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# AN EVALUATION OF THE READABILITY OF FIVE SPELLING SERIES

A Thesis

Presented for the

Master of Science

Degree

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Claudia J. Raudorf

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Claudia J. Raudorf

# ABSTRACT

The purpose of this study was to evaluate five spelling series as to readability scores, grade levels of new vocabulary words introduced, and the reinforcement of the new words. The readability scores were computed by utilizing the Spache and the Dale-Chall Readability Formulas. The new vocabulary words introduced in the series were listed on the Worksheet for Analysis of Instructional Materials Beyond Readability Scales (Schindler, 1980) in order to tabulate the number of times each new word was reinforced. The words were then matched with A Functional Basic Word List for Special Pupils (Tudyman and Groelle, 1963) so that the actual grade levels could be calculated. In addition the words were matched with the Dolch spelling list (Dolch, 1943) to determine similarities among the words selected by the publishers.

The comprehensive evaluation process revealed that in each series the textbooks chosen for grades four and five were the most difficult to read and comprehend. They all had a readability score which was at least one grade level above the publisher's estimate. In contrast, with the exception of one book, the grade six spelling texts were seen as being written at grade level. Save for one notable exception there appeared to be a correlation between the

readability scores and the number of above grade level vocabulary words presented. The publishers have not adequately reinforced all of the new vocabulary words introduced in each unit. These findings indicate a need for the publishers to ensure that the words presented are easily recognized and understood by the students as a high number of unfamiliar words obscures the student's comprehension.

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# CHAPTER 1

## INTRODUCTION

The purpose of this study was to partially replicate Watson's (1981) thesis entitled: An Evaluation of the Readability of Five Developmental Reading Series. In the present work the readability of five spelling series has been evaluated using Watson's format and techniques. The goal of a spelling program is to enable pupils to learn to spell virtually all necessary or desired words. The spelling series include teacher's editions, spelling texts and workbooks for children, as well as many resource books and packets for teachers. Spelling series should be developed so that individual differences among students are taken into account. According to Hargis (1987) the actual range of academic capability in each of the primary grades is at least two and one-half years. Educators, however, are expected to use the same text for all students in the classroom, even though some may not read well enough to complete the exercises. These children, in general, rely on the teacher for explanation of task related instructions.

When looking at a particular spelling program one

should consider whether the individual lessons are easy for the student to understand. The pupils ought to be given practice spelling high-frequency words which are needed for everyday writing because it is important to be able to express oneself using correct grammar and spelling. It is also considered a mark of literacy to be a good speller. A spelling awareness should be developed in order to enable students to spell new words which are likely to be encountered later in life.

The problem material in the spelling program, presumably includes all instructions to carry out tasks and exercises which could be too difficult for the average student. In some instances the student is able to skip a word or misread a word without having a damaging effect on the overall comprehension but in spelling it may alter the entire meaning. Spelling book instructions serve a different function from the more expository prose of the textbook, and where the aim is to convey how to do a task, clarity and simplicity are vital. Harrison (1980) affirms that the use of typographical effects such as bold type, underlining or italicising can also be effective in improving comprehension. In addition the texts should be examined to determine whether the explanatory portions of each lesson are sufficiently explicit and straight forward in pointing out the pattern to be studied.

The comprehensive evaluation process which includes the use of readability formulas, graded word lists and tabulating the number of reinforcements of new words in the published material, is a relatively simple task to perform and yet these tests are difficult to evaluate when considering the spelling series. The instructional pages may be unsuitable for analysis because presentation and lay-out conventions do not really allow one to estimate sentence length in the normal way. One realizes that it is only valid to use a readability formula on narrative or expository prose, and any deviation from this can be misleading. Spelling texts present an obvious problem as the lessons include a mixture of headings, brief instructions and more continuous prose. Because of these differences the time should be taken to carefully evaluate the spelling series using a valid formula in order to ascertain whether the text is appropriate for the grade level to which it has been assigned. Harrison (1980) suggests that an analysis can be done if it is confined to continuous prose. He indicates that an absolute minimum of fifty words must be used for analysis and preferably one hundred or more.

In the present work an attempt has been made to determine readability levels for five different spelling series presently approved for use in local school systems

in East Tennessee. The Spache Reading Formula was used to evaluate the second and third grade spelling texts and the Dale-Chall Readability Formula was used to evaluate the fourth, fifth, and sixth grade spelling texts. Since the spelling texts were evaluated with instruments designed for use with reading materials a margin of error should be considered. As the specialized vocabulary used in the teaching of spelling is not widely employed in everyday writing one observes that the terms are often excluded from word lists. Words such as consonant, synonym, analogy, syllable, vowel, verb, suffix, and prefix are examples of terminology not commonly found on the word lists. Spelling books should contain words that are familiar to the student, reinforce items of information and have textual formats which highlight key information. Schindler (1981) maintains that by making use of readability scales, graded word lists and worksheets for further analysis, educators will be better able to select materials which will be theoretically more on an instructional level for the individual students. As a result, the learning experience for the child will be met with a higher rate of success. The student will not constantly feel the frustration of being unable to read material which is above his ability level.

Educators ought to consider more than readability

formulas as evaluation criteria when adopting text books. The publisher should also demonstrate how successful the materials have been with a similar student population. It is felt that consideration must also be given to the clarity and comprehensiveness of the text.

## Background

Learning to spell is not easy. The beginning speller faces a multitude of obstacles as the English language has the largest vocabulary in the world. Graham and Miller (1972) state that:

> spelling involves the ability to recognize, recall, reproduce, or obtain orally or in written form the correct sequence of letters in words (p.2).

As a minimum, instruction should be geared toward expanding spelling vocabulary, developing a desire to spell words correctly, and perfecting one's ability to detect and correct spelling errors. The authors maintain that spelling is an integral part of the composing process and not a discrete, separate skill. Considerable practice should be given to students in order to ensure the application of spelling skills learned in the classroom. Materials should include those designed to make sure that skills learned in isolation can be used successfully during writing. Spelling skills should be assessed both in isolation and in

written context.

Teachers have little time to develop individual programs for the students and in most cases rely on the particular spelling series used by the school system. Careful evaluation needs to be made by the curriculum planners in order to select the series which best meets the needs of the students. Children lose motivation if what is being read tends to be too difficult or unfamiliar. A procedure is needed which would allow one to predict in a reliable way how a particular set of readers would be likely to cope with a given spelling text. Every child is unique and every group behaves differently from every other group. One tends to take for granted that the grade level designation is correct and that the instruction will be appropriate. Teachers accept responsibility for the readability of their own worksheets but the validity of the publisher's estimated grade placement of each book in the series ought to be questioned. Under general conditions, a reading level of ten years suggests that in terms of what a formula measures, a passage should be comprehensible to the average ten year old. Comprehensive evaluation of the spelling series can help the teacher to choose appropriate materials and thus avoid possible frustrations, because the actual grade level can be determined.

Read and Hodges (1982) maintain that learning to spell

is not simply a matter of memorizing words but in large measure a consequence of developing cognitive strategies for dealing with English orthography. Spelling poses one of the most significant challenges for curriculum developers. In East Tennessee, children are introduced to spelling books as early as grade one because it is felt there is a need for an organized spelling program. Templeton (1986) agrees with this practice provided the child is building an adequate sight vocabulary and is able to read. During the early years the child is beginning to develop the skills necessary to read and spell; therefore the words chosen should correlate with the student's level of word knowledge. The author stresses the importance of introducing high frequency words which are easily recognized. If the child is expected to progress in reading, teachers must ensure that some measure of success is experienced at an early age.

According to Anderson (1985) effective spelling instruction must be embedded in whole-language experiences with meaningful practice and experimentation in both speech and writing. Since learning to spell like learning to speak, is a developmental process, children must be encouraged to explore ways in which spoken language relates to written language. Learning how to spell does not just happen. The author discussed several interesting ideas

concerning the student's ability to become a good speller. An introduction can be made by learning about the basics of the written code which include how letters fit together to form words. The child's perception of structure does not occur all at once, but develops gradually over a period of years. Anderson further maintains that an awareness of linguistic structure is important for the acquisition of reading and spelling. As the child progresses, a functional understanding of the complex nature of the writing system is obtained. Older students who are good spellers have more explicit knowledge of the underlying regularity in the writing system. A qualitative shift has been made from the use of phonemic strategies to the use of a variety of highly effective strategies which draw on lexical memory and deep levels of linguistic analysis. Teachers are also confronted with students who are poor spellers. A limited number of strategies appear to be used. Phonological, or surface level information is relied upon when spelling polysyllabic words as well as derived forms. It would appear that the students have not yet internalized information about the underlying rules and constraints of the writing system and thus fail to generalize those rules when appropriate.

Realizing that reading abilities of children within the class may vary, consideration should first be given to

the readability of the spelling text being presented to the student. Comprehensive evaluation techniques are available to all teachers so that students can be matched more effectively with appropriate material. Knowledge of the student population and the content to be covered should be utilized by the teacher when analyzing the usefulness of the text.

It would appear that most of the spelling exercises, word lists, and approaches used to develop good spellers are determined by published spelling materials. Graves (1976) presented an opposing view by suggesting that spelling books should be used sparingly and children ought not to become involved with constantly completing exercises unless they deal with word usage. In this work it was questioned whether children would become good spellers by following the traditional methods. The author stressed that spelling is for writing and children who are encouraged to write gain a keen awareness of the spelling words and how to spell them accurately. This author implies that in order to be a good speller one needs to write and thus use words in a purposeful way. These theories can certainly be tested in the classroom as the teacher remains the primary presenter of information. The students should frequently be encouraged to express ideas in print and thus use the words being taught in the particular lesson. Graves

advocates further research in order to affirm the relationship between spelling and writing.

Successful learning depends on the teacher's awareness of students interests, background, and ability to grasp unfamiliar concepts. Turner and Algozzine (1985) maintain that two influential factors in reading content which cannot be measured are motivation and background of content area. The teacher's capability to clarify unfamiliar material and motivate students to become good spellers is essential. The student will be less likely to complain about frustration and lack of interest if the teacher is able to offer a wide variety of learning materials which, when presented to the student, take into account the individual levels of reading ability.

## Statement of the Problem

The purpose of this study was to use comprehensive evaluation to determine the following:

1. Is there a difference between the publishers' stated grade levels of five spelling series and the actual readability according to readability scales?

2. Are the new vocabulary words which are introduced reinforced at least five times within the context of the lesson?

3. Is there a difference between the grade levels of the new words introduced and the grade level designations from a graded word list?

The comprehensive evaluation technique involves: (1) computing the actual readability of text books; (2) tabulating the number of reinforcements of the new words, and (3) determining the grade levels of the new words introduced. These aspects of the comprehensive evaluation have a direct effect on the actual grade level of the books in each spelling series.

## Definitions of Terms

1. Comprehensive evaluation is defined as an evaluation technique for spelling programs encompassing the use of readability formulas, graded word lists, and the Worksheet for Analysis of Instructional Materials Beyond Readability Scales (Schindler, 1980).

2. Developmental spelling program is defined as a published sequence of text books, teacher resource books, and student workbooks. These programs are designed to give pupils practice in spelling high-frequency words they need for everyday writing.

3. Factors are the characteristics of published materials that have a direct effect on the actual

readability of that material. The readability factors are: vocabulary words, frequency of reinforcement, sentence length, clarity and simplicity of instructions, the use of typographical effects, student's background, interest-value and motivation.

4. Graded word lists are published word lists with grade level designations.

5. New words Pupils meet new words in each lesson to emphasize the importance of correct spelling in all subject areas. Every lesson introduces words which should already be in the student's spoken vocabulary.

6. Readability refers to the constellation of text factors which together determine whether a reader will be likely to find a book attractive, interesting and comprehensible. Readability formulas are objective quantitative tools for estimating the difficulty of written material without testing readers. Formulas can assess texts that have a wide range of content and prose style. The formulas measure variables such as sentence length and familiarity of vocabulary.

A. Actual readability is the calculated grade level determined by readability formulas.

B. Estimated readability is the grade level designation publishers place on the published spelling books.

7. Reinforcement is the frequency with which new vocabulary words are repeated within the unit after introduction.

8. Word lists are the central part of the readability formulas as hard words are checked and percentages calculated. The lists were devised by the authors of the readability scales, to validate the calculated results.

9. Worksheet for Analysis of Instructional Materials Beyond Readability Scales. All the new words introduced in the series can be listed on the form and the frequency of reinforcements can be tabulated. (Schindler, 1980)

10. Spelling involves the ability to recognize, recall, reproduce, or obtain orally or in written form the correct sequence of letters in words (Graham and Miller, 1979).

## Assumptions

The following is a list of assumptions made about a spelling program:

1. Spelling texts offer a set pattern of instructions that accounts for individual differences among students.

2. The spelling program is written with the oral language of all students taken into consideration.

3. The publishers' estimates of readability or grade levels for each book in the series are accurate.

4. The grade levels of the new words introduced in each textbook of the spelling series are appropriate for the grade level of each book.

5. The new words introduced are reinforced sufficiently in the published lessons according to Kingsley's (1965) recommendations of five repetitions.

6. All children will become good spellers if they follow the basal spelling program.

7. It is not the responsibility of the teacher to evaluate all aspects of spelling materials before using them with students.

## Null Hypotheses

1. There is no difference between the publisher's estimate of readability and the actual computed readability scores based on a readability formula.

2. There is no difference between the publisher's number of reinforcements of the new vocabulary words and the recommended five times or more than five times within the lesson.

3. The publisher's selection of new words introduced in each spelling unit can be found on the ungraded Dolch word list and the graded word list by Tudyman and Groelle 100% of the time. These new words are on or below the publisher's estimated readability level 100% of the time.

# CHAPTER 2

# RELATED LITERATURE

## Readability

### Readability Related to Teaching Spelling

A number of considerations lend significance to an attempt to improve the spelling habits of students. According to Guiler and Lease (1942), the inability to spell words correctly is considered a mark of illiteracy. The student may find it difficult to succeed in school. Job advancement may be out of reach to the poor speller, as employers do not want poor spellers in positions of importance. The authors emphatically state that the school must assume responsibility for developing the spelling competency of all students. The study indicated that significant improvement in ability to spell may be expected from a systematic program which first discovers words that are difficult for the class and for individuals and then identifies the hard spots in the difficult words. As early as 1942 researchers have recognized that pupils of all levels of spelling ability may be expected to benefit from a remedial program based on individual needs.

In 1947 Thomas Horn examined the overall

effectiveness of the spelling books. He believed that children should not spend large amounts of time using spelling texts. Instead, the child should study the words which continually cause trouble, rather than becoming involved in exercises with words which are already familiar.

According to the study completed by Graves (1976), spelling books have not changed significantly over the years even though one now sees more exercises related to handwriting, synonyms, word origins, and other language art skills. While Graves feels these exercises may be useful he questions whether they contribute to spelling power.

Thousands of children are plagued by the inability to spell even common words. Writing becomes a laborious task, with constant references to the dictionary and the revision of sentences to omit words with difficult spellings. Poor spellers often cut written communication to a minimum. Considerable insights have been gained into the ways in which students master spelling. Templeton (1986) believes that a well constructed spelling series should be used in order to furnish the critical knowledge base for growth in spelling. One concludes that it is more productive over the long term to help students develop strategies for looking for orthographic patterns among words than to memorize isolated words. Learning to spell follows a developmental

progression and is a conceptual process rather than a rote memorization process. The author also feels that a formal spelling program must not rely on the memorization of lists of words as this approach will not teach spelling adequately. Supporters of the whole word approach to spelling feel that English orthography is irrational and consequently difficult to master. They suggest that a basic spelling vocabulary of three thousand well selected words should form the core of the spelling program. This suggestion is based on the observation that a relatively small number of words account for a large percentage of the words that adults and children use in their writing.

Graham and Madan (1981) recommend that a basic spelling vocabulary of two thousand to three thousand words should be supplemented by direct phonemic instruction and accompanied by a limited use of spelling rules. Teachers should make an attempt to incorporate into the proposed spelling program those words most frequently used in children's writing. Learning spelling words by the synthetic method (whole word) is more effective than learning words by syllables. By directing the students attention to each word as a whole, a correct image of the total word can be formed. Good spellers recall the sequence of letters in words through visual memory, a process of visualizing a mental image of the word. It

would appear that a number of poor spellers do not learn best through the visual process. Teachers must try various methods and have materials available which take into account the individual learning styles of the students. Instead of attempting to visualize a word, poor spellers can learn to spell the word aloud and verbally rehearse the spelling before writing it.

Techniques to foster positive attitudes should be an integral part of the spelling program. Graham (1985) suggests that:

> positive attitudes toward spelling can be fostered by an accepting and encouraging teacher through (a) emphasizing student progress, (b) encouraging pride in correctly spelled papers,(c) using a variety of interesting activities and games, (d) structuring tasks so that the student can succeed, and (e) showing the student the importance of correct spelling in practical and social situations (p. 301).

Graham maintains that educators should attempt to ensure that spelling instruction is direct, comprehensive, student oriented, varied, individualized, and based on a foundation of research evidence.

The clarity and the comprehensiveness of the text should be given consideration as well. According to Giordano (1985) a book that is too difficult to read because of unfamiliar vocabulary, complex syntax, and inappropriately dense informational instruction may alter the student's chances of becoming a successful speller.

One realizes that the reading abilities of children within the class may vary. Research implies that children spell better when they are using language with a purpose. Learning to spell depends on interaction with the other language arts of reading, writing, and vocabulary development.

## Comprehensive Evaluation and Readability

The comprehensive evaluation process includes the use of readability formulas, graded word lists, and a worksheet for further analysis in order to tabulate the number of reinforcements of new words in the published material. By making use of this evaluation process, educators are better able to choose materials which take into account the reading ability and learning style of the individual student.

### Readability Scales

One naturally wonders whether readability of spelling texts does make a difference? In asking what makes a book difficult for a certain child, one must be reminded that the readers response to a book is determined by two groups of factors. One group is related to his own knowledge and abilities and the other group is related to the text

itself. Interest in the problem of readability has been researched for at least one thousand years. The ultimate goal of readability research is to gain the ability to control the difficulty of language. According to Rush (1985) readability formulas developed from an interest in matching reader's ability and text difficulty. The researchers wanted to determine if reading materials were suited for readers of given ability levels. The readability formulas measure sentence length and complexity of vocabulary which does reflect readability . One must also take into account the topic or subject matter and the way in which the author's ideas are expressed.

As educators we can use formulas to decide whether instructional materials are suitable for students of a given level of reading ability. A particularly important teaching skill is that of assessing the difficulty level of spelling books by applying measures of readability. The teacher who can do this is in a better position to match children to the materials. Children have a unique personal vocabulary and store of background knowledge which will determine how they will respond to the text. The child's own interests and levels of maturation will also affect how much is comprehended. The most valuable role a formula can play is in assisting a teacher to choose the most appropriate materials for individual children.

Care should be taken with poor readers because it is such readers whose motivation is most likely to be damaged by the experience of failure to cope with the instruction for tasks and exercises in the spelling series. Klare (1976) points out that a reader may have a much higher or lower level of ability than most others in the classroom. In such cases, having reading materials at several levels of readability may be the only reasonable solution for teachers. One realizes that readability formulas cannot assess a child's interests and emotional needs. Klare has stated that while a very high level of motivation can override other factors, it is too rare to render an analysis of text difficulty factors irrelevant. The author fully accepts that motivation is an important variable in readability research, but he stresses that one's response should be to consider most carefully the difficulty of texts which are read under conditions of low motivation. This suggests that raising motivation and keeping it high is of great practical importance. Klare warns that it can not, however, be considered a simple substitute for improved readability. It would seem that it would be more productive to improve the readability of low-preference material such as that in the spelling text.

Bormuth (1966) recognizes the fact that readability formulas have mainly considered variables such as sentence

length and percentage of hard words in order to calculate readability scales. The author would like to consider whether features of writing style are related to the comprehension difficulty of language. He suggests that many adults and children fail to understand what they read, not because the concepts are too difficult or because basic reading skills are lacking, but simply because of the complexity of the language in which the concepts are presented. He feels there is an acute need for readability formulas which measure the readability of individual words and sentences. He concludes by affirming that in order to control the difficulty of language one must make it possible to determine if a linguistic variable is causally related to difficulty. This theory and research work would be extremely useful when examining spelling texts.

The readability hypothesis claims that sentence length and sentence complexity contribute to comprehension difficulty (Pearson, 1975). However studies over the years suggest that the two variables of word difficulty and sentence length account for most of the variance in readability measurement. Most readability formulas have been designed only for measuring the readabilities of passages. Sentence lengths have most commonly been measured by counting the number of words in them. The correlation between the mean number of words per sentence

and the difficulty of passages was found to be .29 by Dale. This variable has been the best single measure of the grammatical complexity of sentences and is incorporated in nearly all widely used formulas. A readability score gives only an approximate indication of difficulty, accurate to about plus or minus one grade level. Readability formulas will not make books more readable, however texts can be matched to readers more effectively and the probability can be increased that children will be able to understand what is being read.

The Spache Reading Formula and the Dale-Chall Formula were chosen for this study because of their accuracy and ease of use. The Dale-Chall method was developed by Edgar Dale and Jeanne Chall in 1948. It is the most widely accepted and most often used method for predicting readability. Dale developed a list of about three thousand "familiar" words (words that were known to at least eighty percent of the sample fourth grade students he questioned). The number of "unfamiliar" words (words not found on the Dale list) and average sentence length are the two predictors used. The Dale- Chall formula was employed for the grade four, five, and six spelling texts examined for this study.

George Spache found that interest had been focused largely on the evaluation of materials written for adults.

In 1953 he devised a reading formula to be used on materials written for individuals reading on levels below grade four. It is now the most widely used method for predicting the readability of primary grade level reading materials. The original Spache method used the Stone revision of the Dale word list. In 1974, Spache revised and updated the Stone list to its present 1,041 words. The number of "unfamiliar" words (words not found on the revised word list) and the average sentence length are the two predictors used. The Spache formula was used for the second and third grade spelling texts inspected for this study.

It has been found that sentence length is slightly more closely related to reading difficulty than is percent of hard words. Harrison (1980) believes that a passage can be difficult if it is very complex in structure, because it puts too great a load on the short term memory and information processing capacity. Apparently, editors of material for primary reading materials exercise more control over sentence length than over the introduction of hard words. Spache has stated that above the primary grades sentence length is less controlled and perhaps less significant in reading difficulty, since the child has acquired some modicum of reading skill.

Vocabulary has been considered to be the most

important factor in determining text difficulty. Vocabulary plays a major part in whether a student finds a book readable or not. Harrison (1980) supports this view and discusses reasons why a particular text may seem difficult to read. The student is generally making a statement about the number of unfamiliar words in the passage; words that are not easily recognized and understood. This variable does seem to have a central role in the measurement of readability. He maintains that the difficulty is proportional to the number of unfamiliar words present in a particular passage as this obscures the child's comprehension.

New Words

Predicting the readability of spelling texts is only one aspect involved in the comprehensive evaluation process. Teachers must be concerned with the new words introduced. It is important to examine the words presented in the spelling series and ascertain whether they correspond to the grade level designations assigned to them by the publisher. For the purpose of this study two word lists were used to match the vocabulary presented in the sample units. The ungraded word list by Dolch (1942) was used because according to this author the list includes those words which make up 95% or more of all the words

written by the average person. The graded word list by Tudyman and Groelle (1963) was utilized as words are presented with a specific grade level attached to each; pre-primer to grade five. In the present work it was deemed necessary to determine how accurately the spelling vocabulary presented in the samplings of the five spelling series matched the word lists. Words selected for study should reflect the student's level of conceptual understanding of words as well as the frequency of the words and word patterns.

## A Worksheet for Further Analysis

Using the Worksheet for Analysis of Instructional Materials Beyond Readability Scales proved to be an extremely useful tool when recording the new words introduced in each lesson. The introduction of a variety of words provides an opportunity for the student to master words from other content areas. The teacher should be aware of these words and note the number of times they have been reinforced. This evaluation sheet was developed by Schindler (1981) at the University of Tennessee. It has been stated that a new word must be reinforced at least five times before the word becomes part of the student's active vocabulary. Published material should follow this rule and this study examines the new words and tabulates

the reinforcements.

## Summary

The ultimate goal of using the basal spelling series is to provide growth in spelling. As educators we must ensure that by using spelling texts we do not neglect the individual differences among students. Connections must be made between spelling, reading, writing and vocabulary development. Readability is a measure of the ease with which a given passage of text can be read and understood. Readability of spelling texts does make a difference and there is a definite need for a comprehensive evaluation technique which encompasses: (1) readability formulas to calculate grade levels; (2) a worksheet to record new words noting the frequency of reinforcements in the text material; and (3) graded word lists to calculate grade levels of new words. As teachers, we can use these methods to decide whether instructional materials are suitable for students of given level of reading ability. The assumption that text books are always written at a readability level which accurately corresponds to the assigned grade level should be challenged.

# CHAPTER 3

## DESIGN FOR EVALUATION OF SPELLING SERIES

### Purpose

The purposes of this study were as follows:

1. To determine if there exists a difference between the publishers' estimated grade level of five basal spelling series and their actual readability according to readability scales.

2. To determine if there exists a difference between the number of times the new words are reinforced and the recommended five times.

3. To determine if there exists a difference between the estimated grade level of the new words and the level as evaluated by matching them with a graded word list.

4. To determine how closely the spelling vocabulary matches the words on the graded word list by Tudyman and Groelle and the ungraded word list by Dolch.

### Data Collection Procedures

In this study five basal spelling series used by various school systems in the East Tennessee area were

chosen. The study includes the evaluation of spelling texts used for grade two through grade six. The series selected were : (1) Macmillan Spelling (1983), Macmillan Publishing Company; (2) Spelling for Word Mastery (1984), Charles E. Merrill Publishing Company; (3) Basic Goals in Spelling (1984), McGraw-Hill Book Company; (4) H.B.J. Spelling (1983), Harcourt Brace Jovanovich; (5) Spelling (1985), Houghten Mifflin Company. Data were gathered on the five spelling series over a period of nine months. All texts were made available through the Curriculum Lab located at the University of Tennessee, Knoxville.

## Instrumentation

The following instruments were used to collect data for this study: (1) The Spache Readability Formula (see Appendix A); (2) The Dale-Chall Readability Formula (see Appendix B); (3) the Worksheet for Analysis of Instructional Materials Beyond Readability Scales (Schindler, 1980) (see Appendix C); (4) A Functional Basic Word List for Special Pupils (Tudyman and Groelle, 1963). and (5) The Dolch list of 2,000 commonest words for spelling (Dolch, 1942). All five of these instruments were chosen because of their validity and ease of administration.

Formula users are advised to take an absolute minimum of three samples from each text book being studied. It is a good idea to use opening samples of a book as these are often the most difficult. In this study the sample units chosen for evaluation from each text were unit 1, unit 18, and unit 36 which correspond to the beginning, middle, and end of each textbook. Sentence counting and determining average sentence length are important aspects of the readability formulas.

The Spache Readability Formula uses three samplings of 100 word passages from each text book. From the passages selected, the number of hard words not on the Spache Word List are counted and then computed with various specified calculations. A grade level is determined from the results of the analysis. The actual grade level of the book is determined by averaging the data collected in the three samples.

The Dale-Chall Readability Formula also uses three 100 word samplings from each speller. One must count the number of words not included in Dale's list of 3,000 words. The calculations used to determine correct grade levels differ from those used with the Spache Readability Formula (see Appendix A and B).

The data gathering instrument, the Worksheet for Analysis of Instructional Materials Beyond Readability Scales was developed by Schindler (1980) to analyze developmental reading texts by other attributes. The same three sample units chosen to check readability scales in the Spache and Dale-Chall Readability Formulas were used to record the new words introduced. The new words were recorded in the far left column of the worksheet. The second and third columns were used to record the number of times each word was reinforced in the particular lesson and the three following lessons (see Appendix C). This form also included the recording of skills to be taught from the teacher's manual and whether or not the material had been covered. This section was not analyzed for the purpose of this particular study.

The new words recorded for each lesson were then matched with A Functional Basic Word List for Special Pupils developed by Tudyman and Groelle (1963). Grade levels were assigned to each word which appeared on the functional list. Words which did not appear on the list were not graded. The new words were also matched with The Dolch List of Spelling Words.

## Data Analysis

The data were analyzed by tabulating each spelling series according to readability scores, frequency of new word reinforcements, new word grade equivalents, and percentage of new words found on the two word lists.

For ease of comparison a ratio was computed by placing the publisher's estimated grade level over the actual readability level and then subtracting from 1 . The number derived from this calculation was an index number for each book (Watson 81). The computed readability was deemed to match the publisher's estimated value if the index number deviated from zero by no more than ±0.1. In this process a positive index number over 0.1 indicates that the actual readability level is higher than the publisher's estimated readability. Likewise a negative index number less that 0.1 indicates that the actual readability level is lower than the publisher's readability estimate.

All new words presented in a particular unit were listed on the Worksheet for Analysis of Instructional Materials Beyond Readability Scales. The frequency with which new words were reinforced was tabulated in three specific columns: less than five, on five, and more than five. Percentages were calculated by placing the number of

reinforcements over the total number of new words presented in each spelling text. The worksheet was further used to match words with the graded word list by Tudyman and Groelle and the ungraded Dolch list of spelling words. Percentages were calculated by placing the number of words found over the total number of new words presented.

The words corresponding to the Tudyman and Groelle word list were further categorized according to the graded divisions of the list, pre-primer through grade five. Percentages for each frequency were calculated by placing the number of words in each grade designation over the total number of words located on the list.

In order to make a prediction regarding the grade level of words not located on the Tudyman and Groelle word list a further analysis was completed. All of the grade two and three level words not located on the list were matched with the word list used to calculate the Spache Readability Formula. The data revealed that 48% of the grade two level words and 90% of the grade three level words were above grade level. The grade four and five level words were matched with the Dale word list used to calculate the Dale-Chall Readability Formula. The findings indicated that 65% of the grade four level words and 78% of the grade five level words were considered too difficult. The results help support the premise that new

vocabulary words not located on the Tudyman and Groelle word list may be considered above grade level and therefore too difficult for the particular text being examined ( See table 1). The results of analysis are explained in Chapter 4.

Table 1

Mean percent of words located on the T&G word list. Mean percent of words not found on the T&G word list. Percent of words not on the Spache and Dale list.

| Grade | Mean % of words on T&G | Mean % of words not on T&G | Percent not on Spache | Percent not on Dale |
|---|---|---|---|---|
| 2 | 95 | 5 | 48 | |
| 3 | 80 | 20 | 90 | |
| 4 | 62 | 38 | | 65 |
| 5 | 44 | 56 | | 78 |

Note: T & G refers to Tudyman and Groelle word list

# CHAPTER 4

# RESULTS

## Introduction

The purpose of this study was to comprehensively evaluate five basal spelling series which include grade two through grade six. In this chapter the null hypotheses and the actual results of the study are discussed in two separate sections. The null hypotheses appears in the first section and is labeled Individual Analysis of Each Spelling Series. The second section contains information about each program and is labeled Comparative Analysis of the Five Spelling Series.

The five spelling series are dealt with in this order: (1) Macmillan Spelling (Macmillan Publishing Co., (1983); (2) Spelling For Word Mastery (Charles E. Merrill Publishing Co., 1984); (3) Basic Goals in Spelling (McGraw-Hill Book Co., 1984); (4) H. B. J. Spelling (Harcourt Brace Jovanovich, 1983); (5) Spelling (Houghton Mifflin Company, 1985). All five series were analyzed according to the null hypotheses, by applying the Spache or Dale-Chall Readability Formulas and the Worksheet for Analysis of Instructional Materials Beyond Readability

Scales. In each sample unit chosen for study a readability score was determined by examining the instructions for tasks and the exercises which followed. The new vocabulary words introduced at the beginning of the same unit were tabulated for reinforcements and grade levels were assigned according to the designations of the word list pre-primer through grade five.

## Individual Analysis of Each Spelling Series

The observations of the Macmillan series, according to the null hypotheses, are as follows:

### Macmillan (1983)

Hyo:1. There is no difference between the publisher's estimate of readability and the actual computed readability scores based on a readability formula.

In general the publisher has succeeded in keeping the readability level tolerable for grades two, three and six. The fourth grade text has an actual readability of (5.7) which would be considered too difficult for this grade level. The index number for this text (0.30) is the farthest away from the publisher's estimated grade level according to the calculated index numbers. The fifth grade text has an actual readability (5.9) which may also be too difficult for students at this grade level. The index

number (0.16) is well above the confidence interval ±0.1 tolerable for this study (see Table 2).

Hyo:2. There is no difference between the publisher's number of reinforcements of the new vocabulary words and the recommended five times or more than five times within the lesson.

In this series the second grade text has the highest percentage (82) of new vocabulary words being reinforced a minimum of five or more times. The texts for the third, fourth, and fifth grades show that less than half the words have been adequately reinforced. All the texts in this series fall below the recommended reinforcements for new vocabulary words introduced (see Table 2).

Hyo:3. The publisher's selection of new words introduced in each spelling unit can be found on the ungraded Dolch word list and the graded Tudyman and Groelle word list 100% of the time. These new words are on or below the publisher's estimated readability level 100% of the time.

In this series the vocabulary words introduced at the second, third, and fourth grade level correspond favorably with both word lists. The grade two text indicates that 6%

TABLE 2

Estimated and actual readability, index, and percent new words reinforced for Macmillan Spelling series (1983)

| Estimated Grade | Actual | Index | Percent Reinforced >5 | 5 | <5 |
|---|---|---|---|---|---|
| 2 | 2.2 | 0.10 | 18 | 3 | 79 |
| 3 | 3.2 | 0.07 | 54 | 1 | 45 |
| 4 | 5.7 | 0.30 | 56 | 1 | 43 |
| 5 | 5.9 | 0.16 | 56 | 12 | 32 |
| 6 | 6.2 | 0.04 | 44 | 18 | 38 |
| Means | | 0.13 | 46 | 7 | 47 |

of the words are considered to be at grade level while 64% of the words are divided between pre-primer, primer, and grade one which indicates that much of the vocabulary is already familiar to the student. The grade three text shows that 19% of the words are considered to be at grade level while 69% of the words are divided between pre-primer and grade two which again indicates that a high percentage of the vocabulary being used are review words. The greatest discrepancy is noted at the grade five level even though the data indicate that 100% of the vocabulary words introduced are on or below the publisher's estimated readability level. Only 53% of the words matched the graded word list which means that 47% remained ungraded. It has been assumed that ungraded words are hard words which would be above grade level (see Table 3).

The observations of the Charles E. Merrill series, according to the null hypotheses, are as follows:

Charles E. Merrill (1984)

Hyo:1. There is no difference between the publisher's estimate of readability and the actual computed readability scores based on a readability formula.

The grade two text has an actual readability of (2.5) and the index number for this text is (0.20) which is

TABLE 3

Percentage new words found on the graded and ungraded word lists. Percentage new words on or above publisher's estimated grade level, and percent breakdown of words listed pre-primer through grade five for Macmillan Spelling series (1983).

| Grade | Percent on Dolch | Percent on T&G | Percent on/below grade | Percent above grade | Percent at stated grade level | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PP | P | 1 | 2 | 3 | 4 | 5 |
| 2 | 92 | 95 | 70 | 30 | 14 | 17 | 33 | 6 | 19 | 11 | 0 |
| 3 | 86 | 83 | 88 | 12 | 9 | 16 | 23 | 21 | 19 | 9 | 3 |
| 4 | 75 | 82 | 86 | 14 | 4 | 14 | 21 | 16 | 17 | 14 | 14 |
| 5 | 33 | 53 | 100 | 0 | 0 | 0 | 8 | 15 | 31 | 38 | 8 |

note: T&G refers to the Tudyman and Groelle word list in this and subsequent tables.

beyond the confidence interval allowed for this study. The readability may be considered too high as the reading skills are not highly developed at this age. The texts for grade three four and five show actual readability levels of (4.0) (5.1), and (6.0) which are considered too difficult. The index numbers (0.25, 0.22 and 0.17) are all above the level tolerable for this study. The grade six text has an actual readability of (6.5) and an index number of (0.08) which is quite acceptable for this study. Students at this grade level should be able to handle the slightly higher readability level (see Table 4).

Hyo:2. <u>There is no difference between the publisher's number of reinforcements of the new vocabulary words and the recommended five times or more than five times within the lesson.</u>

All of the texts studied in this series fall far below the recommended five or more than five times vocabulary words should be reinforced. In this series the sixth grade text has the highest percentage of words reinforced which is a mere 28 percent. The grade four text has only 10 percent of the words adequately reinforced (see Table 4).

TABLE 4

Estimated and actual readability, index, and percent new words reinforced for Charles E. Merrill series (1984)

| Estimated grade | Actual | Index | Percent Reinforced | | |
|---|---|---|---|---|---|
| | | | >5 | 5 | <5 |
| 2 | 2.5 | 0.20 | 80 | 2 | 18 |
| 3 | 4.0 | 0.25 | 73 | 5 | 22 |
| 4 | 5.1 | 0.22 | 90 | 5 | 5 |
| 5 | 6.0 | 0.17 | 83 | 9 | 8 |
| 6 | 6.5 | 0.08 | 72 | 9 | 19 |
| Means | | 0.13 | 46 | 18 | 47 |

Hyo:3. The publisher's selection of new words introduced in each spelling unit can be found on the ungraded Dolch word list and the graded Tudyman and Groelle word list 100% of the time. These new words are on or below the publisher's estimated readability level 100% of the time.

The grade two vocabulary words match favorably with the two word lists in that 96% of the words were noted on the Dolch list and 93% were found on the graded Tudyman and Groelle word list. Of the words found on the list 77% were on or below grade level. The graded divisions further indicate that the largest number of words fall within the pre-primer to grade two level which would reinforce words already in the students sight vocabulary. The study also indicates that 100% of the vocabulary words for grade five are on or below the publisher's estimated grade level. The fact that only 32% of the words matched the Tudyman and Groelle word list indicates that 68% of the words could not be graded. As stated previously words not found on the list are considered to be above the publisher's estimated readability level. This fact does coincide with the high readability score of (6.0) (see Table 5).

TABLE 5

Percentage new words found on the graded and ungraded word lists. Percentage new words on or above publisher's estimated grade level, and percent breakdown of words listed pre-primer through grade five for Charles E Merrill series (1984)

| Grade | Percent on Dolch | Percent on T&G | Percent on/below grade | Percent above grade | Percent at stated grade level | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PP | P | 1 | 2 | 3 | 4 | 5 |
| 2 | 96 | 93 | 77 | 23 | 15 | 21 | 29 | 12 | 14 | 7 | 2 |
| 3 | 82 | 77 | 74 | 26 | 7 | 2 | 17 | 24 | 24 | 20 | 6 |
| 4 | 68 | 73 | 87 | 13 | 2 | 0 | 6 | 18 | 25 | 36 | 13 |
| 5 | 19 | 32 | 100 | 0 | 0 | 0 | 0 | 8 | 21 | 50 | 21 |

The observations of the McGraw-Hill series, according to the null hypotheses, are as follows:

McGraw-Hill (1984)

Hyo:1. There is no difference between the publisher's estimate of readability and the actual computed readability scores based on a readability formula.

The publisher has maintained a higher level of readability for grades two, four, and five as the index numbers (0.20, 0.26, and 0.21) are unacceptable for this study. The grade three and grade six texts have readability scores of (3.2) and (5.6) which are considered to be at grade level as the index numbers (0.07) and (-0.07) fall within the confidence interval tolerable for this study (see Table 6).

Hyo:2. There is no difference between the publisher's number of reinforcements of the new vocabulary words and the recommended five times or more than five times within the lesson.

The second grade text has 73% of the vocabulary words adequately reinforced. None of the other texts in the series come close to the recommended number of reinforcements as the percentages range from 6% to 20% (see Table 6).

TABLE 6

Estimated and actual readability, index, and percent new words reinforced for McGraw-Hill series (1984)

| Estimated Grade | Actual | Index | Percent Reinforced >5 | 5 | <5 |
|---|---|---|---|---|---|
| 2 | 2.5 | 0.20 | 27 | 30 | 43 |
| 3 | 3.2 | 0.07 | 82 | 9 | 9 |
| 4 | 5.4 | 0.26 | 94 | 3 | 3 |
| 5 | 6.3 | 0.21 | 80 | 10 | 10 |
| 6 | 5.6 | -0.07 | 91 | 7 | 2 |
| Means | | 0.13 | 75 | 12 | 13 |

Hyo:3. The publisher's selection of new words introduced in each spelling unit can be found on the ungraded Dolch word list and the graded Tudyman and Groelle word list 100% of the time. These new words are on or below the publisher's estimated readability level 100% of the time.

At the grade two level all of the vocabulary words introduced were located on the Dolch and Tudyman & Groelle word lists. A significant percentage (82%) of the words were below grade level with 40% at grade one level, 21% at primer level, and 21% at pre-primer level of difficulty. The data indicate that the majority of new vocabulary words introduced in the grade five level text are too difficult for the grade level. Only 29% of the words can be found on the Tudyman and Groelle word list which leaves 71% of the words ungraded and above the publisher's estimated grade level. This finding coincides with the high readability score (6.3). The vocabulary introduced in the fourth grade text may also be considered troublesome for the grade level as 49% of the words were not located on the graded word list. Of the 51% found on the list 83% were on or below grade level which means that 17% were actually grade five level words (see Table 7).

TABLE 7

Percentage new words found on the graded and ungraded word lists. Percentage new words on or above publisher's estimated grade level,and percent breakdown of words listed pre-primer through grade five for McGraw-Hill series (1984)

| Grade | Percent on Dolch | Percent on T&G | Percent on/below grade | Percent above grade | Percent at stated grade level | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PP | P | 1 | 2 | 3 | 4 | 5 |
| 2 | 100 | 100 | 82 | 18 | 21 | 21 | 40 | 0 | 15 | 3 | 0 |
| 3 | 70 | 72 | 75 | 25 | 4 | 7 | 17 | 20 | 27 | 24 | 1 |
| 4 | 46 | 51 | 83 | 17 | 0 | 8 | 9 | 22 | 17 | 27 | 17 |
| 5 | 20 | 29 | 100 | 0 | 0 | 3 | 6 | 12 | 21 | 37 | 21 |

The observations of the Harcourt Brace Jovanovich series, according to the null hypotheses, are as follows:

Harcourt Brace Jovanovich (1983)

Hyo:1. There is no difference between the publisher's estimate of readability and the actual computed readability scores based on a readability formula.

The actual readability scores computed for the grade two, four, five, and six level textbooks denote they are above the publisher's readability estimate. The index numbers (0.14, 0.19, 0.21, and 0.12) are above the level tolerable for this study. The grade three text has a readability of 3.2 which means that the average reader should be able to deal with the text (see Table 8).

Hyo:2. There is no difference between the publisher's number of reinforcements of the new vocabulary words and the recommended five times or more than five times within the lesson.

The data show that all of the texts in this series fall below the recommended number of reinforcements for new vocabulary words introduced. At the grade five level only 9% of the words have been adequately reinforced. In this series the grade two text has the highest percentage (50%) of words being sufficiently reinforced (see Table 8).

TABLE 8

Estimated and actual readability, index, and percent new words reinforced for Harcourt Brace Jovanovich series (1983)

| Estimated Grade | Actual | Index | Percent Reinforced >5 | 5 | <5 |
|---|---|---|---|---|---|
| 2 | 2.3 | 0.14 | 50 | 5 | 45 |
| 3 | 3.2 | 0.07 | 64 | 19 | 17 |
| 4 | 4.9 | 0.19 | 78 | 12 | 10 |
| 5 | 6.3 | 0.21 | 91 | 6 | 3 |
| 6 | 6.8 | 0.12 | 64 | 16 | 20 |
| Means | | 0.15 | 69 | 12 | 19 |

Hyo:3. The publisher's selection of new words introduced in each spelling unit can be found on the ungraded Dolch word list and the graded Tudyman and Groelle word list 100% of the time. These new words are on or below the publisher's estimated readability level 100% of the time.

The grade two text shows that 89% of the words are at grade level and are fairly evenly distributed between pre-primer and grade two. The grade three text indicates that 75% of the words are at grade level with a good distribution of the words divided between grade one, two, and three. The data denote that half of the words introduced in the grade four and five texts may be considered too difficult for the students. The grade four text shows that 48% of the words were located on the graded word list and that 86% were on or below grade level. The grade five text shows that 53% of the words matched the graded word list and that 100% were calculated to be on or below grade level. It must be noted that 52% of the grade four level words and 47% of the grade five level words were not found on the list and for the purpose of this study are considered too difficult for the grade level (see Table 9).

TABLE 9

Percentage new words found on the graded and ungraded word lists. Percentage new words on or above publisher's estimated grade level, and percent breakdown of words listed pre-primer through grade five for Harcourt Brace Jovanovich series (1984)

| Grade | Percent on Dolch | Percent on T&G | Percent on/below grade | Percent above grade | Percent at stated grade level | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PP | P | 1 | 2 | 3 | 4 | 5 |
| 2 | 100 | 98 | 89 | 11 | 19 | 24 | 31 | 15 | 8 | 3 | 0 |
| 3 | 79 | 86 | 75 | 25 | 1 | 11 | 23 | 20 | 20 | 13 | 12 |
| 4 | 41 | 48 | 86 | 14 | 0 | 6 | 4 | 19 | 14 | 43 | 14 |
| 5 | 34 | 53 | 100 | 0 | 0 | 6 | 10 | 13 | 15 | 33 | 23 |

The observations of the Houghton Mifflin series according to the null hypotheses, are as follows:

Houghton Mifflin (1985)

Hyo:1. There is no difference between the publisher's estimate of readability and the actual computed readability scores based on a readability formula.

The data indicate that all of the texts in this series, with the exception of grade six, exceed the publisher's estimated grade level. Grade four and five have index numbers of (0.25) and (0.27) which are clearly above the the range tolerable for this study. The grade two and three texts have index values of (0.17) and (0.19) which are also unacceptable for this study. The grade six text appears to be the most appropriate for the grade level as the index number is (0.07) which is within the approved range. It is interesting to note that in terms of readability the sixth grade text is the easiest book in the series (see Table 10).

Hyo:2. There is no difference between the publisher's number of reinforcements of the new vocabulary words and the recommended five times or more than five times within the lesson.

In this series only the second grade text has at least

TABLE 10

Estimated and actual readability, index, and percent new words reinforced for Houghton Mifflin series (1985)

| Estimated Grade | Actual | Index | Percent Reinforced >5 | 5 | <5 |
|---|---|---|---|---|---|
| 2 | 2.4 | 0.17 | 42 | 21 | 37 |
| 3 | 3.7 | 0.19 | 58 | 10 | 32 |
| 4 | 5.3 | 0.25 | 61 | 10 | 29 |
| 5 | 6.8 | 0.27 | 67 | 15 | 18 |
| 6 | 6.4 | 0.07 | 57 | 13 | 30 |
| Means | | 0.19 | 57 | 14 | 29 |

58% of the vocabulary words sufficiently reinforced. The percentages for grades three, four, five, and six range from 33% to 43% of the words being reinforced the recommended number of times (see Table 10).

Hyo:3. The publisher's selection of new words introduced in each spelling unit can be found on the ungraded Dolch word list and the graded Tudyman and Groelle word list 100% of the time. These new words are on or below the publisher's estimated readability level 100% of the time.

The grade two and three level words match quite favorably with both word lists which denote that a significant percentage of the words are considered to be at grade level. The second grade text reveals that 71% of the vocabulary words should already be familiar to the student as they range between pre-primer and grade one. The majority of the vocabulary words introduced in the fourth and fifth grade textbooks appear to be above grade level. The grade four text matches 53% of the vocabulary with the graded word list which means that 47% of the words are considered to be hard words and therefore above grade level. The grade five text matches only 28% of the vocabulary with the graded word list which means that 72%

of the words are considered to be hard words and therefore above grade level (see Table 11).

Comparative Analysis of the Five Spelling Series

The data computed for each grade level were analyzed in order to calculate the mean values. These values were then used to compare the five series to one another. Table 12 displays the mean index numbers and percentages of reinforcements. Table 13 denotes the mean values for words found on the Dolch and Tudyman & Groelle word lists; the mean percentages of words considered to be on or below grade level and the mean distribution of words ranging from pre-primer to grade five reading level.

The McGraw-Hill and Macmillan series have the identical index number (0.13) which is close to the publisher's estimate yet above the confidence interval tolerable for the study. The mean index numbers for the Harcourt Brace Jovanovich program (0.15), the Charles E. Merrill program (0.18), and the Houghton Mifflin program (0.19) indicate that the actual readability is considerably higher than the estimated grade level.

All five programs fall below the recommended five or more times vocabulary words should be reinforced within the lesson. The Macmillan series ranks first with 54 percent; the Houghton Mifflin series is second with 43 percent; the

TABLE 11

Percentage new words found on the graded and ungraded word lists. Percentage new words on or above publisher's estimated grade level, and percent breakdown of words listed pre-primer through grade five for Houghton Mifflin Series (1985)

| Grade | Percent on Dolch | Precent on T&G | Percent on/below grade | Percent above grade | Percent at stated grade level | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PP | P | 1 | 2 | 3 | 4 | 5 |
| 2 | 74 | 72 | 87 | 13 | 16 | 32 | 23 | 16 | 10 | 3 | 0 |
| 3 | 68 | 81 | 71 | 29 | 4 | 5 | 12 | 25 | 25 | 11 | 18 |
| 4 | 35 | 53 | 79 | 21 | 0 | 0 | 21 | 15 | 12 | 31 | 21 |
| 5 | 25 | 28 | 100 | 0 | 0 | 0 | 0 | 14 | 32 | 32 | 22 |

TABLE 12

Mean index, and mean percentage new words reinforced for each series

| Series | Mean Index | Mean % reinforced >5 | 5 | <5 |
|---|---|---|---|---|
| Macmillan | 0.13 | 46 | 7 | 47 |
| Charles E. Merrill | 0.18 | 80 | 6 | 14 |
| McGraw-Hill | 0.13 | 75 | 12 | 13 |
| H B J | 0.15 | 69 | 12 | 19 |
| Houghton Mifflin | 0.19 | 57 | 14 | 29 |

note: HBJ refers to Harcourt Brace Jovanovich in this table

TABLE 13

Mean percent words found on the ungraded and graded word lists. Mean percent new words on or above grade level. Mean percent breakdown of words listed pre-primer through grade five, for each series.

| Series | Mean % Dolch | Mean % T&G | Mean % on/below grade | Mean % above grade | Mean % PP | P | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Macmillan | 72 | 78 | 86 | 14 | 7 | 12 | 21 | 15 | 21 | 18 | 6 |
| Merrill | 64 | 68 | 84 | 16 | 6 | 6 | 13 | 16 | 21 | 28 | 10 |
| McGraw-H. | 59 | 63 | 85 | 15 | 6 | 10 | 18 | 13 | 20 | 23 | 10 |
| H.B.J. | 64 | 71 | 88 | 13 | 5 | 12 | 17 | 17 | 14 | 23 | 12 |
| H.Mifflin | 51 | 59 | 84 | 16 | 5 | 9 | 14 | 18 | 20 | 19 | 15 |

note: H. Mifflin refers to Houghton Mifflin in this table.

Harcourt Brace Jovanovich series ranks fourth with 25 percent and the Charles E. Merrill series is the least satisfactory with only 20 percent sufficiently reinforced. The comparative data also reveal that the grade two vocabulary words have the highest percentage of words being adequately reinforced (see Table 12).

The data reveal that 78 percent of the new vocabulary words presented in the Macmillan series correspond to the Tudyman and Groelle graded word list, with 86 percent being on or below grade level. This series can also be credited with having the lowest index number and the highest number of words being adequately reinforced.

The Houghton Mifflin series shows that only 59 percent of the vocabulary words matched the graded word list, with 84 percent being on or below grade level. It should also be noted that this series deviates the most from the publisher's readability estimate as the mean index number is 0.19

Of the vocabulary words which could be matched to the Tudyman and Groelle word list, roughly 85 percent were on or below grade level for each series. The highest percentage of words appear to be at the third and fourth grade level of difficulty (see Table 13).

# CHAPTER 5

# CONCLUSIONS

## Discussion and Conclusions

The purpose of this chapter is to discuss the findings of the comprehensive evaluation process in relation to the five series. The information gathered in Chapter 4 indicates that all five series were analyzed adequately using the data gained by completing the comprehensive evaluation.

The procedures used in this study allowed the evaluation of the five spelling series. An opinion could then be formulated as to the suitability of each series for use in the spelling curriculum. The comparative analysis revealed that all five series were higher in actual readability than the publishers' estimated grade level designations.

The Houghton Mifflin series has the highest mean percentage of words not corresponding to the Tudyman and Groelle graded word list and has the readability level which deviates the most from the publisher's estimated grade level. At the other end of the scale, the Macmillan series has the readability closest to the publisher's

estimate and has the highest number of words which match the graded word list. The publishers claim that all vocabulary words are carefully controlled so that pupils are never required to write words for which they have not had previous experience. When a publisher introduces a significant number of vocabulary words which are above grade level and then incorporates the words into the exercises which follow, the student may perceive the work to be at frustration level which is neither interesting nor motivating. Save for one notable exception there appears to be a correlation between the readability scores and the number of words which did not match the Tudyman and Groelle word list. The high number of above grade level vocabulary words certainly contributed to the elevated readability scores (see Table 14).

By doing the evaluation it was noted that in each series the books chosen for grades four and five had a readability score which was at least one grade level above the publisher's estimate. Some factors which have a direct effect on the actual readability of the material are: familiarity of vocabulary, the frequency at which the words are reinforced, and the sentence length. The clarity and simplicity of the instructions to carry out tasks and exercises is also an important factor for the child who must use the spelling text. The teacher would certainly

TABLE 14

Mean percentage of words not located on the graded word list by Tudyman and Groelle. Mean readability index number for each series.

| Series | Mean % of words not on graded list. | Mean readability index number |
|---|---|---|
| Houghton Mifflin | 41 | 0.19 |
| Charles E.Merrill | 32 | 0.18 |
| H.B.J. | 29 | 0.15 |
| Macmillan | 22 | 0.13 |
| McGraw-Hill | 37 | 0.13 |

benefit from having a wide variety of materials available for the students in order to take into account the individual levels of reading ability within the class. A spelling text too difficult for the average child to read, may alter his chances of becoming a successful speller. By knowing ahead of time that a text is above grade level the teacher will be able to choose more appropriate materials for individual children and thus avoid possible frustrations. There are fewer possibilities for children's self-directed learning when teachers must spend large amounts of time explaining what is written in the text.

The publishers state that the lists of words to be taught are compiled after careful consideration of the established lists of words students use in their writing and reading. After comparing the vocabulary with the Dolch word list and the Tudyman and Groelle word list it became evident that each publisher used a different base list in order to choose the words which would appear in the series. The vocabulary words introduced at the grade two level did appear to have the highest percentage of words being adequately reinforced. The students would greatly benefit from having the new words repeated many times within the lesson as word recognition skills are not highly developed at this age. There does not seem to be any excuse for the lack of reinforcement of the vocabulary words. In

some cases words were introduced and repeated only one time within the lesson. This hardly gives the student adequate exposure to the word so that it can be incorporated into the short term memory. The problem might be solved if a fewer number of sufficiently reinforced words were introduced in the individual spelling units. In this way the student would be better able to retain what has been learned.

In general the six grade text books were seen as being written at grade level. The Harcourt Brace Jovanovich text was the only one which had an index number (.12) which was slightly above the level tolerable for this study. The most experienced readers have been given the least challenging texts in terms of readability.

Teachers have the power to determine the readability of the textbooks which they use in the classroom. The readability data can certainly be well utilized particularly in subjects like spelling where motivation to read is low.

## Suggestions for Further Research

Observations of this study reveal additional possibilities for expanded research. In this work 3 spelling units out of 36 were examined from each textbook in order to determine a readability score. The first option would be to evaluate additional units in the spelling texts in order to determine whether the readability scores obtained for this study remain consistent. A second option would be to evaluate the spelling series according to additional readability formulas and /or graded word lists. A third option would be to evaluate the spelling series according to other factors thought to influence readability, for example sentence structure or writing style. Additional studies for further research would be helpful for both teachers and students. Several questions were raised which could not be answered through this study. First, a more detailed evaluation of the vocabulary words should be undertaken in order to determine similarities among the words selected by each publisher. Secondly, the determination of the frequency of occurrence of spelling words which appear in the reading texts should be established. Thirdly, the origin of the publishers' selected vocabulary words and the geographical distribution of the students tested, should be determined.

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# APPENDICES

# APPENDIX A

## Spache Reading Formula

Worksheet for application of the Spache Readability Formula for Grades 1 - 3

Article or Book_____ Date_____

Author_____ Publisher_____

| | | Page____ From____ To_____ | Page____ From____ To_____ | Page____ From____ To_____ | Page____ From____ To_____ |
|---|---|---|---|---|---|
| 1. | Number of words | _____ | _____ | _____ | _____ |
| 2. | Number of Sentences | _____ | _____ | _____ | _____ |
| 3. | Number words not on Functional Word List | _____ | _____ | _____ | _____ |
| 4. | Ave. Sentence Length ( Divide 1 by 2 ) | _____ | _____ | _____ | _____ |
| 5. | Percent hard words ( Divide 3 by 1, multiply by 100 ) | _____ | _____ | _____ | _____ |
| 6. | Multiply (4) by .141 | _____ | _____ | _____ | _____ |
| 7. | Multiply (5) by .086 | _____ | _____ | _____ | _____ |
| 8. | Constant | .839 | .839 | .839 | .839 |
| 9. | Estimated grade placement ( Add 6, 7, and 8 ) | _____ | _____ | _____ | _____ |

Average grade placement of_____ samples_____

Analyzed by_____ Date_____

*Good Reading for Poor Readers, George D. Spache. Gerrard Publishing Co., Champaign, Illinois, 1964.

## APPENDIX B

### DALE-CHALL READABILITY FORMULA-II

| | | | |
|---|---|---|---|
| Article:_____ | No.____ | Page No. ____ | Page No. ____ |
| Author:_____ | | From_____ | From_____ |
| Publisher:_____ | | To _____ | To _____ |
| 1. Number of words in the sample . . . . . | _____ | _____ | _____ |
| 2. Number of sentences in the sample. . . . . | _____ | _____ | _____ |
| 3. Number of words not on Dale list. . . . . | _____ | _____ | _____ |
| 4. Average sentence length (divide 1 by 2) . . . | _____ | _____ | _____ |
| 5. Dale score (divide 3 by 1, multiply by 100) . | _____ | _____ | _____ |
| 6. Multiply average sentence length (4) by .0496 . . . . . | _____ | _____ | _____ |
| 7. Multiply Dale score (5) by .1579. . . . . | _____ | _____ | _____ |
| 8. Constant. . . . . | 3.6365 | 3.6365 | 3.6365 |
| 9. Formula raw score (add 6, 7, and 8) . . . . . | _____ | _____ | _____ |

Average raw score of _____ samples. . . . . ____ Analyzed by_____ Date_____

Average corrected grade level . . . . . ____ Checked by _____ Date_____

# APPENDIX C

## Worksheet for Analysis of Instructional Materials Beyond Readability Scales.

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 New Words | Number of times reinforced | Reinforcements in next 3 stories |
|---|---|---|
| | | |
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| | | |

| List New Words | Number of times reinforced | Reinforcements in next 3 stories |
|---|---|---|
| | | |
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| | | |
| | | |

Looking at teachers manual, list skills to be taught in this lesson:

| Skills | Are they taught |
|---|---|
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| | |
| | |

| Skills to be taught or reinforced in workbook | Check appropriate observation taught | reinforced | neither |
|---|---|---|---|
| | | | |
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| | | | |
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# VITA

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