To the Graduate Council:

I am submitting herewith a thesis written by Karen Bennett Larabee entitled "An Investigation of High Interest-Low Vocabulary Reading Material for Special Needs Students: A Study of Readability." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Special Education.

W. Jean Schindler

Dr. W. Jean Schindler, Major Professor

We have read this thesis and recommend its acceptance:

Phyllis E Huff

S Wayne Mulkey

Accepted for the Council:

C W Minkel

Associate Vice Chancellor
and Dean of The Graduate School

STATEMENT OF PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a Mater's degree at The University of Tennessee, Knoxville, I agree that the Library shall make it available to borrowers under rules of the Library. Brief quotations from this thesis are allowable without special permission, provided that accurate acknowledgement of the source is made.

Permission for extensive quotation from or reproduction of this thesis may be granted by my major professor, or in her absence, by the Head of Interlibrary Services when, in the opinion of either, the proposed use of the material is for scholarly purposes. Any copying or use of the material in this thesis for financial gain shall not be allowed without my written permission.

Signature Karen B. Farabee

Date April 18, 1991

AN INVESTIGATION OF HIGH INTEREST-LOW VOCABULARY READING MATERIAL FOR SPECIAL NEEDS STUDENTS: A STUDY OF READABILITY

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Karen Bennett Larabee

May 1991

DEDICATION

This thesis is dedicated to my parents Billy and Millie Bennett who have always stood by me and supported my decisions, good or bad. I would not have achieved so much in my life without their love and guidance.

ACKNOWLEDGEMENTS

I would also like to thank my major professor, Dr. W. Jean Schindler, for her guidance and unlimited patience. She has provided hope when none seemed to exist. I would also like to express my appreciation to the other committee members, Dr. Phyllis Huff and Dr. Wayne Mulkey, for their comments and assistance. A special thank you goes to my husband, Tracy, for his understanding, confidence and many hours of single parenting while I earned this degree. He always knew when I needed to hear words of encouragement. My mother, Millie Bennett, has helped my father and me earn a total of three degrees. She has been my typist, my baby-sitter and my source of confidence during the creation of this thesis. Thank you Mom for always being there and helping me do the best job I can do. Without you there would be no masters degree.

ABSTRACT

The purpose of this study was to evaluate sixteen high interest-low vocabulary reading textbooks to determine the readability score of individual samples, the fully computed readability score of each textbook, and the reinforcement of the new vocabulary words. The readability scores were calculated by applying the Harris-Jacobson Wide Range Readability Formula. The reinforcements of the new vocabulary words were tabulated on the Work-Sheet for Analysis of Instructional Materials Beyond Readability Scales Revised (Schindler, 1991).

These instruments of comprehensive evaluation indicated that high interest-low vocabulary reading textbooks generally provide a more accurate and stable readability level than regular reading textbooks. However, the reinforcement of new vocabulary words was inadequate in all texts evaluated. Because of the need of high interest-low vocabulary reading materials the results of this study have strong implications for teachers, teacher educators and publishers.

TABLE OF CONTENTS

CHAPTER	PAGE
1. INTRODUCTION AND PURPOSE	1
Background	1
Statement of the Problem	2
Definition of Terms	3
Assumptions	5
Hypotheses	6
Limitations	6
Summary	6
2. CONCEPTUAL DEVELOPMENT	8
Aspects of Readability	8
Readability in Relation to the Exceptional Student	11
Comprehensive Evaluation of Readability	14
Readability Scales	15
A Worksheet for Further Analysis	16
Limitations of Review of Literature	17
Summary	17
3. DESIGN FOR EVALUATION OF HIGH INTEREST - LOW VOCABULARY SPECIAL EDUCATION MATERIALS	19
Introduction	19
Purpose	19
Data Collection Procedures	20
Instrumentation	20

CHAPTER PAGE

Data Analysis..... 21

Summary..... 22

4. RESULTS..... 23

Introduction..... 23

Individual Analysis of Steck-Vaughn Reading Materials..... 24

Individual Analysis of Merrill Reading Materials..... 43

Individual Analysis of Random House Reading Materials..... 51

Individual Analysis of New Readers Press Reading Materials..... 59

Discussion of Results..... 67

Summary..... 68

5. DISCUSSION..... 69

Conclusions..... 70

Implications for Special Educators..... 71

Implications for Teacher Educators..... 72

Implications for Publishers..... 73

Implications for Further Research..... 73

Implications for Textbook Selection Committees..... 74

Summary..... 75

REFERENCES..... 77

APPENDIXES..... 80

Appendix A..... 80

Appendix B..... 81

VITA..... 82

LIST OF TABLES

TABLE PAGE

1. Steck-Vaughn (1986) (Reading Skills for Adults - blue) Readability Data..... 25

2. Steck-Vaughn (1986) (Reading Skills for Adults - blue) Hard Word Reinforcement..... 26

3. Steck-Vaughn (1986) (Reading Skills for Adults - red) Readability Data..... 28

4. Steck-Vaughn (1986) (Reading Skills for Adults - red) Hard Word Reinforcement..... 29

5. Steck-Vaughn (1986) (Reading Skills for Adults - green) Readability Data..... 31

6. Steck-Vaughn (1986) (Reading Skills for Adults - green) Hard Word Reinforcement..... 32

7. Steck-Vaughn (1986) (Reading Skills for Adults - brown) Readability Data..... 33

8. Steck-Vaughn (1986) (Reading Skills for Adults - brown) Hard Word Reinforcement..... 35

9. Steck-Vaughn (1986) (Reading for Today - three) Readability Data..... 36

10. Steck-Vaughn (1986) (Reading for Today - three) Hard Word Reinforcement..... 37

11. Steck-Vaughn (1987) (Reading for Today - four) Readability Data..... 39

12. Steck-Vaughn (1987) (Reading for Today - four) Hard Word Reinforcement..... 40

13. Steck-Vaughn (1987) (Reading for Today - five) Readability Data..... 41

14. Steck-Vaughn (1987) (Reading for Today - five) Hard Word Reinforcement..... 42

15. Merrill (1989) (Focus on Reading - three) Readability Data..... 44

TABLE PAGE

16. Merrill (1989) (Focus on Reading - three) Hard Word Reinforcement..... 45

17. Merrill (1989) (Focus on Reading - four) Readability Data..... 47

18. Merrill (1989) (Focus on Reading - four) Hard Word Reinforcement..... 48

19. Merrill (1989) (Focus on Reading - five) Readability Data..... 49

20. Merrill (1989) (Focus on Reading - five) Hard Word Reinforcement..... 50

21. Merrill (1989) (Focus on Reading - six) Readability Data..... 52

22. Merrill (1989) (Focus on Reading - six) Hard Word Reinforcement..... 53

23. Random House (1986) (Achievement Program in Comprehension - four) Readability Data..... 54

24. Random House (1986) (Achievement Program in Comprehension - four) Hard Word Reinforcement..... 56

25. Random House (1986) (Achievement Program in Comprehension - five) Readability Data..... 57

26. Random House (1986) (Achievement Program in Comprehension - five) Hard Word Reinforcement..... 58

27. Random House (1986) (Achievement Program in Comprehension - six) Readability Data..... 60

28. Random House (1986) (Achievement Program in Comprehension - six) Hard Word Reinforcement..... 61

29. New Readers Press (1984) (Laubach Way to Reading - three) Readability Data..... 62

30. New Readers Press (1984) (Laubach Way to Reading - three) Hard Word Reinforcement..... 64

31. New Readers Press (1984) (Laubach Way to Reading - four) Readability Data..... 65

32. New Readers Press (1984) (Laubach Way to Reading - four) Hard Word Reinforcement..... 66

CHAPTER 1

INTRODUCTION AND PURPOSE

Background

Special education teachers are often at liberty to choose resources for their classrooms based upon students' individual academic needs rather than selecting materials from an approved textbook adoption list. The ability to evaluate all materials being considered by a teacher is limited by the increasing volume of allegedly high interest - low vocabulary materials and the time required to independently examine each text using a readability formula. Therefore, special educators often rely on the publisher to supply accurate readability information within their catalogs and advertisements. This trust is based upon the assumption that the publisher has conducted accurate and reliable readability evaluations on materials with which a graded readability level has been stated. Publishers who choose to state readability levels often omit the methods by which the materials were evaluated. Backus (1988) feels that not only should educators be aware of research done regarding textbook readability, but that they need to conduct their own readability tests rather than relying on the stated grade levels of the publishers.

Special educators vary greatly in their knowledge of applying readability formulas and matching individuals with developmentally

appropriate academic materials. The wide range of abilities in a "regular" classroom are amplified within the special education classroom thus requiring greater knowledge of reading instruction and factors which affect a student's ability to acquire reading. The information gained through the use of readability formulas is invaluable to teachers who are matching materials to individual students, but does not provide a perfect match as stated by Standal (1978):

> Each child comes to school with a unique background of experiences, interests and abilities. But no one has devised a readability formula that includes components for measuring individual interests and experiences (p. 54).

Statement of the Problem

The purpose of this study was to analyze readability in high interest - low vocabulary special education materials using the Harris-Jacobson Wide Range Readability Formula (Harris & Sipay, 1985) and the Worksheet For Analysis of Instructional Materials Beyond Readability Scales Revised (Schindler, 1991). In this study the following questions are examined:

1. Was there a difference between the publishers' stated readability levels of high interest - low vocabulary special education materials and the actual readability as determined by a readability formula?

2. Was there a significant difference between the publisher's stated grade level designations and the actual readability of each sample within the texts?

3. Were the hard words reinforced at least five times within the introductory lesson and within the following three lessons?

The comprehensive evaluation procedure involved 1) computing the actual readability of five sample passages within each text; 2) computing the mean actual readability of each text; and 3) tabulating the number of reinforcements of the hard words in three sample reading selections of each text.

Definition of Terms

In this study the following terms are defined:

1. Readability. The actual grade level calculation derived from a standardized readability formula. The Harris-Jacobson Wide Range Readability Formula was developed as a tool to calculate the actual grade levels of published text materials. Readability is the term used for how readable the material was in printed form.

   a. Actual readability. The calculated grade level determined by a readability formula.

   b. Estimated readability. The grade level designation publishers placed on the published textbooks.

   c. Comprehensive readability. The grade level of books computed by the readability formula and the number of times the new words were reinforced in the published material.

d. Fully computed readability. The average of grade level calculated from the analysis of five sample reading stories in a given text.

2. Reading. The act of extracting meaning from the printed page. Some skills involved in reading are: word attack, comprehension, and vocabulary recognition.

3. Comprehensive evaluation. An evaluation technique for programs using a readability formula and the Worksheet for Analysis of Instructional Materials Beyond Readability Scales Revised (Schindler, 1991).

4. Worksheet for Analysis of Instructional Materials Beyond Readability Scales Revised (Schindler, 1991). A worksheet used to list new vocabulary words and to check the number of times these words were reinforced in the lesson of introduction and subsequent lessons.

5. Word lists. Accompany readability formulas to check the percentage of hard words in the formula calculations. These word lists were chosen by the authors of readability scales to validate the calculated results.

6. Reinforcement. The frequency of new vocabulary words in a lesson after introduction.

7. Factors. The characteristics of published materials that had an effect on actual readability of that material. The readability factors were: Interest value, style of writing, number of syllables, sentence length, vocabulary words, frequency of the new word reinforcements, and typography.

8. Hard words - words not on a specific list of easy words.

9. High Interest-Low Vocabulary - reading material targeted for older students whose vocabulary skills are below grade level.

Assumptions

The following is a list of assumptions made about the high interest/low vocabulary special education materials examined:

1. The Harris-Jacobson readability formula produces accurate readability scores for high interest-low readability special education materials.

2. The hard words introduced in the texts are reinforced sufficiently according to Kingsley's (1965) recommendation of five repetitions. Although this recommendation was based on basal reading series, it applies to high interest-low readability special education reading materials (Gates, 1930).

3. The interest and content of each set of special education materials is appropriate for the grade level.

4. The use of the comprehensive evaluation process does not suggest reasons for discrepancies of the publisher's estimated readability and the actual readability scores based on a readability formula.

5. It is not the responsibility of the special education teacher to evaluate the readability of high interest - low vocabulary materials, as this has been accurately evaluated by the publisher.

Hypotheses

1. The publishers estimate of readability and Harris-Jacobson Readability scores both fall between the confidence interval +0.1 to -0.1.

2. The results of the Schindler worksheet indicate 100% of the hard words are reinforced the recommended times.

3. Individual sample readability scores will not vary more than 0.5 years from the publisher's stated readability.

Limitations

1. Only five passages in each book were analyzed with the Harris-Jacobson readability formula.

2. Factors which influence readability such as sentence structure, age-appropriate interest level, format and style of writing were not evaluated.

Summary

An extensive computer search revealed ample research in the area of general readability and very limited research in the area of high interest - low vocabulary readability studies. The wide range of abilities represented in a special education classroom

intensifies the need for publishers to provide reliable and accurate information concerning readability of special materials. Readability formulas must not be the single criterion utilized by special educators when considering materials for individualized instruction. The background for this study, definition of terms, assumptions and hypotheses were presented in this chapter. Chapter 2 will present a review of literature concerning the study.

CHAPTER 2

CONCEPTUAL DEVELOPMENT

The Aspects of Readability

Agreement has yet to be reached on universal definitions for reading and readability. Historically each researcher has created independent definitions based upon experience and research. However varied the definitions become, all researchers agree that their definition is not all encompassing which leaves open an area for reader interpretation based upon a variety of opinions.

The most common definition of readability is credited to Klare (1963). Klare states that the term readability is used "to indicate ease of understanding or comprehension due to the style of writing." Harrison (1980) concludes, "readability encompasses aspects of a text which make it easier for a reader to understand" (p. 33). Such definitions mandate individualized interpretation of comprehension. Zintz (1970) defines comprehension as "the ability to make individual words construct ideas." Although this definition pinpoints the concept of comprehension, it does not address the abilities required to complete this task. Peterson (1954) specified these abilities as the following:

1. Understanding the words in context
2. Noting the relationship of specific details
3. Grasping the pattern of thought as a whole
4. Drawing correct inferences
5. Integrating the ideas expressed with experience (p. 13).

Further consideration must be given to evaluating these reader factors. Such factors may affect comprehension greatly, yet they are not readily identifiable to teachers. Reader factors that affect reading ability include:

1. affective factors - student attitude, motivation, interests, and self-concept
2. cognitive factors - attention, perception, conceptualization and schematic, metacognition and intelligence
3. language factors - development, variation and awareness of language
4. cultural factors - home environment, socioeconomic status, cultural differences, gender
5. physical factors - visual, auditory and speech acuity, neurological functioning and general health (Alexander, 1988)

Chall (1983) further states "Reading development depends upon interaction between environmental factors (challenge and stimulation from home, school and community) and biological factors" (p. 7).

According to Harrison (1980), empirical studies have consistently proven that vocabulary is the greatest single prediction of text difficulty. Because of vocabulary's relationship with text difficulty, almost all readability formulas include a word frequency variable. This variable is measured by counting the syllables of words or comparing words to a list of familiar words. The number of syllables in a word gives an indication of its length and therefore its familiarity (Coleman, 1982). The familiar word lists which are provided with each readability formula contain words that a reader encounters often in writing or conversation. Sentence

length is used as an index of syntactic difficulty in most readability formulas. It is reasoned that longer sentences contain more dependant clauses and subordinate ideas and placed a greater concept load on the reader (Coleman, 1982). Standal (1978) notes the assumption that, "higher frequency words aid comprehension and that lower frequency words retard comprehension" (p. 55), and that "long sentences contribute to the difficulty of reading material" (p. 56). However, Harrison (1980) concluded that sentence length does not always correlate positively with reading difficulty, and often, shortening a sentence can make comprehension more difficult.

To further complicate the task of producing materials at specific readability the author must consider text factors. Harrison (1980) cited some text factors which affect readability as the legibility of print, illustration and color, vocabulary, syntax and organization. The format and organization of printed materials affects reader understanding and interest. The age-appropriate use of illustrations and color typography and the logical presentation of content all lend to making a book appealing and readable. Age-appropriate remedial materials which apply these factors are difficult to find, this creates difficulty for young adult readers and their teachers.

In spite of continuing criticisms, (Fry, 1989) the measurement of readability has practical application for educators. Readability formulas simply state that on the average, the two inputs of

sentence length and word difficulty accurately predict how easily a given passage will be understood by the average reader (Fry, 1989). Educators can use readability formulas to determine a book's appropriateness for a group of students, and along with other factors, make an educated judgement on the use or nonuse of materials. Harrison (1980) stresses, "what we need is not something which replaces the teacher's own professional judgement, but something which extends it and makes it more reliable" (p. 11). Fry (1989) challenged critics of readability formulas to come up with something better in terms of overall validity and general usefulness.

Readability in Relation to the Exceptional Student

The definition of specific learning disability is that a child, having been provided with appropriate learning experiences, has a "severe discrepancy" between achievement and intellectual ability in one or more of the following areas: oral expression, listening competence, written expression, basic reading skill, reading comprehension, mathematical calculation and mathematical reasoning (Harris & Sipay, 1985). Among the many reading difficulties demonstrated by learning-disabled students in secondary schools, the following are most common: Word substitutions, poor comprehension, ignored or misinterpreted punctuation, lack of expression, word-by-

word reading and loss of place in reading (Harris & Sipay, 1975). As a result these students tend to avoid reading in school and rarely engage in recreational reading.

Reading curricula have become increasingly splintered through the proliferation of task analysis. Exceptional students are often placed in a subskill for remediation, and often this causes lost reading instruction time and misdirected focus. Hargis (1982) strongly suggests that more direct instructional time needs to be spent on reading as a concrete language process. This would allow for materials to be used which closely relate to the reader's experiential and linguistic abilities. The language familiar to the reader through conversation should supply a baseline for selection or creation of reading materials.

Reading aquistion is an entire field of research within itself. Researchers have difficulty deciding at what stage of development reading begins. Chall (1983) states: "Reading is not learned all at once, and that problems of learning vary at different stages. Reading is learned over a long period" (p. 5). Most agree, however, that the skills required to read do not begin when printed symbols are first recognized. Harris and Jacobson (1982) suggest: "Inner speech, which includes most thinking, is an important aspect of language."

Adequate language development is one of the most important factors in reading readiness. Language development can be greatly influenced by auditory acuity, intelligence and home environment.

Harrison (1980) gives two major aspects of oral language development which are:

1. child's vocabulary - which is very important in both listening comprehension and expression of one's thoughts, and

2. mastery of sentence structure or syntax which is shown most clearly in a child's spontaneous conversation.

Children acquire these skills through imitation of others around them. The process of imitation leads to production of language based on concept acquisitions, spontaneous experimentation and generalizations about language. Readiness is basically promoted through individual experience.

Children vary greatly in their ability to absorb new materials. Exceptional children offer an even greater variance in their ability to acquire and retain knowledge. Exceptional children are generally placed within two classifications, corrective or remedial readers. Corrective readers are those who have some reading ability but have deficiencies, which can be corrected, in cognitive or affective areas. Remedial readers are those readers who generally have pronounced problems and are reading at a level considerably below their potential.

For children with reading difficulties, a significant factor is the interaction of word introduction rates and word repetition rates in printed materials (Harris and Jacobson, 1982). "Failure often occurs precisely because the child is too far out of synchronization with the vocabulary's introduction and repetition

rates" (Hayes, 1988, p. 264).

Gates (1930) investigated vocabulary burden for various intelligence levels and found that some students have difficulty learning new words which are not adequately reinforced. A student with a higher IQ requires fewer repetitions for comprehension than a student with a lower IQ, which is illustrated in the following chart:

120-	I.Q.	-	20 repetitions
110-119	I.Q.	-	30 repetitions
90-109	I.Q.	-	35 repetitions
80- 89	I.Q.	-	40 repetitions
70- 79	I.Q.	-	45 repetitions
60- 69	I.Q.	-	55 repetitions

The number of repetitions listed requires the words which are reinforced to be correctly pronunciated a given number of times. At any time a word is missed the count must start again. Although Gates' research applies to beginning readers, it has direct importance to educators who work with exceptional students. Many reading materials neglect reinforcement of new vocabulary words and leave the reader with an inadequate understanding of the materials read.

Comprehensive Evaluation of Readability

Special educators realize the extensive range of ability which

exists within a classroom and the varied ability to acquire the skills necessary for reading. It is the responsibility of the teacher to match the material, as closely as possible, with the student. The teacher can apply the techniques of comprehensive evaluation to determine such a match. Techniques used in this study include: (1) use of a readability formula, (2) the use of a readability word list, and (3) use of a worksheet for further analysis.

Readability Scales

Readability formulas are not considered a complete evaluation of readability but one tool for matching reading materials to an individual. Harris and Sipay (1985) note that "readability formulas have value, especially when their limitations are understood" (p. 601).

For this study, the Harris-Jacobson Wide Range Readability Formula was chosen. The reliability of the Harris-Jacobson formula was considered over other formulas due to the sampling of 200 words, which is shown to be more accurate than formulas using 100 word samples (Harris and Sipay, 1985). The standard error of estimate with the Harris-Jacobson formula is .501, or half a grade level (Harris and Sipay, 1985). It provides readability scores from grades 1.0 to 11.3 and is easier to apply than either the Spache (1976) or Dale-Chall formulas. Harris also reports that the word

list utilized by the Harris-Jacobson formula is the most up-to-date available.

Harris and Jacobson have clearly stated the instructions for selecting and counting the sample passages for the percentage of hard words in a sample, and the average sentence length. The percentage of hard words and the average sentence length are converted into a Predicted Raw Score which is converted to a readability (grade level) score.

A Worksheet for Further Analysis

In addition to the Harris-Jacobson Wide Range Readability Formula the Worksheet for Analysis of Instructional Materials Beyond Readability Scales - Revised (Schindler, 1991) was used in this comprehensive evaluation. This worksheet enables recording of hard words introduced in a lesson as well as tabulating the number of reinforcements within the next three lessons. Cushenberry (1985) states, "once new words are introduced and taught, they should be included in succeeding lessons to provide sufficient learning reinforcement. For words to become a permanent part of one's reading and speaking vocabulary, they need to be reviewed and used regularly at later intervals during various school lessons" (p. 49). Kingsley (1965) states there should be five repetitions of a word within an introductory lesson to enhance reading comprehension. Gates (1930) estimates the number of repetitions required for first

graders to be approximately 35 repetitions for the average child, 20 repetitions for the above average, and 40-45 repetitions for those below average.

Limitations of Review of Literature

This researcher found several bibliographies containing high interest-low vocabulary reading materials. However this material was all too often targeted for elementary and middle school students. The availability of age-appropriate reading materials for secondary students appears to be limited to materials prepared for adult learners who have past the high school age level.

These books are marketed as "adult learning" materials and may be overlooked by some educators as they seek age-appropriate materials for their secondary students. The literature related to this material is often found under the topic of literacy and adult education. In this researcher's computer search and review of literature, there appears to be a significant gap in this type of research at the secondary level.

Summary

Readability formulas are an invaluable tool for evaluating materials for individualized instruction. These formulas cannot stand alone as the single factor in selection of materials for an

individual.

This chapter presented an overview of the many factors which influence reading readability in relation to the exceptional student and the limitations of a review of related literature.

The many factors which affect readability may not be readily apparent to the student who is learning to read. Teachers should be aware of the variety of factors which influence an individuals ability to read. Spache (1976) reminds us "The most important single influence on attitudes toward reading is the student's interests."

CHAPTER 3

DESIGN FOR EVALUATION OF HIGH INTEREST - LOW VOCABULARY SPECIAL EDUCATION MATERIALS

Introduction

The last chapter presented an overview of the many factors which influence reading readability in relation to the exceptional student. The purpose of this chapter is to present the design of the study, procedures for data collection, the instruments used to collect data and the statistical procedures used in the analyses of data.

Purpose

The purposes of this study were as follows:

1. To determine if there existed a difference between the publishers' estimated readability levels of high interest/low readability special education materials and their actual readability according to the Harris-Jacobson Wide Range Readability Formula.

2. To determine if there is a consistency of grade level and readability within each text.

3. To determine if the new vocabulary words were reinforced at least five times within the story introduction as well as within the following three stories.

Data Collection Procedures

For this study several methods were reviewed in an effort to select the most valid means of analysis to enable transference of information obtained to use in the special education classroom. The research examined high interest-low vocabulary special education materials from several publishers. The materials were available from Anderson County Schools, the publishers, and the Oak Ridge City Schools. The materials chosen were: 1) Focus on Reading, books 3, 4, 5, 6 (Gunning, 1989); 2) Random House Achievement Program, books 4, 5, 6, (Wolpert, 1989); 3) Reading for Today, books 3, 4, 5 (Beers 1987); 4) Reading Skills for Adults, blue, red, green, and brown levels (Swineburne & Warner, 1986); 5) Laubach Way to Reading, skill books 3 and 4 (Laubach, 1982). Data were collected solely by the researcher over a twelve month period.

Instrumentation

The two instruments utilized in the collection of data for this study were (1) The Harris-Jacobson Wide Range Readability Formula (see Appendix A), and (2) the Worksheet for Analysis of Instructional Materials Beyond Readability Scales Revised (Schindler, 1991) (see Appendix B).

The Harris-Jacobson formula estimates readability on the basis

of a minimum of five 200 word samples taken at equal intervals throughout the textbook. The number of sentences and the number of words which were not on the word list were checked in each sample to determine these variables: (V1) the percentage of hard, or unfamiliar words and (V2) the average sentence length. The following equation was then used to determine a sample's raw score (Harris & Sipay, 1985):

$$\text{Predicted Raw Score} = .245V1 + .160V2 + .642 \quad (p.\ 657)$$

The raw score was then adjusted to a Readability score.

The Worksheet for Analysis of Instructional Materials Beyond Readability Scales Revised (Schindler, 1991) took samplings of three sections of the textbook, (beginning, middle, end). The hard words introduced in these samples were recorded and checked for number of reinforcements in content. The reinforcements were also checked in the following three lessons of each section.

Data Analyses

The data were analyzed by charting each selection in the high interest/low readability special education materials according to readability scores and frequency of hard word reinforcements.

In order to compare the results, an index number for each book was computed using a ratio that placed the publishers' estimated grade level over the readability level computed by this researcher

utilizing the Harris-Jacobson readability formula. Then the result was subtracted from 1 and a 20% confidence interval was utilized as the allowable tolerance for the index numbers closest to 0, .1, and -1, (Watson, 1981). A positive index number level is higher than the publishers' stated level, while a negative index number shows the actual readability is lower than the publishers' stated level.

All hard words in a chosen passage were listed on the Worksheet for Analysis of Instructional Materials Beyond Readability Scales Revised, (Schindler, 1991) with the number of reinforcements for each hard word marked and categorized into three columns (<5,5 and >5). Percentages were calculated by placing the number of reinforcements over the total number of hard words presented in each reading book. Hard words were obtained as a result of the list utilized by the Harris-Jacobson readability formula rather than the publishers listing of new vocabulary words.

Summary

This chapter described the design by which the high interest/low readability special education materials were evaluated, as well as listing the specific material used in this study. The two instruments utilized for evaluation of these high interest-low readability special education materials were also listed and described, and the process for the analysis of the data were discussed.

CHAPTER 4

RESULTS

Introduction

The purpose of this study was to comprehensively evaluate sixteen high interest - low vocabulary special education reading books. This analysis was determined by answering the research questions in Chapter 1.

1. Did the publishers estimate of readability and Harris-Jacobson Readability scores both fall between the confidence interval +.1 to -.1?

2. Was there a difference between the publisher's stated grade level designations and the actual readability of each sample within the texts?

3. Were the hard words reinforced at least five times within the introductory lesson and within the following three lessons?

All sixteen reading books are currently utilized in special education classrooms in East Tennessee. They were analyzed by applying the Harris-Jacobson Wide Range Readability Formula (Appendix A) and the Worksheet for Analysis of Instructional Materials Scales Revised (Schindler, 1991) (Appendix B). Hard word reinforcements were checked in each story of introduction and in the following three stories where applicable.

Individual Analysis of Steck-Vaughn Reading Materials

The Steck-Vaughn materials analyzed were Reading Skills for Adults, blue, red, green and brown levels (1986) and Reading for Today levels three, four and five (1987). These reading materials will be discussed in the order mentioned, and referred to by title and publishers level designation.

Reading Skills for Adults (blue). Hypothesis 1: The fully computed readability of 3.1 indicates that this book is slightly higher than the publisher's stated grade level of 2.0 to 3.0. The index number of +0.3 does not fall within the confidence interval (+0.1 to -0.1). The highest readability score from the samples (3.7) indicated that this particular story may be too difficult for a reader on the 2.0 - 3.0 grade level. The index score of +0.5 for the sample is not within the confidence interval which is acceptable for this study. The lowest readability score (2.0) indicates that this story would be of appropriate difficulty for readers at the beginning second grade level as well as providing success for readers at the third grade level (Table 1).

Hypothesis 2: Only six percent of hard words were reinforced five or more times within the story in which they were introduced, falling well short of Kingsley's recommendation. Only one hard word was found in a following story, appearing only once (Table 2).

Hypothesis 3: Of the five stories sampled three varied more

Table 1. Steck-Vaughn (1986) (Reading Skills for Adults - blue) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	2.0	2.0	2.0	2.0	2.0	2.0
Number of Words	204	206	201	200	201	-
Number of Hard Words	5	4	9	13	6	-
Number of Sentences	30	30	20	25	14	-
Raw Score	2.9	2.2	3.4	3.5	3.7	-
Readability Score	2.8	2.0	3.4	3.5	3.7	3.1
Index Number	0.3	0	0.4	0.4	0.5	+0.32

Table 2. Steck-Vaughn (1986) (Reading Skills for Adults - blue) Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	5	5	0	0	0	0	0
2	4	4	0	0	0	0	0
3	9	9	0	0	1	0	0
4	11	10	0	1	0	0	0
5	6	5	0	1	0	0	0
Total	35	33	0	2	1	0	0
Percent		94	0	6	1	0	0

than .5 years in fully computed readability from the publisher's stated readability of 2.0 to 3.0. (Table 1).

Reading Skills for Adults (red). Hypothesis 1: The fully computed readability of 4.6 indicated that this book is higher than the publisher's stated level of 3.0 to 4.0. The index number of +0.3 does not fall within the confidence interval (+0.1 to -0.1). The highest readability score from the five samples (6.9) indicated that this particular story may be too frustrating for a 3.0 to 4.0 level reader. The index score of +0.6 for the sample is not within the confidence interval which is acceptable for this study. Only two of the five stories sampled yielded a acceptable index number for this study (Table 3).

Hypothesis 2: Only two percent of the eighty-one hard words were reinforced five or more times in the story of introduction. Analysis of reinforcements in the three stories following each story of introduction found there to be no reinforcement of hard words (Table 4).

Hypothesis 3: Of the five stories sampled three varied more than the .5 years in fully computed readability of 3.0 to 4.0 (Table 3).

Reading Skills for Adults (green). Hypothesis 1: The fully computed readability of 4.6 indicated that this book is within the publisher's stated readability of 4.0 to 5.0. The index number of

Table 3. Steck-Vaughn (1986) (Reading Skills for Adults - red) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	3.0	3.0	3.0	3.0	3.0	3.0
Number of Words	201	210	201	211	206	-
Number of Hard Words	12	11	14	19	25	-
Number of Sentences	29	26	17	17	15	-
Raw Score	3.2	3.2	4.2	4.8	5.8	-
Readability Score	3.2	3.2	4.3	5.2	6.9	4.6
Index Number	0.1	0.1	0.3	0.4	0.6	+0.3

Table 4. Steck-Vaughn (1986) (Reading Skills for Adults- red) Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	12	11	0	1	0	0	0
2	11	10	1	0	0	0	0
3	14	14	0	0	0	0	0
4	19	18	0	1	0	0	0
5	25	25	0	1	0	0	*
Total	81	78	1	3	0	0	0
Percent		96	1	1	0	0	0

*No stories follow

+0.1 provides the confidence interval for this study. However, the highest readability score of the five samples (5.9) compared to the lowest readability score (3.2) indicate a wide range of reading levels within the book.

Hypothesis 2: Of the eighty-five hard words introduced only six percent were reinforced five or more times within the story of introduction. The analysis of following stories found only four of the eighty-five hard words were reinforced (Table 6).

Hypothesis 3: Of the five stories sampled two varied more than .5 years in fully computed readability from the publisher's stated readability of 4.0 to 5.0 (Table 5).

Reading Skills for Adults (brown). Hypothesis 1: The fully computed readability of 6.5 indicated that this book is more difficult than the publisher's stated reading level of 5.0 to 6.0. The index number of +0.2 does not fall within the confidence interval of (+0.1 to -0.1). Of the five stories analyzed four were well above the publisher's stated level with scores of 8.3, 6.7, 6.2 and 7.9. One story scored 3.5 which is well below the stated readability. The index scores of all five samples ranged from +0.4 to -0.4 with no story falling within the tolerable confidence level for this study (Table 7).

Hypothesis 2: A total of 111 hard words were introduced in the five stories sampled. Of these new words only three percent were reinforced according to Kingsley's recommendation of five or more

Table 5. Steck-Vaughn (1986) (Reading Skills for Adults - green) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	4.0	4.0	4.0	4.0	4.0	4.0
Number of Words	204	208	210	214	204	-
Number of Hard Words	18	8	12	21	26	-
Number of Sentences	20	20	18	18	23	-
Raw Score	4.4	3.2	3.9	4.9	5.2	-
Readability Score	4.6	3.2	3.9	5.4	5.9	4.6
Index Number	0.1	-0.3	0	0.3	0.3	+0.1

Table 6. Steck-Vaughn (1986) (Reading Skills for Adults - green) Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	18	17	0	1	3	1	0
2	8	8	0	0	0	0	0
3	12	12	0	0	0	0	0
4	21	21	0	0	0	0	0
5	26	22	1	3	0	*	*
Total	85	80	1	4	3	1	0
Percent		94	1	5	4	1	0

*No stories follow

Table 7. Steck-Vaughn (1986) (Reading Skills for Adults - brown) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	5.0	5.0	5.0	5.0	5.0	5.0
Number of Words	206	209	200	204	202	-
Number of Hard Words	28	21	9	23	30	-
Number of Sentences	13	13	18	16	16	-
Raw Score	6.5	5.7	3.5	5.4	6.3	-
Readability Score	8.3	6.7	3.5	6.2	7.9	6.5
Index Number	0.4	0.3	-0.4	0.2	0.4	+0.2

reinforcements. However, the three words which were reinforced five times were not the three words reinforced in subsequent stories (Table 8).

Hypothesis 3: Of the five stories sampled all varied more than .5 years in fully computed readability from the publisher's stated readability of 5.0 - 6.0 (Table 7).

Reading for Today (three). Hypothesis 1: This reading book yielded a readability score of 2.6 with an index score of +0.2. The range of readability scores was from 1.8 to 3.1. Four of the five stories sampled yielded score within the range 2.0 to 3.0 as stated by the publisher. The fifth story scored 1.8 slightly below the stated readability. However, only one story yielded an index score within the confidence interval (+0.1 to -0.1) for this study (Table 9).

Hypothesis 2: Twenty-one hard words were introduced in the five stories sampled. Only two words were reinforced five or more times within introductory stories. Within the following three stories ten percent of the hard words were reinforced (Table 10).

Hypothesis 3: All five samples yielded readability scores within .5 years in fully computed readability indicating consistency within the reading material (Table 9).

Reading for Today (four). Hypothesis 1: The readability score for this book was 2.9 with an index score of -0.4. The readability scores from the sampled stories ranged from 2.1 to 3.7. Two samples

Table 8. Steck-Vaughn (1986) (Reading Skills for Adults - brown) Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	28	27	1	0	1	1	0
2	21	21	0	0	1	0	0
3	9	9	0	0	0	0	0
4	23	22	0	1	0	0	*
5	30	29	0	1	*	-	-
Total	111	108	1	2	2	1	0
Percent		97	1	2	2	1	0

*No stories follow

Table 9. Steck-Vaughn (1987) (Reading for Today - three) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	2.0	2.0	2.0	2.0	2.0	2.0
Number of Words	207	208	204	202	206	-
Number of Hard Words	7	4	6	1	3	-
Number of Sentences	20	19	19	26	21	-
Raw Score	3.1	2.9	3.1	2.0	2.6	-
Readability Score	3.1	2.8	3.1	1.8	2.4	2.6
Index Number	0.4	0.3	0.4	-0.1	0.2	+0.2

Table 10. Steck-Vaughn (1987) (Reading for Today - three)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	7	5	1	1	0	0	0
2	4	4	0	0	2	2	0
3	6	6	0	0	0	0	0
4	1	1	0	0	0	0	0
5	3	3	0	0	0	0	*
Total	21	19	1	1	2	2	0
Percent		90	5	5	9	9	0

*No stories follow

yielded readability scores within the 3.0 to 4.0 range stated by the publisher, the remaining three samples were below the 3.0 readability level. These scores indicate the text may provide success for the 4.0 grade level reader. The index score of -0.4 does not fall within the confidence level for this study, therefore the hypothesis was restricted and this would not indicate the book is of no value (Table 11).

Hypothesis 2: Nine percent of the 39 hard words were found to be reinforced five or more times within the story of introduction (Table 12).

Hypothesis 3: One story varied more than .5 years of fully computed readability with a score of 2.1. While providing success this story might lack the reinforcement of vocabulary introduced at the 3.0 to 4.0 readability level (Table 11).

Reading for Today (five). Hypothesis 1: The fully computed readability score of 2.5 falls far below the publisher's stated readability level of 4.0 to 5.0. Readability scores ranged from 1.5 to 3.2 are lower than the preceding book. An index score of -0.8 was obtained (Table 13).

Hypothesis 2: Seven percent of the 27 hard words were reinforced five or more times within the story of introduction. There were no words repeated five or more times in subsequent stories. One word appeared only once in the story of introduction (Table 14).

Table 11. Steck-Vaughn (1987) (Reading for Today - four) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	3.0	3.0	3.0	3.0	3.0	3.0
Number of Words	204	206	200	201	203	-
Number of Hard Words	4	4	7	11	5	-
Number of Sentences	21	27	19	18	21	-
Raw Score	2.7	2.3	3.2	3.7	2.8	-
Readability Score	2.6	2.1	3.2	3.7	2.7	2.9
Index Number	-0.2	-0.4	0.1	0.2	-0.1	-0.4

Table 12. Steck-Vaughn (1987) (Reading for Today - four)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	1
1	4	2	1	1	0	0	0
2	4	4	0	0	0	0	0
3	7	6	0	1	0	1	0
4	11	11	0	0	0	0	0
5	5	5	0	0	0	0	*
Total	31	28	1	2	0	1	0
Percent		90	3	6	0	3	0

*No stories follow

Table 13. Steck-Vaughn (1987) (Reading for Today - five) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	4.0	4.0	4.0	4.0	4.0	4.0
Number of Words	203	200	212	206	205	-
Number of Hard Words	6	6	7	3	6	-
Number of Sentences	19	18	19	31	21	-
Raw Score	1.8	3.2	3.2	2.1	2.9	-
Readability Score	1.5	3.2	3.2	1.9	2.8	2.5
Index Number	-1.7	-0.3	-0.3	-1.1	-0.4	-0.8

Table 14. Steck-Vaughn (1987) (Reading for Today - five)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	5	5	0	0	0	0	0
2	6	5	0	1	0	0	0
3	7	7	0	0	0	1	0
4	3	3	0	0	0	0	0
5	6	5	0	1	0	0	0
Total	27	25	0	2	0	1	0
Percent		93	0	7	0	3	0

Hypothesis 3: All five stories fell outside the 0.5 year range of the publisher's stated readability level of 4.0 to 5.0 (Table 13).

Individual Analysis of Merrill Reading Materials

The Merrill materials analyzed were Focus on Reading books three, four and five. These materials will be discussed in the order mentioned and referenced to by title and publisher's level designation.

Focus on Reading (three). Hypothesis 1: The fully computed readability score of 4.0 and index number of +0.1 fall within the confidence interval for this study. The publisher's stated readability is 3.5 to 4.5 (Table 15).

Hypothesis 2: Only six percent of hard words were reinforced five or more times within the introductory story. Only one of the seventy-five words was reinforced in the following three stories (Table 16).

Hypothesis 3: All five stories were within the publisher's stated range of 3.5 to 4.5 (Table 15).

Focus on Reading (four). Hypothesis 1: The fully computed readability score of 4.5 and index numbering of +0.1 fall within the confidence interval for this study. The publisher's stated

Table 15. Merrill (1989) (Focus on Reading - three) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	3.5	3.5	3.5	3.5	3.5	3.5
Number of Words	210	210	204	204	207	-
Number of Hard Words	16	13	14	15	19	-
Number of Sentences	20	23	23	32	24	-
Raw Score	4.2	3.6	3.7	3.9	4.3	-
Readability Score	4.3	3.6	3.7	3.9	4.5	4.0
Index Number	0.2	0	0.1	0.1	0.2	+0.1

Table 16. Merrill (1989) (Focus on Reading - three)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	5>	1	2	3
1	16	14	0	2	0	0	0
2	13	13	0	0	0	0	0
3	13	12	0	1	0	0	1
4	15	13	0	2	0	0	0
5	18	16	0	2	0	0	0
Total	75	68	0	7	0	0	1
Percent		90	0	9	0	0	1

readability is 4.0 to 5.0 (Table 17).

Hypothesis 2: Four percent of the hard words were reinforced five or more times within the introductory story. Only one hard word of the eighty-eight introduced was reinforced within the next three stories (Table 18).

Hypothesis 3: The five samples obtained readability scores ranging from 4.0 to 4.8 which are within the 4.0 to 5.0 range stated by the publisher (Table 17).

Focus on Reading (five). Hypothesis 1: The index number obtained was -0.02 which does not meet the confidence interval (+0.1 to -0.1) required for this study. The readability score of 4.5 is the lower end of the publisher's stated readability level. Two of the five stories yielded lower readability scores which provide success when included within stories scoring within the publisher's stated range of readability (Table 19).

Hypothesis 2: Reinforcements were limited in the five introductory stories. Only five percent of hard words were reinforced five or more times. Three hard words were reinforced in the subsequent stories (Table 20).

Hypothesis 3: Two stories yielded fully computed readability scores outside the .5 years range. The stories fell below the publisher's stated level of 4.5 (Table 19).

Focus on Reading (six). Hypothesis 1: This book yielded a

Table 17. Merrill (1989) (Focus on Reading - four) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	4.0	4.0	4.0	4.0	4.0	4.0
Number of Words	204	202	207	204	223	-
Number of Hard Words	20	17	18	18	15	-
Number of Sentences	20	17	21	25	21	-
Raw Score	4.6	4.6	4.4	4.1	4.0	-
Readability Score	4.8	4.8	4.6	4.1	4.0	4.5
Index Number	0.2	0.2	0.1	0	0	+0.1

Table 18. Merrill (1989) (Focus on Reading - four)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	20	20	0	0	0	0	0
2	17	16	1	0	0	0	0
3	18	17	1	0	0	0	1
4	18	17	1	0	0	0	0
5	15	15	0	0	0	0	0
Total	88	85	3	0	0	0	1
Percent		96	3	0	0	0	1

Table 19. Merrill (1989) (Focus on Reading - five) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	4.5	4.5	4.5	4.5	4.5	4.5
Number of Words	201	206	206	205	209	-
Number of Hard Words	17	18	13	18	19	-
Number of Sentences	21	16	22	19	20	-
Raw Score	4.2	4.8	3.7	4.5	4.5	-
Readability Score	4.3	5.2	3.7	4.7	4.7	4.5
Index Number	0	0.1	-0.2	0	0	-0.02

Table 20. Merrill (1989) (Focus on Reading - five)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	1
1	17	16	0	1	1	0	0
2	18	16	0	2	0	0	0
3	13	13	0	0	0	0	1
4	18	18	0	0	0	1	0
5	19	18	0	1	0	*	-
Total	85	81	0	4	1	1	1
Percent		95	0	5	1	1	1

*No stories follow

readability score of 5.5 with an index score of +0.08. The range of readability scores was from 4.6 to 6.9. Three stories of the five stories sampled yielded scores outside the publisher's stated readability levels of 5.0 to 6.0. Two of these stories were below the 5.0 grade level. One story above the 6.0 grade level with a score of 6.9 grade level. This story may prove too frustrating for the targeted 5.0 to 6.0 reader (Table 21).

Hypothesis 2: One hundred six hard words were introduced with only four percent of these words reinforced five or more times. There were no hard words reinforced in subsequent stories (Table 22).

Hypothesis 3: One story of the five sampled was .5 years higher than the publisher's higher level of 6.0. This story obtained a readability score of 6.9.

Individual Analysis of Random House Reading Materials

The Random House materials analyzed were achievement program in comprehension books four, five and six. These materials will be discussed in the order mentioned and referenced to by title and publisher's level designation.

Achievement Program in Comprehension (four). Hypothesis 1: The fully computed readability score of 4.3 and index number of +0.04 fall within the confidence interval for this study. The publisher's stated readability is 4.0 (Table 23).

Table 21. Merrill (1989) (Focus on Reading - six) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	5.0	5.0	5.0	5.0	5.0	5.0
Number of Words	200	220	205	205	202	-
Number of Hard Words	17	19	21	28	22	-
Number of Sentences	19	17	23	18	16	-
Raw Score	4.4	4.8	4.6	5.8	5.3	-
Readability Score	4.6	5.2	4.8	6.9	6.0	5.5
Index Number	-0.1	0	0	0.3	0.2	+0.08

Table 22. Merrill (1989) (Focus on Reading - six)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	17	16	0	1	0	0	0
2	19	18	0	1	0	0	0
3	21	21	0	0	0	0	0
4	28	27	0	1	0	0	0
5	21	20	1	0	0	0	0
Total	106	102	1	3	0	0	0
Percent		96	1	3	0	0	0

Table 23. Random House (1986) (Achievement Program in Comprehension - four) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	4.0	4.0	4.0	4.0	4.0	4.0
Number of Words	202	200	203	213	208	-
Number of Hard Words	12	18	13	21	17	-
Number of Sentences	25	22	19	18	20	-
Raw Score	3.4	4.3	3.9	4.9	4.3	-
Readability Score	3.4	4.5	3.9	5.4	4.5	4.3
Index Number	-0.2	+0.1	-0.1	+0.3	+0.1	+0.04

Hypothesis 2: Only two percent of hard words were reinforced five or more times within the introductory story. Four of the eighty-one hard words introduced were reinforced in the first of the three following stories. One word was reinforced in the second story and no hard words appeared in the third story (Table 24).

Hypothesis 3: Two stories fell below the 4.0 readability level stated by the publisher. Two stories obtained a readability score of 4.5 with an index score of +0.1 which falls within the confidence interval for this study. The fifth story obtained a readability score of 5.4 which would be too frustrating for a reader at the 4.0 level (Table 23).

Achievement Program in Comprehension (five). Hypothesis 1: The fully computed readability score of 4.3 places this book at an overall lower readability than the publisher's stated level of 5.0 (Table 25).

Hypothesis 2: Only three percent of hard words introduced were reinforced five or more times. Five of seventy-five hard words were reinforced in the three stories which follow the story of introduction (Table 26).

Hypothesis 3: The five samples obtained readability scores ranging from 3.2 to 4.3 which are below the publisher's stated level of 5.0 (Table 25).

Achievement Program in Comprehension (six). Hypothesis 1: The

Table 24. Random House (1986) (Achievement Program in Comprehension - four)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	12	11	0	1	1	0	0
2	18	18	0	0	1	0	0
3	13	13	0	0	0	0	0
4	21	20	0	1	2	1	0
5	17	17	0	0	0	0	0
Total	81	79	0	2	4	1	0
Percent		98	0	2			

Table 25. Random House (1986) (Achievement Program in Comprehension - five) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	5.0	5.0	5.0	5.0	5.0	5.0
Number of Words	203	201	200	203	211	-
Number of Hard Words	17	8	15	11	11	-
Number of Sentences	21	15	20	20	26	-
Raw Score	4.2	3.8	4.1	3.6	3.2	-
Readability Score	4.3	3.8	4.1	3.6	3.2	3.8
Index Number	-0.1	-0.3	-0.2	-0.4	-0.6	-0.3

Table 26. Random House (1986) (Achievement Program in Comprehension - five)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	17	16	0	1	4	1	0
2	8	8	0	0	0	0	0
3	15	15	0	0	0	0	0
4	11	10	0	1	0	0	0
5	11	11	0	0	0	0	0
Total	62	60	0	2	4	1	0
Percent		97	0	3			

fully computed readability score of 4.7 also places this book at an overall lower readability level than the publisher's stated level of 6.0. The index score of -0.5 does not meet the confidence interval for this study (Table 27).

Hypothesis 2: Only three percent of the hard words were reinforced five or more times in the story of introduction. Seventy-six hard words were introduced with only one being reinforced in the following three stories (Table 28).

Hypothesis 3: One sample obtained an index score within the confidence interval. Three stories fell considerably below the publisher's stated level of 6.0 with readability scores of 2.1, 4.0 and 4.6. The 2.1 readability score indicates a story which is inappropriately placed. The first story analyzed obtained a readability score of 7.5 which is unacceptable for this study (Table 27).

Individual Analysis of New Readers Press Reading Materials

Laubach Way to Reading (three). Hypothesis 1: This book yielded a readability score of 2.2 with an index score of -0.5. The range of readability scores was from 1.3 to 3.3. Three stories of five stories sampled yielded scores outside the publisher's stated readability of 3.0. Four stories were below the 3.0 level (Table 29).

Hypothesis 2: Twenty-three hard words were introduced with

Table 27. Random House (1986) (Achievement Program in Comprehension - six) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	6.0	6.0	6.0	6.0	6.0	6.0
Number of Words	209	202	203	201	200	-
Number of Hard Words	25	2	20	13	14	-
Number of Sentences	13	19	17	17	19	-
Raw Score	6.1	2.3	5.0	4.4	4.0	-
Readability Score	7.5	2.1	5.5	4.6	4.0	4.7
Index Number	0.2	-1.9	-0.09	-0.3	-0.5	-0.5

Table 28. Random House (1986) (Achievement Program in Comprehension - six)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	25	24	0	1	1	0	0
2	2	8	0	0	0	0	0
3	20	20	0	0	0	0	0
4	15	14	0	1	0	0	0
5	14	14	0	0	0	0	0
Total	76	74	0	2	1	0	0
Percent		97	0	3			

Table 29. New Readers Press (1984) (Laubach Way to Reading - three) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	3.0	3.0	3.0	3.0	3.0	3.0
Number of Words	200	201	206	208	206	-
Number of Hard Words	8	1	0	4	10	-
Number of Sentences	28	28	34	32	23	-
Raw Score	2.8	1.9	1.6	2.2	3.3	-
Readability Score	2.7	1.7	1.3	2.0	3.3	2.2
Index Number	-0.1	-0.8	-1.3	-0.5	+0.1	-0.5

only two words receiving five or more reinforcements within the story of introduction. Three words were reinforced in subsequent stories (Table 30).

Hypothesis 3: Two stories obtained index scores within the confidence interval (+0.1 to -0.1) required for this study (Table 29).

Laubach Way to Reading (four). Hypothesis 1: The fully computed readability score of 2.9 falls below the publisher's stated readability level of 4.0. An index score of -0.4 was obtained (Table 31).

Hypothesis 2: Forty-one hard words were introduced with twenty-two of those words receiving five or more reinforcements within the introductory story. Eleven words were reinforced in the following three stories (Table 32).

Hypothesis 3: All five stories fell below the publisher's stated readability of 4.0 (Table 31).

Table 30. New Readers Press (1984) (Laubach Way to Reading - three)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	8	7	0	1	0	2	0
2	1	0	0	1	0	0	0
3	0	-	-	-	-	-	-
4	4	4	0	0	1	0	0
5	10	10	0	0	0	0	0
Total	23	21	0	2	1	2	0
Percent		91	0	9			

Table 31. New Readers Press House (1986) (Laubach Way to Reading - four) Readability Data

Analysis Procedure	Sample Number 1	2	3	4	5	Means
Estimated Readability	4.0	4.0	4.0	4.0	4.0	4.0
Number of Words	203	203	201	200	202	-
Number of Hard Words	11	7	5	5	13	-
Number of Sentences	21	25	19	22	19	-
Raw Score	3.4	2.8	2.9	2.1	3.9	-
Readability Score	3.5	2.7	2.8	1.9	3.9	2.9
Index Number	-0.1	-0.5	-1.4	-1.1	-0.1	-0.4

Table 32. New Readers Press (1984) (Laubach Way to Reading - four)
Hard Word Reinforcement

Sample Number	Number of Hard Words	Number of Words Reinforced			Number of Words Reinforced in Next Three Stories		
		<5	5	>5	1	2	3
1	11	10	0	1	1	1	1
2	7	5	0	2	2	1	1
3	5	4	1	0	2	0	0
4	3	3	1	1	1	0	0
5	13	10	2	1	1	0	0
Total	41	32	4	5	7	2	2
Percent		78	10	12			

Discussion of Results

The Merrill series Focus on Reading obtained fully computed readability scores closest to those stated by the publisher. Three of the four books analyzed were within .5 years of the publisher's stated readability level with the four books yielding the same score as was stated by the publisher. This series did not reinforce hard words sufficiently. Hard words being reinforced within the story of introduction were four percent or less.

The Steck-Vaughn series Reading Skills for Adults yielded results consistent with information obtained from the publisher. This series was intended for use as leisure reading material rather than for instructional purposes. The publisher did not consider new word reinforcement or progressive difficulty when creating the books. This is evidenced by the wide range of readability scores obtained in evaluation. The publisher's highest stated readability was 5.0 while one story analyzed yielded an 8.3 readability score.

The series Reading for Today by Steck-Vaughn yielded fully computed readability scores ranging from .5 to 1.0 years from the publisher's stated levels. While this appears to be a positive aspect of the series, new word reinforcements ranged from only seven to ten percent of all new words within the story of introduction. The publisher stated that this series was meant to be progressive although this was not evident through this researcher's comprehensive evaluation.

The Achievement Program in Comprehension by Random House yielded individual readability scores ranging from 2.1 to 7.5 while the publisher's stated readability levels ranged from 4.0 to 6.0. This series would require the teacher to arrange the stories in the appropriate order to enable progressing difficulty for the students. In this series a maximum of three percent of hard words were reinforced in the story of introduction, while only 11 of 219 hard words were reinforced in the following three stories.

The Laubach Way to Reading books yielded fully computed readability scores of 2.2 and 2.9 which do not represent the publisher's stated readability levels of 3.0 and 4.0 respectively. Hard word introduction ranged from zero to thirteen which places new vocabulary loads at a manageable level. The Laubach Way to Reading (four) yielded the greatest percent of hard word reinforcements in the story of introduction with 22 percent.

Summary

This chapter presented the results of a comprehensive evaluation of sixteen high interest - low vocabulary reading textbooks. Each book was discussed individually relative to the hypotheses as presented in Chapter 1. A discussion of results followed. Conclusions and implications will be presented in Chapter 5.

CHAPTER 5

DISCUSSION

The purpose of this chapter is to discuss the results of the comprehensive evaluation procedures in relation to five high interest - low vocabulary reading series. The findings of this study suggest implications for publishers and teachers, as well as, possibilities for further research.

The textbooks were analyzed with the Harris-Jacobson Wide Range Readability Formula and the Worksheet for Analysis of Instructional Materials Beyond Readability Scales Revised (Schindler, 1991). These instruments enabled this researcher to evaluate the textbooks and formulate conclusions as to their appropriateness for secondary special education students.

Several of the stories analyzed obtained readability scores below the stated readability level of the publisher. When considering materials for special education students this result is preferable. Research in reading suggests that when an interest in reading exists a readability score lower than the actual readability level of the reader is not harmful while too high a level may foster frustration and often a dislike for reading (Hargis, 1982). Teachers need to become more aware of research in the area of readability so they can make educated decisions when selecting reading materials for their students.

Conclusions

Results of this study demonstrate better control of readability in special education reading materials than the control demonstrated in reading series studied by Webster (1990). Webster found a greater range of readabilities within individual texts than was stated by the publishers. In the evaluation of remedial textbooks, Webster found these books to be written at a below the readability stated by the publisher.

Although the special education materials evaluated obtained better results when compared to the regular textbooks evaluated by Webster (1990) the new vocabulary introduced does not follow the recommendations for repetitions as defined by Gates (1930). According to Gates (1930) students with lower IQ levels require more reinforcement of new words for word-recognition mastery. Those with an IQ of 120 or above require 20 repetitions while those with a 60-69 IQ require 55 repetitions.

The present research indicates an increased need for appropriate repetitions of new vocabulary in special education materials. This study, as well as Webster (1990), found new vocabulary repetition almost nonexistent in those textbooks evaluated. The special education materials evaluated in this study failed to adequately reinforce new vocabulary words according to Kingsley's (1965) recommendations of a minimum of five times within the story of introduction. The percentage of new words in a

textbook that were reinforced five or more times ranged from a low of 1 percent to a high of 22 percent. It is also important to note that 90 to 97 percent of new words introduced were reinforced less than five times, usually these words were introduced but did not appear again within the introductory story.

The pattern of new word introduction increased with difficulty level in each series. The lower readability (2.0 - 3.0) texts averaged 6 new words introduced in a story while the high readability (5.0 - 6.0) texts average 21 new words in the story of introduction.

The increase in new vocabulary introduced also indicates a need for increase in the reinforcement of these words. Rarely did the textbooks provide further reinforcement in the following three stories. The number of new words reinforced ranged from zero to four repetitions within one of three individual stories following the story of introduction.

Implications for Special Educators

Special education teachers are often at liberty to select materials independent of approved lists. This practice enables the teacher to provide a better match between the student and the instructional materials. The teacher must not assume the publisher has provided full and accurate information about materials being considered. This assumption requires that teachers evaluate

materials themselves and consider the materials appropriateness for use within their classroom.

Ideally, teachers should increase their own story writing to insure the recommendations for new word reinforcements are followed while maintaining the appropriate readability level. Teachers can provide their students with stories which are of specific interest to their student population, thus increasing the desire to read. Teachers must pre-teach new vocabulary and provide sufficient reinforcement to enable successful word-recognition mastery.

During evaluation of these reading series the researcher noted limited use of pictures, drawings, graphs and other visual aids which might provide context clues for the reader. In this situation the written word becomes the primary information source for the reader. This further reinforces the need for appropriate vocabulary development prior to story introduction. The teacher should pre-teach vocabulary as well as concepts with which the reader is unfamiliar. This would allow for the individualization of lessons to fulfill the needs of specific students.

Implications for Teacher Educators

Teacher preparation programs must provide instruction in the comprehensive evaluation of materials for use in the classroom. Potential educators need to involve themselves in the study of the readability of materials so they can become aware of the wide range

of adequate and inadequate materials available. The skills for creating self-made materials which provide appropriate rates of introduction, reinforcement and readability levels need to be learned in teacher preparation programs so that these skills are mastered prior to entering a classroom.

Implications for Publishers

Publishers of high interest-low vocabulary reading materials need to continue the development of these materials to obtain readability levels within texts which are reflected by the publisher's stated level of readability. The publishers need to focus greater attention toward new word reinforcement. Improvement in this area of writing would provide teachers with reading materials which enhance their instruction while providing students with adequate reinforcements of new words. The interest level was not a component of this study, however publishers need to provide materials which reflect changes in the interest of secondary students.

Implications for Further Research

The general lack of research in the area of high interest-low vocabulary materials suggests a need for further study. Recommendations and guidelines for preparation of such materials exists. The

extent to which writers and publishers utilize these guidelines appropriately needs to be studied.

As stated before, the appropriateness of interest level was not examined in this study. The availability of high interest materials is limited and the publishers designated interest levels may vary as much as the readability levels they state. The interest a student has in the materials being read may determine to some extent the effort exhibited to successfully complete the material.

Many reading textbooks are accompanied by workbooks and other supplemental materials. These materials need to be evaluated to determine their value when used in conjunction with the text. A comprehensive evaluation of these materials could include readability, new word reinforcement, interest level, visual cue presentation and general format.

Implications for Textbook Selection Committees

Textbook selection committees are usually made up of teachers who volunteer to review textbooks which are under consideration for adoption. These teachers should possess the skills required for comprehensive evaluation of the textbooks and the knowledge of guidelines set forth by Gates (1930) and Kingsley (1965). When teachers become more thorough evaluators, publishers will have to provide materials which meet or exceed these guidelines. It is the responsibility of teachers to inform the publishers of textbooks

which are not acceptable and refuse to adopt texts which do not meet the appropriate guidelines.

Special educators should establish a state-wide data base to enable efficient sharing of comprehensive material evaluations. This sharing of evaluations would enable teachers to select materials without repeating evaluations which another teacher has completed. This process would enable better communications and hopefully ease a bit of the burden in selection of appropriate materials. A teacher could contact someone who has actually used a specific material and receive valuable information which is not available from the publisher.

Summary

This chapter discussed the results of the comprehensive evaluation process in relation to five high interest-low vocabulary reading series. The findings of this study suggest implications for special educators, teacher educators, publishers and textbook selection committees, as well as possibilities for further research.

Secondary students require reading material which will pique their interests and fulfill a need for knowledge while providing the basic reading skill practice they require. A secondary student who is presented with material which is perceived as "babyish" may not respond with a desire to achieve. High interest-low vocabulary reading materials need to challenge the student while more importantly, enhance individualized self-esteem and success.

REFERENCES

REFERENCES

Alexander, J. E., & Heathington, B.S. (1988). Assessing and correcting classroom reading problems. Boston, Massachusetts: Scott, Foresman and Company.

Backus, J. E. (1988). Evaluation of the Readability of Five Science Series. Unpublished master's thesis, The University of Tennessee, Knoxville.

Beers, J. (1987). Reading for today: a sequential program for adults. Austin, Texas: Steck-Vaughn Company.

Chall, J. S. (1983). Stages of reading development. New York, New York: McGraw-Hill.

Coleman, L. J. (1982). Readability. In C. H. Hargis, Teaching reading to handicapped children (pp. 199-229). Denver, Colorado: Love Publishing Company.

Cushenberry, D. C. (1985). Improving reading skills in the content area. Springfield, Illinois: Thomas Publishing Company.

Fry, E. B. (1989). Reading formulas - maligned but valid. Journal of Reading, 32, 292-296.

Gates, A. I. (1930). Interest and ability in reading. New York: McMillan.

Gunning, T. G. (1989). Focus on Reading. Columbus, Ohio: Merrill Publishing.

Hargis, C. H. (1982). Teaching reading to handicapped children. Denver, Colorado: Love Publishing Company.

Harris, A. J., & Jacobson, M. D. (1982). How to increase reading ability. New York, New York: Longman.

Harris, A. J., & Sipay, E. R. (1985). How to increase reading ability (8th ed.). New York, New York: Longman, Inc.

Harris, A. J., & Sipay, E. R. (1975). How to increase reading ability. New York, New York: Longman.

Harrison, C. (1980). Readability in the classroom. Cambridge: Cambridge University Press.

Hayes, David (1988). Toward students learning through to social studies text. Social Studies, 79, 266-270.

Kingsley, R. F. (1965), October. Adjustment of curriculum for the handicapped students. Presentation at Kent State, Kent, Ohio.

Klare, G. R. (1963). The measurement of readability. Ames, Iowa: The Iowa State University Press.

Laubach, F. C. (1982). Laubach way to reading. Syracuse, New York: New Readers Press.

Peterson, F. M. Aspects of readability in the social studies. New York: Bureau of Publications, Teachers College, Columbia University, 1954.

Schindler, W. J. (1991). Worksheet for analysis of instructional materials beyond readability scales revised. Knoxville, Tennessee: The University of Tennessee.

Spache, George D. (1976). Investigating the issues of reading disability. Boston: Allyn and Bacon, Publishers.

Standal, T. C. (1978). Readability formulas. The Education Digest, 44, 54-56.

Swineburne, L. & Warner, J. F. (1986). Reading skills for adults. Austin, Texas: Steck-Vaughn Company.

Watson, M. E. (1981). An evaluation of the readability of five developmental reading series. Unpublished master's thesis, The University of Tennessee, Knoxville.

Webster, Lynda K. (1990). An evaluation of the readability of nine elementary level basal readers. Unpublished master's thesis, The University of Tennessee, Knoxville.

Wolpert, T. (1986). The random house achievement program and comprehension: New York, New York

Zintz, M. V. (1970). The reading process. Dubuque, Iowa: William C. Brown Company, Publishers.

APPENDIXES

APPENDIX A

Worksheet

Book Title:

Author:

Publisher:

Copyright Date:

Sample Number: 1 2 3 4 5

Pages of Sample:

A. No. of words
B. No. of hard words
C. No. of sentences

Steps:

1. V1 = B ÷ A x 100
2. V2 = A ÷ C
3. V1 x .245
4. V2 x .160
5. Step 3 + Step 4 + .642
   = Predicted Raw Score
6. Step 5 rounded
7. Readability Score

From HOW TO INCREASE READING ABILITY 8th Edition by Albert J. Harris and Edward R. Sipay. Copyright 1985 by Longman. Adapted by permission.

APPENDIX B

Worksheet for Analysis of Instructional Materials Beyond Readability Scales Revised

Name of Book _____

Workbook _____

Publisher _____

Proposed Grade Level _____

Other Information _____

Pick A story at the beginning, middle and end of each level and analyze according to information requested below:

List Hard Words	Number of times reinforced	Reinforcement in next 3 stories

VITA

Karen Bennett Larabee was born in Charleston, South Carolina on June 2, 1960. She attended elementary and junior high schools in Houston, Texas before moving to Oak Ridge, Tennessee in 1976. Karen was graduated from Oak Ridge High School in 1977. In September 1978 she entered Tennessee Technological University and in June 1982 received the degree of Bachelor of Science in Education in Secondary Social Science Education. She entered the University of Tennessee in 1988 and in 1991 received a Master of Science degree in Special Services Education.

Karen is presently employed as a special education teacher with Anderson County Schools. She has been employed in the area of special education and has worked with severely emotionally disturbed children for eight years.