroom Practice

The word association task is easy to devise and easy to administer which makes it an appealing tool for the busy classroom teacher. However, it should be used with discretion since much more research into the use of this tool is needed.

The word association task could be useful as an informal screening devise to aid the teacher in assessing the oral expressive language of students. The teacher should keep in mind that this is an informal measurement and should be used in conjunction with other measures of
expressive language.

**Summary**

By examining the relationship between the quantity of continuous free associational responses to both neutral and emotional stimuli and reading achievement several conclusions may be drawn.

The type of stimuli did not affect the number of responses. The affective quality of a stimulus word does not inhibit the quantity of responses. This contradicts findings of other studies.

Word knowledge was significantly related to total number of responses and number of responses to neutral stimuli but not to number of responses to emotional stimuli. This may be due to the fact that the word knowledge subtest of the Metropolitan Achievement Test relies mainly on neutral words and the effects of emotional words are not taken into consideration.

Word knowledge was the only reading skill which was significantly related to the word association task probably because both tasks involve vocabulary.

The relationships between word knowledge and total number of responses and word knowledge and responses to neutral stimuli were negative, possibly because the two tasks deal with two different types of vocabulary—expressive
and receptive as well as two different types of cognitive style--impulsive and reflective.

It can be assumed that the initial stimulus, emotional or neutral, in the word association task did not affect subsequent responses.

Areas open to further research include relationships between: word associations and other measures of expressive language, quality and type of responses compared to reading achievement, cognitive styles and word associations, personality factors and word associations, and response times to neutral and emotional stimuli.

The word association task could easily be used by the classroom teacher as an informal screening device of oral expressive language.
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BIBLIOGRAPHY
Bibliography


APPENDIX
## Appendix A

### Stimulus Words

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<th>Neutral Stimuli</th>
<th>Emotional Stimuli</th>
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