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PATRICIA LIGON BRADEN

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AN INVESTIGATION OF READING RATE  
VARIABILITY AMONG SIXTH GRADE  
STUDENTS

By

PATRICIA LIGON BRADEN

Bachelor of Science  
University of New Mexico  
Albuquerque, New Mexico  
1967

Master of Science  
Oklahoma State University  
Stillwater, Oklahoma  
1971

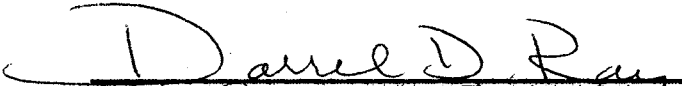
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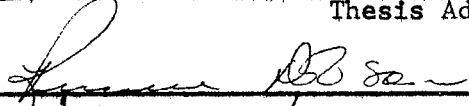
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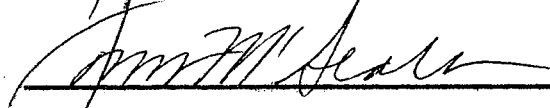
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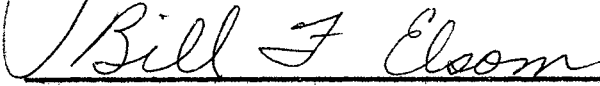
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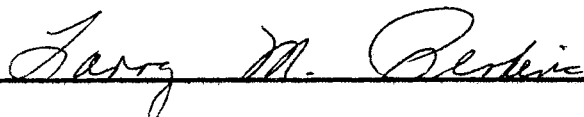
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Thesis Adviser

  
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Dean of the Graduate College

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## CHAPTER I

### PRESENTATION OF THE PROBLEM

#### Introduction

The pace of the curriculum in elementary schools has been accelerated in an attempt to meet the demands of a scientifically oriented society. Literacy in diverse areas requires a great deal of sophistication on the part of the child. Not only must he be able to read the material, but also be able to establish purposes for reading and vary his reading rate in accordance to that purpose if maximum efficiency in reading is to be established.

The ability to approach the reading act with a variable rate is not an automatic response for even a good reader. McDonald (1960) studied over 6000 readers at elementary, secondary, college, and adult levels. More than ninety per cent of the readers maintained a relatively invariant rate with all types of reading, despite instruction in differentiation of purpose and in spite of variations in difficulty, style, and content of materials. Herculane (1960) studied eighth grade average and above average readers. She found that the mean variation in rate was only fourteen words per minute between skimming and thorough reading.

< Increasing reading speed has become so popular with the American adult population that it has attracted the entrepreneur. This popularity is evidenced by the frequent advertisement of speed

acceleration courses in the various newspapers. The emphasis on reading speed continues despite the fact that authorities (Artley, 1963, and Tinker, 1946) contend that speed in reading has meaning only when it is considered along with comprehension, as demanded by the reading purpose. They feel that without consideration of comprehension, measurement of reading rate is a mere optical exercise. Furthermore, Carlson (1949, p. 512) warns that "Any program which emphasizes speed per se is apt to be disastrous to the accuracy of comprehension for the less able reader."

Authorities feel that reading variability, rather than mere rate increases, is desirable. Carrillo and Sheldon (1952) suggest that the mature reader is adaptable and versatile, and that he should be able to adapt his rate of reading to the purpose with which he approaches the printed page and to the difficulty level of the material. Betts (1946) stated, "Varying the rate of reading and the skills employed is an important achievement and, therefore, facility in this respect should be appraised."

#### Theoretical Orientation

The present study represents an attempt to develop an instrument that can be used to identify variable and non-variable readers among average sixth grade readers. This instrument is a group test which can be administered and evaluated by the classroom teacher.

Carrillo and Sheldon (1952) state, "A major problem seems to be that we have no instruments suitable to check our objectives of developing flexibility, and therefore have a tendency to ignore this phase of reading instruction." Since Carrillo and Sheldon's study

very little has been done to remediate this situation. Several standardized reading tests include a test of reading rate in some form (e.g. Stanford Diagnostic Reading Test and Gates-MacGinitie Reading Tests). The researcher located only one formal measure of reading variability for the elementary school level, the Reading Versatility Test (McDonald, Alodia, Zimny, et. al., 1962). A careful evaluation of this test revealed certain inherent weaknesses which causes one to question the validity of this instrument. According to the manual, the Reading Versatility Test is designed to measure the effect of varying purposes upon the rate of reading. The application of the Dale-Chall readability formula (1948) to the first and second passages of the Reading Versatility Test indicates that they are divergent in reading level as well as divergent in purpose. Since the first passage is fictional and the second passage is factual another confounding variable is found. It is impossible to take passages one and two and compare the rate variation solely on the basis of variation in purpose when, ~~as it has been pointed out~~, the reading level of the passage and the type of material could be the factors influencing rate rather than purpose.

The passage length in the Reading Versatility Test is approximately 300 words long for each of the four passages. This is shorter than is generally recommended when reading rate is to be measured. Carrillo and Sheldon (1952) suggest that the passage length should be around 400 words. Letson (1958) concluded that 500 to 1000 words were necessary to measure reading rate. Braam (1963) used passages varying from 750 to 900 words, and Levine (1969) used 500 word passages. It was with the limitations of the present instrument designed to measure

reading variability and the omission of an estimate of reading variability on standardized reading tests that the present endeavor to construct an adequate measure of reading variability was begun.

#### Statement of the Problem

The purpose of this study was to devise an instrument that measures the ability of average sixth grade students to adjust their rates of reading. The instrument is known as the Reading Rate Variability Test and is comprised of a series of passages especially written to evaluate reading rate influenced by a stated purpose or to evaluate reading rate influenced by the difficulty level of the material.

#### Definitions of Terms

The following definitions are given to clarify terms that are used in this study.

1. Variability: Variability is the adaptation of reading rate according to the demands of the particular passage which is being read. In this study the influence of two factors, difficulty level and purpose, were studied.
2. Difficulty level: Difficulty level is the grade score of a passage as determined by the use of the Dale-Chall Readability Formula (Dale-Chall, 1949).
3. Purpose: Purpose is the stated reason for reading a passage. This purpose was read by the student prior to his reading the passage.
4. Variable group: Variable group is a group which has been taught to vary its rate of reading in accordance to the purpose or difficulty level of the passage being read.
5. Non-variable group: Non-variable group is a group which has not been taught to alter its rate of reading in accordance to the purpose or difficulty level of the passage being read.

6. Average reader: An average reader is one who scores between 6.0 and 7.9 on the comprehension subtest of the Stanford Diagnostic Reading Test.
7. Stanford Diagnostic Reading Test: The Stanford Diagnostic Reading Test is designed to estimate a child's level of proficiency in the various areas of reading ability. The test is published by Harcourt, Brace, and World (1966). Two subtests were administered: Reading Comprehension and Rate of Reading.
8. Reading Rate Variability Test: This is a battery of five subtests combined to form a diagnostic instrument to identify the influence of various factors on reading rate of sixth grade children. The test is divided into five selections. Selections one and two are designed to measure the influence of the difficulty level of the passage on reading rate. The directions for these passages are identical so that the purpose is held constant. Selections three, four, and five are designed to measure the relative influence of the purpose for reading the passage on reading rates of sixth grade students. The purposes which have been selected are thought to be representative of the different types of purposes for which these students are generally asked to read. In selections three, four, and five the difficulty level is held constant.

### Hypotheses

#### Hypotheses Related to Rate

- A-1 There is no significant difference between variable and non-variable readers in words per minute with regard to the difficulty dimension.
- A-2 There is no significant difference between variable and non-variable readers in words per minute with regard to the purpose dimension.
- A-3 There is no significant interaction with regard to words per minute between variable and non-variable readers with regard to the purpose for reading.

#### Hypotheses Related to Comprehension

- B-1 There is no significant difference between variable and non-variable readers with regard to the comprehension scores.

B-2 There is no significant difference between the comprehension scores for variable and non-variable readers with regard to difficulty level.

B-3 There is no significant interaction between comprehension scores for variable and non-variable readers with regard to purpose for reading.

#### Assumptions

1. The timing of reading at ten second intervals will be adequate to determine rate of reading in words per minute.
2. Two passages will be adequate to measure differences in reading rate according to difficulty level of material.
3. Three passages will be adequate for measuring reading rate according to specific purposes for reading.

#### Limitations

The schools which served as the source of the population are comprised of military families, and the subjects' backgrounds may differ somewhat from that of the wider population.

The results of this study can only be generalized to those subjects from which the sample is drawn: sixth grade students enrolled in two schools in Colorado Public School District #20 and who scored between 6.0 and 7.9 grade level on the comprehension subtest of the Stanford Diagnostic Reading Test.

#### Instrumentation

The Stanford Diagnostic Reading Test Level II (Form W) was used as a screening instrument for the selection of subjects for the study. The Reading Comprehension subtest scores were used as a basis for

designation for reading grade level.

The Stanford Diagnostic Reading Test Manual reports a mean item discrimination index for reading comprehension of 51 at the sixth grade level. The reliability coefficient of the test is reported at .91 for the total comprehension score at the sixth grade level.

#### Methodology

The test of variability was composed of five subtests. The first two subtests measured the reading rate of selections which were considerably different in difficulty level. The final three selections measured reading rate on selections which were considerably different in stated purpose for reading. The Dale-Chall Readability Formula was applied to estimate the difficulty level of all passages.

Factorial Analysis of Variance Statistical Design was used to determine the statistical significance of variation in reading rate and comprehension. These statistical designs have been described by many statisticians; however, the exact procedures in this study are taken from Bruning and Kintz (1968).

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Introduction

This study is concerned with variability of reading rate according to the purpose for which the passage is being read and according to the difficulty level of the passage. The related literature has been divided into four different areas: literature related to rate and comprehension; literature related to purpose for reading, rate and comprehension; literature related to difficulty level of the material, rate and comprehension; and literature related to flexibility. The review of the literature has been restricted to studies which are related to the concerns of the present study.

#### Literature Related to Rate and Comprehension

The rate at which a person reads is a subject of public interest as well as the topic of a great deal of research. Over fifty years ago Gilliland (1920) studied the effects of different speeds of silent reading upon the ability to recall what had been read. In comparing the results he found very little difference in recall regardless of the rate of reading. There was a trend to favor fast reading in fourth and seventh grades and to favor slow reading for high school and adults.

Later research approached the problem in varying ways. Letson



(1959) emphasized the development of increasing reading rate, while Rankin (1961) suggested that comprehension is increased by slow, deliberate reading. There is a wide disparity between the degree of correlation for rate and comprehension. Bloomers and Lindquist (1944), in a review of the literature concerning the relationship between rate and comprehension, found a range of  $-.47$  to  $.92$  correlation.

The interdependence of rate and comprehension is generally accepted by researchers although the mechanical aspects of reading rate are still being studied as a separate topic. This is generally accomplished through the use of eye movement cameras. Walker (1933) found that eye movements of superior readers changed when he compared the movement patterns for easy and difficult materials. When Anderson (1937) studied the eye movements of both good and poor readers his results confirmed the conclusions of Walker. The poor readers' patterns of eye movements were invariant despite the difficulty level of the material. Anderson's findings suggest that reading rate variability is a concomitant of good reading.

In the study by Bloomers and Lindquist (1944) they found that advanced high school students tended to cluster around their mean reading rate regardless of the difficulty level of the material. They reported that good comprehenders tend to adjust their rates downward as the difficulty level increases.

Speed and accuracy of comprehension were investigated by Carlson (1949). His research revealed that the effectiveness of fast and slow readers as measured by accuracy of comprehension was dependent upon levels of intelligence, purpose for reading, levels of difficulty of material, opportunities for referral in answering comprehension items,

and continuity of context. He concluded that at the upper levels of intelligence the rapid readers were more efficient. Conversely, at the middle and lower levels of intelligence the slower readers were more accurate.

### Summary

The related research seems to indicate that the relationship between speed and comprehension is a complex rather than a unitary consideration. Studies related to the mechanical aspects of reading have shown that eye movements are a reflection of reading patterns rather than the cause of them. Speed reading is meaningless unless it is accompanied by measures of comprehension. Purpose for reading, difficulty level of the material, and unique characteristics of the individual influence the speed of reading.

### Literature Related to Purpose, Rate and Comprehension

The influence of the reader's purpose for reading upon the reading rate of persons who do vary their rates of reading is discussed by Carrillo and Sheldon (1952). They indicate that the purpose for reading is one of the main factors which determines the rate of reading and the level of comprehension.

Researchers have studied the various aspects of setting a purpose for reading. Ballard (1964) compared the effect of guiding questions, motivating questions, and no-advance questions. He found that guiding questions were more helpful in improving comprehension and that motivating questions were no more helpful than no questions. Henderson (1965) investigated individually formulated purposes for reading. He.

concluded that fifth grade students do differ in the skill with which they are able to formulate a reading purpose and that good readers are more successful. Additionally, he found that those students who can set their own purposes attain purposes set for them better than can those who are unable to set their own purposes. Fincke (1968) found that comprehension of third graders was improved through the use of purpose-setting questions. This finding was quite the opposite of what Goudy (1968) concluded in his study of third grade children. Goudy's study indicated that the basic assumption that directed procedures produces better comprehension than non-directed reading was erroneous. Pettit (1970) indicated that direct instruction in how to read for a specific purpose did not significantly affect the achievement scores of sixth graders.

Ninety fourth, fifth, and sixth grade students were studied by Shores and Husbands (1950). Their test of the relationship between reading rate and comprehension contains three parts: (1) a problem to set the purpose for reading; (2) a passage containing all the facts necessary for the solution of a problem; and (3) twenty multiple choice comprehension questions. They concluded that the purpose set for reading and the nature of the material determine the relationship of speed and comprehension.

Troxel (1959) compared the results of pre-set purposes on rate and comprehension of matched pairs of eighth grade students. Troxel tested the abilities to read for specific answers to questions and to determine the main idea of expository mathematical material. An analysis of the results of his study showed that both rate and comprehension of the group which read for specific information were superior.

Troxel concluded that the purpose for reading influenced the speed at which the material was read.

### Summary

A review of the literature concerning the relationship of purpose for reading to rate and comprehension gives a general indication that the setting of a purpose for reading has a positive effect on comprehension. Reading ability does not necessarily indicate the degree of flexibility that can be expected of a reader. A few researchers have found that directed reading did not produce better comprehension.

#### Literature Related to Difficulty Level,

#### Rate and Comprehension

Anderson (1937), in his previously cited study, found that good readers adjusted reading rate downward as the difficulty level of the passage increased but that poor readers did not make that adjustment. Tinker (1939) found that the degree of correlation for rate of reading and comprehension decreased as the difficulty level increased.

The effect of difficulty of the material on rate and comprehension was the subject of a study by Stroud and Henderson (1943). They tested students in grades five through eight using Iowa Every Pupil Test of Basic Skills. Their findings suggest that there is almost no relationship between rate of learning and rate of reading. They also found some evidence that good readers are more successful at adjusting reading rate to difficulty level of the material than are poor readers.

Shores (1961) found that sixth grade students tended to be less flexible in their approaches to reading materials than were adults.

The lack of adjustment in reading rate by the sixth graders was accompanied by a significant reduction in comprehension scores. On the basis of his findings Shores suggested that students needed more instruction when the material was unfamiliar or more difficult than when it was a familiar topic.

### Summary

The findings of research concerning the relationship of difficulty level, rate, and comprehension suggest that there is a positive correlation for rate and comprehension when the material is easy. This correlation decreases as the difficulty level increases. The emphasis on rapid reading seems to be more deleterious for poor readers than it is for good readers.

### Literature Related to Flexibility

Flexibility of reading rate has been a matter of concern for a number of years. It gained importance with the realization that rate without regard to comprehension was meaningless. One of the earlier researchers in the area of flexibility was Hulten (1924). He attempted to determine whether or not identical material would be read at varying rates when reading was done for different purposes. Although his findings were inconclusive, he suggested that sixth and seventh graders' speeds of reading were dependent in part on the purpose for reading.

Gates (1921) was concerned about the discrepancy of the findings between rate and comprehension. He concluded that the thing being measured was neither rate nor comprehension; rather, it was rate of comprehension. Later, Traxler (1932) concluded that when high school

students read with the knowledge that they would be questioned about the material when they were finished the slow readers answered questions equally well as did the rapid readers. Bloomers and Lindquist (1944) studied high school juniors and seniors. They concluded that good comprehenders adjusted reading rate more than poor comprehenders when the reading difficulty level was raised. Shores and Husbands (1950) and Shores (1961) found that fast readers were not necessarily the best readers.

One of the most outstanding investigations into flexibility of reading rate was done by Carrillo and Sheldon (1952). In an analysis of earlier studies they determined that (1) reading rate should change as the result of variations in the rate of comprehension; and (2) many readers, even at the adult level, are inflexible in their rates of reading. Wheeler and Wheeler (1955) indicated that the rate of reading for a given selection was modified by such variables as intensity of thought, intelligence, inner speech, familiarity with the subject, and readability. Letson's study (1959) indicated that difficulty level of the material exerted more influence on reading rate than did purpose for reading. When Herculane (1960) studied eighth grade students she found that they were not only inflexible but also were vaguely familiar with terms related to the techniques of reading flexibility. Theophemia (1960) found a clear indication that the majority of students does not alter its approach regardless of the instructions presented them, the type of material to be read, or the explanation of appropriate reading rates which should be employed.

Harris (1965) worked with fourth, fifth, and sixth graders to help them vary their reading speeds for three purposes: reading for main

ideas, reading for sequence, and reading for specific task. His purposes were to examine the effects of a training program and to ascertain if the children had one invariant speed of reading regardless of their purposes. Harris discovered that there were no significant correlations between sex or grade level and that subjects were more capable of adjusting for narrative than for expository materials. Harris concluded that children became more efficient in later grade levels but no more variable in their adjustments of reading speed to purpose without training. Additionally, he found that children in grades four, five and six can be taught to vary their reading rates according to purpose. Smith's findings (1965) supported the findings by Harris.

Metsker (1966) studied the relationship of reading versatility and other factors. She found that, of the students who met the criteria of the Reading Versatility Test, those who exhibited good flexibility were students with lower mean mental age and intelligence quotients. Metsker questioned the educational significance of her findings since the highest correlation is .43. She offers two possible explanations for these low correlations: (1) the test used, which was the only one available, may not be sensitive or (2) the skills needed to vary reading rate for various purposes have not been taught to most sixth grade students. Metsker recommended that upper grade level children be taught the skills of reading flexibility and that more sensitive instruments be developed for testing this skill.

Instruction in flexibility of reading rate was recommended by Levine (1969). She studied the concomitance of good reading and flexibility. The results of her investigation of eighth grade students indicated that, while "good" readers exhibited more flexibility

than "poor" readers, both can profit from such instruction. The results of this study were supported by the findings of Doyle (1972) when he studied high school sophomores. In his study the high performance group varied its reading rate only when reading for a specific fact. There was no significant difference in the variation of reading rates between those who had been taught this skill and those who had not.

### Summary

The variation of reading rate in accordance with the different purposes for reading has been suggested by many research studies. That variation of reading rate is a skill which students can acquire has been shown; however, very little has been done to teach this skill. There seems to be a dearth of knowledge among students that variation of reading rate can be used. Additionally, students do not seem to associate the purpose for reading with approaches to the passages unless the skill has been specifically taught.

### Summary

This chapter has presented a review of the literature concerning several areas which are interrelated with reading rate variability and its measurement.

The early studies were generally concerned with the mechanical aspects of reading rate. Finally the study of reading rate was accompanied by some measure of comprehension. This is true today. It has been found that students can be good readers without being aware that the purpose for reading or the difficulty level of the material should influence the rate of reading. Both good and poor readers have



been helped by instruction in reading rate variability, although instruction in the skill does not appear to be a part of the regular reading program at present,

At the elementary level only one test has been published, and it does not report the reliability or validity of the test. At least one researcher questions the sensitivity of this test. It is possible that at this time there are no reliable tests for measuring reading rate variability at the elementary level.

## CHAPTER III

### METHODOLOGY AND DESIGN

This chapter describes the procedures and instrumentation used in the study. The sample is described, and the method for selection of subjects is given. Instruments for evaluation of the Reading Rate Variability Test and the criteria for measurement are described.

#### Design

The purpose of this study was to construct and evaluate a test which measured the ability of sixth grade students to vary the rate of reading when the difficulty level of the material or the stated purpose for reading the material was altered. An investigation was made to determine the relationship between rate of reading and purpose of reading, as well as the relationship between variation of reading rate and difficulty level of the material. A comparison of the scores of two separate groups of readers, variable and non-variable, was made.

The population used in this study was sixth grade students enrolled in Pine Valley and Douglas Valley Elementary Schools in Colorado Public School District #20. This school district is adjacent to Colorado Springs, and the two particular schools used in this study are located on the United States Air Force Academy.

### Selection of Subjects

In October 1972, there were a total of 129 sixth grade students enrolled in the two schools. All students were administered a screening instrument, the Stanford Diagnostic Reading Test, Level II Form W, on October 11 and 12. The sample included all students who scored between 6.0 and 7.9 grade levels on the total reading comprehension score.

The fifty-four students who scored in this range were randomly divided into "variable" and "non-variable" groups. It was necessary to teach reading rate variability since numerous researchers have found that students do not possess this skill, but that this skill can be taught (Herculane, 1960; Smith, 1965; Metsker, 1966; Levine, 1969 and Nicholaw, 1970). The purpose of this study was not to evaluate the effectiveness of the program of teaching reading rate variability; rather, it was an effort to distinguish between those students who possess the ability to vary their reading rates and those who do not possess this ability.

### The Reading Variability Program

The reading rate variability training consisted of 25 twenty-minute training sessions during a ten week period. The variable group worked on increasing reading speed through the use of paperback books appropriate to the sixth grade. During these sessions the subjects were asked to try to read more rapidly than their usual speeds. They were allowed forty-five seconds per page at the beginning of the program and were gradually reduced to twenty-five seconds per page at the end. After the allotted time the students were asked to turn the

page to begin the next page whether or not they had finished. Comprehension questions were not asked, but the degree of comprehension was discussed. Students were taught techniques of increasing reading speed and were encouraged to attempt to improve in comprehension on each successive attempt.

During other sessions students used the Controlled Reading Study Guide F as a basis for reading for various purposes. This book was selected because of its concise passages and because it was designed for sixth grade reading level.

The students were taught to preview the reading materials, to read for main ideas, to read for supporting details, to read for sequence, and to read for maximum comprehension. All exercises were followed by comprehension questions which were in keeping with the pre-stated purpose.

The non-variable group followed the regular classroom reading program.

#### Instruments Used and Their Application

##### Stanford Diagnostic Reading Test Level II Form W 1966 Reading Comprehension Subtest

This test was devised to establish the general reading level of the students in terms of ability to understand the printed word as a form of communication. The comprehension scores were based on answers requiring literal and inferential types of questions. The normative population for this test included approximately 12,000 pupils from five states (Karlsen, Madden, and Gardner, 1966).

The Stanford Diagnostic Reading Test, comprehension subtest was

administered to all students enrolled in sixth grade in Douglas and Pine Valley Schools on October 11 and 12. Those students who scored between 6.0 and 7.9 grade levels comprised the population of the study.

#### Reading Rate Variability Test

This test was developed to evaluate the abilities of sixth grade students who are average readers to vary their rates of reading as the difficulty level of the passage or the purposes for which they are reading vary. This group test was designed by the researcher especially for this study. It was composed of five passages adapted, with permission from the editor, from articles which appeared in National Geographic Magazine. There were no time limits for the test; however, in most instances the administration time was approximately fifty minutes.

The five subtests were presented in random order. The two passages which were designed to evaluate the abilities of students to vary reading rates according to difficulty level were written on the fourth and ninth grade levels respectively. In these two passages the purpose for reading was held constant.

The three passages designed to measure the effect of purpose upon rate of reading were written at the sixth grade level, and the stated purpose for reading was varied.

Timing was done at ten second intervals. Each subject was instructed to record the time on the blank before proceeding to answer the questions on the passage. The subjects were instructed not to refer to the passage once the time was recorded.

The comprehension questions for each passage consisted of ten

multiple choice items except the passage designed to test the student's ability to read for main ideas. It was determined that only five questions could be formulated if consistency with purpose were to be maintained. Tests were scored on the basis of percentage of items answered correctly.

In the construction of this instrument for measuring reading rate variability Letson's (1956) findings were considered. He suggested the following criteria:

1. Material should be of moderate interest. According to Letson, material that is not sufficiently interesting was skipped over too lightly by the reader. Those passages of too great interest might lower the rate of reading because the reader might stop to enjoy the humor or description in a story. He suggests that a "middle-of-the-road" interest appeal such as a social studies type of passage would be desirable for this type of test.

2. Each selection should be of continuous text. Short discrete selections appear to be disruptive of rhythm and rate in reading. Other investigations indicate that continuity of text is desired (Carlson, 1949 and Vogel 1964).

3. Selections should be of sufficient length to assure a reliable estimate of rate. Letson (1956) decided that a selection should be approximately 2500 words long in order to yield a reliable measure of rate. Later, he modified his statement to read, "To be valid, selections should be of reasonable length not under 500 words and more nearly 1000" (Letson, 1960). He does not include the statistical basis for this statement, if indeed there was one. Other authorities have estimated that the passage length should be more nearly in keeping

with Letson's revised figure. Carrillo and Sheldon (1952) felt that a 400 word passage was sufficiently long for a test of flexibility. Humphrey (1957) suggested a four minute test is sufficient. On the basis of these judgments, the researcher felt that a passage of approximately 500 words should be sufficient.

4. Materials should be on an appropriate difficulty level. The difficulty level was determined by the Dale-Chall readability formula (1948). Letson further suggests that the selections be widely divergent in difficulty level if it is to affect rate. The portions of the test which are designed to test the effect of difficulty level on rate have a readability level of fourth and ninth grades respectively. The selections designed to test purpose are on sixth grade readability level.

#### Administration of Test

On November 20 and 21, 1972, the Reading Rate Variability Test was administered to the variable and non-variable groups. The passages were distributed to each student. Before the students began reading the directions for taking each passage were read to them. The purpose for reading, recording the time and marking the answer sheet were stressed in the directions.

The following general directions were given for each selection:

As soon as you finish reading you should look at the chalkboard to find out your reading time. Write this time on the blank that is labeled "Time." When you have recorded the time do not look back at the passage. Read the comprehension questions and answer each question by circling the letter in front of the correct answer. Answer every question.

### Directions for Selection I

This selection should be easy for you to read. When you have finished you will be asked questions about the main idea and some of the details in the story. (General directions were read.)

### Directions for Selection II

The selection probably will be hard for you to read. When you have finished you will be asked questions about the main idea and some of the details in the story. (These directions were followed by the general directions.)

### Directions for Selection III

This selection is to test your ability to read for main ideas. This means that you will not be asked to remember things like the color of a person's hair. Questions will be about general ideas in the selection. (These directions were followed by the general directions.)

### Directions for Selection IV

This selection is to test your ability to read for details. This means that you will be asked to remember things such as the name of an animal. (These directions were followed by the general directions.)

### Directions for Selection V

This selection is to test your ability to remember the order in which things happen. This means you will be asked to decide which of three statements happened first in the story. (The general directions were read following the specific directions.)



### Timing of the Test

Timing was to be done by the investigator. Using the stop watch, the researcher wrote the time on the chalkboard in minutes and seconds beginning at the time the starting signal was given. This allowed each student to read without interruption until he had finished the passage.

### Analysis of Data

#### Validity

The construct of reading rate variability was evaluated. The Reading Rate Variability Test was designed to measure reading rate in words per minute on two different difficulty levels in order to determine reading rate variability due to difficulty level of the passage. These two passages designed to measure the effects of difficulty level are on the fourth and ninth respectively. The difficulty level was determined by the use of the Dale-Chall readability formula (1948). Young (1972) confirmed the validity of the formula as an accurate estimate of difficulty level of the passage.

Three passages on the Reading Rate Variability Test were designed to measure reading rate variability according to the purpose for reading. The three purposes are stated as: reading for main ideas, reading for sequence, and reading for details. The readability for the passages designed for measuring the effect of purpose on rate is written at the sixth grade level, as determined by the Dale-Chall readability formula. Thus, for the purpose of this study, reading rate variability was measured according to three different purposes and according to two different difficulty levels.

Comprehension: In order to test the reliability of the test, the Kuder-Richardson coefficient was applied. The computational method for the test utilized Hoyt's basic formula for reliability (Bruning and Kintz, 1968).

#### Comparison of Variable and Non-variable Readers

#### Reading Rate Variability Test

Comprehension: The comprehension was based on the percentage correct of the total questions for each passage. Subjects were directed to attempt all questions, and time was allotted for doing so. The data were analyzed using the mixed analysis of variance design that Bruning and Kintz (1968) refer to as the "two factor mixed design: repeated measures on one factor." Where significant differences did exist, a follow-up test of the F test for simple effects was used.

Rate: Variability of reading rate according to difficulty of reading level was determined by analyzing the differences between Selection I and Selection II. Variability of reading rate according to purpose was determined by comparing the rates for the passages designed to determine the effect of purpose on reading rate. The statistical design utilized the mixed analysis of variance design described above.

Hypotheses whose F ratios were significant at the .05 level of confidence were rejected.

#### Summary

This chapter has described the design of the study, the selection of subjects, the reading variability program, the instruments used and

their application, the administration of the test, and the statistical design used to test the significance of the differences between the two groups studied.

The fifty-four subjects were randomly divided into two groups, variable and non-variable readers. Those in the variable group were taught to vary their reading rates, while the non-variable group was limited to the regular classroom instruction.

The statistical method used to analyze the data was described.

## CHAPTER IV

### TREATMENT OF DATA AND ANALYSIS OF RESULTS

#### Introduction

The purpose of this chapter is to report the results of the major investigation designed to evaluate the ability of the Reading Rate Variability Test to discriminate between variable and non-variable readers. The major area of concern was variation of rate. A secondary area of investigation was a comparison of comprehension scores since it has been estimated that reading rate had little validity unless it is accompanied by an estimate of comprehension. The results of this investigation are reported in this chapter.

#### Test Evaluation

##### Estimates of Reliability

The reliability of rate was determined by the accuracy in timing. The timing was done by the researcher through the use of a stopwatch. Timing was carefully recorded in an effort to attain high reliability.

An estimate of reliability for comprehension scores was computed using the Kuder-Richardson coefficient. Using Hoyt's basic formula for computing the reliability coefficient, the Reading Rate Variability Test results yielded a .67.

### Test Results

The Reading Rate Variability Test is composed of five selections which may be further divided into two parts. The first part consists of Selection I and Selection II. These two selections measure reading rate for difficulty level of the material while the purpose is held constant. The second part is composed of Selection III, Selection IV, and Selection V. This part is designed to measure reading rate for purpose when difficulty level is held constant. Hypotheses whose F ratios were significant at the .05 level of confidence were rejected.

Hypothesis A-1: There is no significant difference between variable and non-variable readers in words per minute with regard to the difficulty dimension. The findings relative to this hypothesis are shown in Table I.

The F ratio, .00023, between the variable and non-variable groups on tests measuring mean reading rate when reading passages of widely varying difficulty level is not significant. Hypothesis A-1 cannot be rejected.

The F ratio, 16.095, for trials between Selection I and Selection II is significant at .001 level of confidence. Additionally, the F ratio, 17.825, for interaction between trials and group is significant at the .001 level of confidence.

The use of the F-test for simple effects to compare the results for the individual groups on Selection I and Selection II yielded the results shown in Table II. The variable readers had a mean of 207.74 words per minute on Selection I and a mean of 136.63 words per minute on Selection II. The mean difference for the variable group was 71.11 words per minute which is significant at the .001 level.

TABLE I  
ANALYSIS OF VARIANCE OF READING RATE SCORES  
WHEN READING EASY AND HARD MATERIAL

Source	Sums of Squares	df	Mean Squares	F	p
Total		97			
Between Subjects	255290.75	53			
Group	1.12	1	1.12	.00023	ns
Error <sub>b</sub>	255289.63	52	4816.79		
Within Subjects	173033.50	44			
Trials	32413.34	1	32413.3	16.095	<.001
Trials X Group	35897.79	1	35897.8	17.825	<.001
Error <sub>w</sub>	104722.37	42	2013.9		

TABLE II  
F-TEST FOR SIMPLE EFFECTS FOR DIFFERENCES  
IN SELECTIONS I AND II

Group	Sums of Squares for Trials	df	Mean Square for Trials	F	p
Variable	34133.33	1	34133.33	16.95	<.001
Non-variable	44.46	1	44.46	.022	ns

The non-variable readers had a mean of 171.07 words per minute for Selection I and 172.89 words per minute for Selection II. The mean difference for the non-variable readers was 1.81 words per minute which is not significant. It may also be noted that the non-variable readers read the passage with a fourth grade readability slightly slower than they read the passage with a ninth grade

readability.

The significant interaction between the two groups (shown on Table I) is better understood when one contrasts the mean reading rate of the two passages for the individual groups with the average variation between the passages. The variable readers had a mean of 172.185 words per minute for Selection I and II combined. This compares with a mean of 171.98 words per minute for Selections I and II for the non-variable group. The difference between these two means is .205 words per minute. The mean variation scores between the two passages is 71.11 for the variable group and 1.81 for the non-variable group. The difference in the mean variation scores is 69.3 words per minute. Thus the interaction was the result of differences in the variation scores for the two groups.

Hypothesis A-1 will not be rejected for the reading rate for the two groups, while it will be rejected for differences in reading rate for trials and interaction between the two groups.

Hypothesis A-2: There is no significant difference between variable and non-variable readers in words per minute with regard to the purpose dimension. The findings relative to this hypothesis are shown on Table III.

The F ratio, 4.29, between the variable and non-variable groups on tests measuring reading rate when reading passages of varying purpose is significant. Hypothesis A-2 can be rejected. The results show that there is a significant difference in the mean reading rate between the two groups on the three passages. The mean rate in words per minute for the variable group was 240.57, while the non-variable group had a mean of 200.98 for the three passages. The variable group

averaged 39.59 words per minute faster than the non-variable group. When comparing the reading rate for main ideas the variable group averages 102.81 words per minute faster than the non-variable group. The variable group averaged 22.22 words per minute faster when reading for details, while the non-variable group read an average of 4.26 words per minute faster when reading for sequence.

TABLE III

ANALYSIS OF VARIANCE OF READING RATE SCORES WHEN  
READING FOR MAIN IDEA, DETAILS, AND SEQUENCE

Source	Sums of Squares	df	Mean Squares	F	p
Total		161			
Between Subjects	847671.22	53			
Group	63486.72	1	63486.72	4.29	<.05
Error <sub>b</sub>	784184.49	52	14795.93		
Within Subjects	338145.33	108	3130.98		
Trials	36713.42	2	18356.7	8.82	<.001
Trials X Group	84985.81	2	42492.9	20.42	<.001
Error <sub>w</sub>	216446.10		2081.2		

The F ratio, 8.82, for trials is significant at the .001 level of confidence. This means that there is a significant difference in some of the reading rates for the combined variable and non-variable groups according to purpose for reading. Hypothesis A-2 cannot be rejected.

Hypothesis A-3: There is no significant interaction with regard to words per minute between variable and non-variable readers



according to the purpose for reading the material. The findings related to this hypothesis are shown on Table III.

The F ratio, 20.417, for interaction between trials and groups is significant at the .001 level of confidence. Hypothesis A-3 can be rejected. In order to determine where the differences did exist for each group, the researcher used the F-test for simple effects. The results are shown in Table IV.

TABLE IV  
F-TEST FOR SIMPLE EFFECTS FOR DIFFERENCES  
IN RATE FOR SELECTIONS III, IV AND V

Group	Sums of Squares for Trials	df	Mean Square for Trials	F	p
Variable	1,916,640.76	2	958320.38	460.47	<.001
Non-variable	5058.65	2	2529.33	2.43	ns

The differences in reading rate were significant for the variable group, but they were not significant for the non-variable group. For more complete examination of rate variation between the two groups it was necessary to compute the rate differences between each of the three selections in the second part of the test. Table V shows the mean differences between the various selections.

The rate differences among Selections III, IV and V were greater for the variable group than for the non-variable group. The negative scores for the non-variable group show that this group did not vary their reading rates in the expected direction. They read

more slowly for main ideas than when they read for sequence. They read more rapidly when they read for details than when they read for sequence.

TABLE V

A COMPARISON OF MEAN READING RATE FOR SELECTIONS  
III AND IV, SELECTIONS IV AND V,  
AND SELECTIONS III AND V

Group	Selections III and IV	Selections IV and V	Selections III and V
Variable	67.18	22.04	89.22
Non-variable	-15.44	-2.44	-17.85

Comprehension scores on the various parts were compared for the variable and non-variable readers. Scores are compared on the basis of percentage correct.

Hypothesis B-1: There is no significant difference between variable and non-variable readers with regard to the comprehension scores. Findings relative to this hypothesis are presented in Table VI.

There is a significant difference between variable and non-variable readers on comprehension scores on tests measuring ability to comprehend easy material, hard material, main ideas, details and sequence. The variable group scored a mean of 64.9 percent correct, while the non-variable group scored a mean of 57.12 percent (Table VII). The F ratio, 6.17, is significant at the .025 level of confidence.

Hypothesis B-1 can be rejected since the comprehension scores of the variable group were significantly higher (see Table VI ).

TABLE VI  
ANALYSIS OF VARIANCE OF COMPREHENSION SCORES  
FOR VARIABLE AND NON-VARIABLE READERS  
FOR SELECTIONS I, II, III, IV AND V

Group	Sums of Squares	df	Mean Square	F	p
Total	994.30	539			
Between Subjects	391.90	53			
Group	40.83	1	40.83	6.17	<.025
Error <sub>b</sub>	351.07	52	6.62		
Within Subjects	602.40	486			
Trials	91.69	4	22.92	9.75	<.001
Trials X Group	21.63	4	5.41	2.3	ns
Error <sub>w</sub>	489.08	478	2.35		

TABLE VII  
MEAN COMPREHENSION SCORES

Group	Selection					Combined Trials
	I	II	III	IV	V	
Variable	66.30	60.00	61.48	68.89	67.78	64.90
Non-variable	63.30	51.85	42.96	65.19	62.22	57.12
Combined Group	64.82	55.93	52.22	67.04	65.00	61.00

The F ratio, 9.749, for trials is significant at the .001 level of confidence. This means that there was a significant difference in the

percent of comprehension between some of the passages. This was further investigated and is reported in Tables VIII and X. There was no significant interaction between groups and trial scores.

Hypothesis B-2: There is no significant difference between the comprehension scores of variable and non-variable readers with regard to the difficulty dimension. Findings relative to this hypothesis are presented in Table VIII.

TABLE VIII  
ANALYSIS OF VARIANCE OF COMPREHENSION SCORES FOR  
VARIABLE AND NON-VARIABLE READERS WHEN  
READING EASY AND HARD MATERIAL

Source	Sums of Squares	df	Mean Squares	F	p
Total	25385.19	107			
Between Subjects	14585.19	53			
Group	833.33	1	833.33	3.21	ns
Error <sub>b</sub>	13751.85	52	259.47		
Within Subjects	10800.00	55			
Trials	2133.33	1	2133.33	13.07	<.001
Trials X Group	181.48	1	181.48	1.11	ns
Error <sub>w</sub>	8485.19	53	163.2		

The F ratio, 3.21, for differences between the comprehension scores of the variable and non-variable readers is not significant. Hypothesis B-2 cannot be rejected.

When the scores for Selections I and II were compared, it was found that the scores for comprehension on Selection I, written on fourth grade level, were significantly higher than were the scores on

Selection II, written on ninth grade level. These differences yielded an F ratio of 13.07, which was significant at the .001 level of confidence. There was no significant interaction between trial and group.

A further examination of the differences between the two groups on comprehension scores for easy and hard material was done using the F test for simple effects. This test allows one to determine where the significant did occur. The results of the test are found in Table IX.

TABLE IX  
F-TEST FOR SIMPLE EFFECTS FOR COMPREHENSION  
SCORES ON EASY AND HARD MATERIAL

Group	Sums of Squares for Trials	df	Mean Squares	F	p
Variable	535.18	1	535.18	3.28	ns
Non-variable	1779.63	1	1779.63	10.72	<.005

The variable readers had a mean of 66.30 percent on comprehension questions for Selection I and a mean of 60.00 percent for Selection II. This mean difference of 6.30 percent is not significant.

The non-variable group's comprehension scores were 63.33 percent for Selection I and 51.85 percent for Selection II. The mean variation, 11.48 percent, is significant at the .005 level.

Hypothesis B-3: There is no significant difference between the

comprehension scores for variable and non-variable readers with regard to the purpose dimension. The findings relative to this hypothesis are contained in Table X.

TABLE X  
ANALYSIS OF VARIANCE OF COMPREHENSION SCORES  
FOR VARIABLE AND NON-VARIABLE READERS WITH  
REGARD TO PURPOSE FOR READING

Source	Sums of Squares	df	Mean Squares	F	p
Total	73973.46	162			
Between Subjects	35973.46	53			
Group	3472.22	1	3472.22	5.66	<.025
Error <sub>b</sub>	32501.23	52	613.23		
Within Subjects	38000.00	109			
Trials	6964.20	2	3482.1	12.37	<.001
Trials X Group	1759.26	2	879.6	3.13	<.05
Error <sub>w</sub>	22276.54	105	281.5		

The variable group scored significantly higher than did the non-variable group on comprehension scores measuring the abilities of the students to read for various purposes. The mean comprehension score for the variable group was 66.05 as compared to 56.79 for the non-variable group. The F ratio, 5.66, is significant at the .025 level of confidence. Hypothesis B-3 can be rejected.

Interaction between trials and group was significant at the .05 level of confidence. This means that the performance of the groups was influenced differently by the type of task.

When the combined scores of the two groups were compared on a

basis of purpose for reading, a significant difference was found. The results of this comparison was an F ratio of 5.66, which was significant at the .025 level of confidence. Again, the F-test for simple effects showed where significant differences did occur.

The follow-up F-test for simple effects showed that there was no significant difference in the comprehension scores of the variable group when they read for different purposes. The non-variable group's comprehension scores yielded an F ratio of 13.96 which was significant at the .001 level of confidence. This means that the differences in comprehension scores according to purpose for reading was the result of differences in the non-variable readers as found in Table XI.

TABLE XI

F-TEST FOR SIMPLE EFFECTS FOR DIFFERENCES IN  
COMPREHENSION FOR SELECTIONS III, IV AND V

Group	Sums of Squares for Trials	df	Mean Square for Trials	F	p
Variable	861.73	2	430.87	1.53	ns
Non-variable	7861.73	2	3930.87	13.96	<.001

The mean variations in comprehension scores on passages designed to test the students' abilities to read for different purposes showed some interesting patterns. Table XII shows these differences.

The main source of variation in comprehension scores was due to the low comprehension score for the non-variable readers when they read for main ideas.

TABLE XII  
A COMPARISON OF MEAN COMPREHENSION SCORE DIFFERENCES  
FOR SELECTIONS III, IV AND V

Group	Selections III and IV	Selections IV and V	Selections III and V
Variable	7.41	1.11	6.30
Non-variable	22.23	2.97	19.26

#### Summary

The results of the statistical treatment of data was presented in this chapter. Analysis of variance was used to test the hypotheses being studied. The F-test for simple effects was used as a follow-up test when the need for it was indicated.

The reliability of the Reading Rate Variability Test was checked. The reliability of rate was based upon the accuracy of timing. The accuracy of the comprehension scores was computed using the Kuder-Richardson reliability coefficient. A reliability coefficient of .67 was established for the comprehension section.

The Reading Rate Variability Test was able to discriminate between variable and non-variable groups. The reading rate variations for the variable group were significant at the .001 level of confidence, while the variations for the non-variable group were not significant.

The comprehension scores for the variable group were significantly higher than the non-variable group. The level of comprehension on the second part of the test was significantly affected by the purpose for reading in the non-variable group but not in the variable group.



## CHAPTER V

### SUMMARY AND CONCLUSIONS

This chapter deals with the conclusions and the implications that were drawn on the basis of the findings. Recommendations for future research are included.

#### General Summary of the Investigation

The major purpose of this study was to evaluate the ability of the Reading Rate Variability Test to discriminate between variable and non-variable readers among average readers enrolled in Pine Valley and Douglas Valley Schools, United States Air Force Academy, Colorado. The major area of investigation evaluated the ability of the Reading Rate Variability Test to discriminate between the variable and non-variable readers on the basis of reading rate. Three hypotheses related to rate were stated in the null form. These hypotheses were as follows:

A-1: There is no significant difference between variable and non-variable readers in words per minute with regard to the difficulty dimension.

A-2: There is no significant difference between variable and non-variable readers in words per minute with regard to the purpose dimension.

A-3: There is no significant interaction with regard to words per minute between variable and non-variable readers according to the purpose for reading the material.

The secondary area of investigation evaluated the ability of the Reading Rate Variability Test to discriminate between the variable and non-variable readers on the basis of comprehension. Three hypotheses related to comprehension were stated in the null form. These hypotheses were as follows:

B-1: There is no significant difference between variable and non-variable readers with regard to the comprehension scores.

B-2: There is no significant difference between the comprehension scores for variable and non-variable readers with regard to the purpose dimension.

B-3: There is no significant interaction between comprehension scores for variable and non-variable readers with regard to purpose for reading.

The sample used in this study was composed of students enrolled in Douglas Valley and Pine Valley sixth grades. Of the 129 students who took the Stanford Diagnostic Reading Test, 54 met the criteria by scoring between 6.0 and 7.9. They were placed at random into variable and non-variable reading groups.

The variable group was trained to read for various purposes and how to increase reading speed. The selections designed to teach how to read for various purposes were structured in that the specific purpose for reading was stated before the selection was read, and only questions appropriate to the stated purpose were asked. The students were told immediately whether or not the response was correct and why this was true. Paperback books were used for increasing reading rate.

The lessons devoted to increasing reading rate limited the amount of time that a student was allowed to spend reading a page. These

lessons on increasing rate were included so that the student would have the ability to read more rapidly if the purpose for reading allowed him to assimilate the information at a more rapid rate than he was accustomed to reading. At the end of the ten-week period all subjects were given the Reading Rate Variability Test. An analysis of variance was made to evaluate the students' performances, and the Kuder-Richardson coefficient was used to establish the reliability of the instrument.

#### Summary of Results

A comparison of mean reading rates for the variable and non-variable readers for both difficulty level and purpose for reading were significant. The overall reading rate with regard to difficulty level for the two groups was almost identical; however, the rate variation between easy and hard material for the two groups was significant at the .001 level of confidence. The F-test for simple effects showed that the variable readers significantly varied their reading rates according to difficulty level, while the non-variable readers did not significantly vary their reading rates.

An evaluation of the mean reading rates for the two groups when reading for various purposes showed significance at the .05 level. The variable reading group had a higher mean reading rate for each of the three passages. The F-test for simple effects showed that there was a significant difference in reading rate on the various trials at the .001 level of confidence, while the difference in reading rate for the non-variable group was not significant.

In summary, the variable group adjusted their rate of reading for

both difficulty levels and purpose for reading, while the non-variable group did not make this adjustment.

Since reading rate scores must be accompanied by some measure of comprehension in order to be meaningful, the results of the comprehension tests were analyzed. They were first studied as a whole test comparison, then they were studied on the basis of test parts, difficulty level and purpose.

The whole test comparison of comprehension test results showed that the variable readers scored significantly higher than did the non-variable group. The difference in the group mean score was significant at the .025 level. This same comparison yielded an F ratio of 9.75 for trials which was significant at the .001 level. This significance was studied more closely with a follow-up test when the scores were analyzed on the basis of the two parts of the test.

The comprehension scores for the two groups on the passage designed to test for comprehension as related to difficulty level showed that there was no significant difference between the two groups. The scores of the combined groups were significantly higher for the easy material than they were for the hard material. An F-test for simple effects showed that the differences in comprehension scores for the variable group were not significant, while the non-variable group was significant at the .005 level. The non-variable group did not reduce their reading rates, and their comprehension scores were significantly lower on the material written at ninth grade level when compared to their own performances on the fourth grade level of material. Conversely, the variable group adjusted their reading rates to a slower pace, and their comprehension scores on ninth grade

material were not significantly lower than on fourth grade level material.

The comprehension scores for the two groups on passages designed to test for comprehension as related to purpose for reading showed that there was a significant difference in comprehension level in favor of the variable group. Again, there was a significant difference in trials for the two groups combined. The F-test for simple effects showed that the comprehension scores for the non-variable group were significantly different on the various passages, while it was not significantly different on the various passages, it was not significantly different for the variable readers. The variable group had adjusted their reading rates on the passages, and their comprehension scores had not varied significantly from one passage to the other. The non-variable group had not adjusted their reading rates, and their comprehension scores did vary at a significant level. The lowest comprehension score for the non-variable group was on reading for main ideas. It was thought that they could read more rapidly for main ideas than for details or sequence while maintaining a similar level of comprehension. This did not prove true. The reason for this can be hypothesized by the researcher. It would seem that reading for maximum comprehension is stressed in daily reading adjustments, and that students have not been taught to read for the general idea of the selection. Levine (1969) suggested the need for teaching students to read for main ideas. The students who had been taught to read for main ideas, the variable group, were able to read this passage more rapidly than when they read for details and sequence without a significant loss in comprehension.

The results of this study support some of the findings of earlier studies, but they also contradict some of the findings. This study indicates that reading rate variability skills were not present in those students who had not been taught these skills. This finding is supported by the studies of Metsker (1966), Lavine (1969), and Doyle (1972).

The students in this study who had been taught reading rate variability skills were able to effectively vary their reading rates without significantly affecting comprehension scores. This finding is in conflict with the aforementioned studies of Metsker and Doyle. In both studies the Reading Versatility Test (McDonald, et al 1968) was used. Metsker suggested that this test may have lacked the sensitivity to discriminate between variable and non-variable readers. Within the limits of this study, using average sixth graders enrolled in Douglas Valley and Pine Valley Elementary Schools, Colorado Public School District #20, United States Air Force Academy, Colorado, the Reading Rate Variability Test was effective in discriminating between variable and non-variable readers.

#### Recommendations

This study has shown that discriminations can be made among students who read on the same relative level with regard to the ability to vary reading rate according to difficulty level of the material or according to the purpose for reading. There was only one standardized test measuring reading rate variability, the Reading Versatility Test. Since this test has no reported reliability and studies which have used it have found it to be ineffective as a

discriminator of students who can and those who cannot vary reading rate, limitations are imposed on the technique by which the Reading Rate Variability Test can be appraised.

It is suggested that additional studies be made using the Reading Rate Variability Test to determine its effectiveness at other grade levels, with good and poor sixth grade readers, or with greater numbers of average sixth grade readers in other sixth grade populations. The test could be expanded to test for reading rate variability with regard to additional purposes and difficulty levels.

#### Concluding Statement

This study was an attempt to devise an instrument which would discriminate between variable and non-variable readers. It is hoped that the results may offer suggestions for the development of an effective standardized test which will measure reading rate variability in elementary students or to additional studies which will lead to the standardization of the Reading Rate Variability Test.<sup>1</sup>

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<sup>1</sup>Copies of the Reading Rate Variability Test are available from Patricia L. Braden, 1240 Fuller Road, Colorado Springs, Colorado 80918.

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VITA

Patricia Ligon Braden

Candidate for the Degree of

Doctor of Education

**Thesis:** AN INVESTIGATION OF READING RATE VARIABILITY AMONG  
SIXTH GRADE STUDENTS

**Major Field:** Elementary Education

**Biographical:**

**Personal Data:** Born in Atlanta, Georgia, March 6, 1938, the  
daughter of Perry and Daisy Collier Ligon.

**Education:** Attended public school in Toccoa, Georgia. Graduated  
from Stephens County High School, Toccoa, Georgia; received  
the Associate of Arts degree from Truett-McConnell Junior  
College, Cleveland, Georgia, in 1958; received a Bachelor of  
Science degree with a Major in Elementary Education from  
University of New Mexico, Albuquerque, New Mexico, in 1967;  
received a Master of Science degree in Elementary Education  
from Oklahoma State University, Stillwater, Oklahoma, in  
1971; completed requirements for the Degree of Doctor of  
Education in May, 1973, from Oklahoma State University,  
Stillwater, Oklahoma.

**Professional Experience:** Second grade teacher 1967-1969,  
Colorado Public School District #20, United States Air Force  
Academy, Colorado; College Reading Improvement Instructor,  
Oklahoma State University in 1970; Instructor in Skill  
Development in the Reading Program, 1971; Assistant in  
Supervision of Practicum, Summer 1971; Reading Clinic  
Coordinator, 1971; Extension Instructor in 1972 and 1973  
teaching Developmental Reading and Analysis and Correction  
of Reading Disabilities for Adams State College, Alamosa,  
Colorado; Director, Corrective Reading Services, Colorado  
Springs, Colorado, 1973.