

**A STUDY OF THE EFFECTS OF WORD-STUDY INTEGRATED SPELLING  
INSTRUCTIONAL MODEL VERSUS TRADITIONAL SPELLING  
MODEL ON FOURTH AND FIFTH GRADE STUDENTS'  
SPELLING ACHIEVEMENT**

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**SONIJA ABSHIER SETTLE**

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An Abstract  
Presented to  
the Faculty of the Graduate School  
Austin Peay State University

In Partial Fulfillment  
of the Requirements for the Degree  
Education Specialist

by  
Sonija Abshier Settle

## Abstract

The purpose of this study was to determine the effects of a Word-Study Integrated Instructional Spelling Model versus the Traditional Spelling Method on the academic spelling achievement of thirty fourth and fifth grade students. Fifteen students received the traditional method of teaching spelling (the basal approach) while the other subjects received the research based model. The results indicated that the students receiving the Word-Study Integrated Instructional Spelling Model achieved significantly greater than the control group and the experimental group also achieved significantly greater on a spelling retention test than the control group. The hypotheses were tested using the t-test at the 0.05 level of significance.



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January 1991



To the Graduate and Research Council:

I am submitting herewith a Field Study written by Sonija Abshier Settle entitled "A Study of the Effects of Word-Study Integrated Spelling Instructional Model Versus Traditional Spelling Model on Fourth and Fifth Grade Students' Spelling Achievement." I have examined the final copy of this paper for form and content, and I recommend that it be accepted in partial fulfillment of the requirements for the degree Education Specialist, with a major in Administration and Supervision.

Robert A. Gore  
Major Professor

We have read this Field Study  
and recommend its acceptance.

Larry Morrison (D.H.)  
Minor Professor

Donald B. Lambert  
Third Committee Member

Accepted for the Graduate  
and Research Council:

William H. Ellis  
Dean of the Graduate School

## ACKNOWLEDGMENTS

We, Ingrid and Donald Abshier, parents of the late Sonija Abshier Settle, wish to express our deepest appreciation to the following persons, without whom this finished document would still be tons of papers packed in boxes of various sizes. These persons are Dr. Dolores Gore, Professor of Education at Austin Peay State University, and Mrs. Pansy Straub, Elementary Teacher at Barkley Elementary School, Fort Campbell, Kentucky.

First, we recognize that Dr. Gore graciously spent many long hours of her own free time to sorting, organizing, and rewriting the huge volume of notes and various papers in order to complete this Field Study. We do not believe anyone else would or could have accomplished this task. We will always be grateful. Secondly, we realize that Pansy Straub very kindly volunteered her time in assisting Dr. Gore during this entire process, and we extend our sincere thanks to her.

In addition, we are sure Sonija would have extended her appreciation to Dr. Leon Sitter and Mrs. Wilmoth Wallace. Their support was necessary for this Field Study to have been conducted in the Fort Campbell Dependent School System.

We know there must be others who deserve recognition; to these individuals we extend our sincere thanks.

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## CHAPTER 1

### Introduction

Poor instructional strategies account for many of the difficulties children have in learning to spell (Gettinger 167; Graham and Miller 1-2; Kuhn and Schroeder 865; Horn 25-27; Fitzgerald 1-8). Some researchers have determined unsatisfactory spelling progress is directly related to poorly designed commercial materials and/or the absence of spelling programs and instructional techniques based on research findings (Mihail 34-35; Gettinger 167; Graham 560-567; Johnson, Langford and Quorn 587-588; Beers and Beers 573-579; Cronnell and Humes 59-64; Horn 25). According to a study conducted by the National Educational Products Information Exchange Institute, investigators using on-site observations noted ninety percent of instructional practice in the classroom is based on commercially prepared materials 1-44 . It has been found that instructional practices in spelling are influenced more by teacher habit than by research results, and improvement of commercial spelling programs is not commensurate with the research findings (Graham 561; Graham and Miller 2). Although spelling is one of the most thoroughly researched areas in the language arts, it is basically useless unless the findings are appropriately applied and continuously refined and expanded.



The current cry of "back to the basics," along with the demand students must pass competency and achievement tests, has increased the need for better methods of teaching spelling. In addition, with today's push for "teacher accountability," teachers are more responsible for helping all of the students in their classroom learn basic spelling skills. These skills should not only enable children to master assigned spelling words, but also assist them in learning to spell correctly in all subject areas. Teachers are responsible for providing activities which use instructional time productively. They must also create situations where children need to know how to spell and how to learn to spell. If students are to receive adequate spelling instruction, teachers need to provide children with considerable practice in the methodology of learning to spell using specific, independent, learning skills.

#### Statement of the Problem

What will be the effects of the "Word-Study Integrated Spelling Instructional Model" versus the "Traditional Spelling Method" approach on fourth and fifth grade students' spelling achievement?

#### Purpose of the Study

The specific purpose of this study was to determine the effects of the "Word-Study Integrated Spelling Instructional Model" versus the "Traditional Spelling Method" on fourth and fifth grade students' spelling

achievement. Based on this particular purpose, the following questions were investigated:

1. Will there be a significant difference in the spelling achievement scores of students in an experimental group who receive instruction by the "Word-Study Integrated Spelling Instructional Model" versus the control group of students who receive the "Traditional Spelling Method"?

2. Will there be a significant difference in the spelling achievement scores on the spelling retention test for the experimental group of students who receive the "Word-Study Integrated Instructional Model" and the students in the control group who receive the "Traditional Spelling Method"?

3. Will there be a significant difference between the spelling achievement scores on the posttests of the boys and girls in the experimental group who receive the "Word-Study Integrated Spelling Instructional Model" approach?

#### Statement of the Hypotheses

According to the purpose of this study, the following hypotheses were tested:

1. There will be no significant difference in the spelling achievement scores of students in an experimental group who receive instruction by the "Word-Study Integrated Spelling Instructional Model" versus the control group of students who receive the "Traditional Spelling Method."

2. There will be no significant difference in the

spelling achievement scores on the spelling retention test, administered two weeks after the treatment, for the students in the experimental group who receive the "Word-Study Integrated Spelling Instructional Model" and the students in the control group who receive the "Traditional Spelling Method."

3. There will be no significant difference between the spelling achievement scores on the posttests of the boys and girls in the experimental group who receive the "Word-Study Integrated Spelling Instructional Model" approach.

#### Significance of the Study

Poor spelling, the inability to recognize, recall and reproduce the correct sequence of letters in words, continues to be a problem for children as well as adults (Gettinger 176; Graham and Miller 1-2; Kuhn and Schroeder 865; Horn 25-27; Fernald 1-4). Therefore, research in the area of spelling must continue to discover ways these individuals can learn to spell efficiently. Further studies should be conducted utilizing the tested, successful teaching materials for improving spelling, learning theories directly related to spelling and newly developed strategies for teaching spelling based on the current research.

This study was designed to test the "Word-Study Integrated Spelling Instructional Model." If this instructional model is found effective in increasing



students' spelling achievement, it could be easily incorporated into any spelling program. However, regardless of the findings of this study, it should provide valuable information for teachers who are concerned with present instructional strategies and student spelling performance.

### Limitations of the Study

1. The subjects for the study were limited to students attending a dependent school system in the southeastern part of the United States.
2. The students participating in this study were limited to fourth and fifth grade children.
3. The teachers in the study included only those of fourth/fifth grade.

### Definitions of Terms

The following are specific definitions of terms used in the context of this paper:

1. Spelling - The ability to recognize, recall and produce in written form the correct sequence of letters in words.
2. Spelling Achievement - The comparison of the spelling pre- and posttest scores, from the experimental and control group, collected before and after the treatment.
3. Word-Study Integrated Spelling Instructional Model (WSISIM) - A teaching instructional model which provides students with a strategy for learning how to spell words and reinforces this learning by providing

frequent practice through various activities which require the recall (from memory) of spelling words. It provides opportunity and strategies for immediate checking of the correctness of spelling words.

4. Traditional Spelling Method (TSM) - A method of instruction which is largely based on the commercial spelling basal series, supplemented by having students write their spelling words, definitions and sentences with no form of word study or need for recall of the spelling word, merely copying required (Lutz 2; Gettinger 42; Graham 560-561; Cronnell and Humes 59-65; Graham and Miller 1-2; Hillerich 301-302; National Educational Products Information Exchange Institute #76; Dieterich 245-253; Read and Hodges 1763).

5. Word-Study Method - A teacher-directed whole class and individualized instruction for learning how to spell words using a multi-sensory approach to form and retrieve the correct spelling of words.

6. Test study Test Method - A spelling method conducted by (a) pretesting the students to identify words they can and cannot spell correctly, (b) providing practice in studying the words misspelled, and (c) posttesting students over the spelling words.

7. Study Test Method - A spelling method which directs students to study all spelling words prior to the posttest.

8. Inductive Approach - An instructional technique

which provides students with examples and allows them to use logical reasoning to derive generalizations or conclusions.

9. Deductive Approach - An instructional technique which provides generalizations, rules and examples which allow students to associate their relationship and draw conclusions.

10. Mnemonic Devices - Clues used to help remember the spelling of words. (An example of this device is the phrase, "A friend until the end." This clue helps students remember "e", "n" and "d" are the last letters in the word "friend").

11. Linguistic Analysis - An analysis based on the science of language, including phonology, morphology, syntax and semantics.

12. Error Pattern Analysis - The analysis of student frequent and common errors or mistakes in spelling.

13. Orthographic Information - The information one knows about spelling sequence; for example, "sm" is a legal sequence in English, "sx" is not.

14. Serial Probability - The possible arrangement of letters to form a word.

15. Morphology - The branch of linguistics dealing with the formation of words composed of units of meaning.

16. Phonology - The system of speech sounds of a language.



17. Grapheme - Letter or letters which represent a speech sound.

18. Phoneme - A sound in a language.

19. Imagery - The mental images as produced by memory or imagination. The basic imagery types include: auditory, kinesthetic and visual imagery.

a. Auditory Imagery - Mental image(s) one produces by remembering in terms of sounds.

b. Kinesthetic Imagery - Mental image(s) one produces by remembering in terms of one's own movement; for example, remembering how to write a word in terms of lips, throat, and hand movement.

c. Visual Imagery - Mental image(s) one produces by recalling the visual structure of an item; for example, recalling the "picture of the word" or the form of the letters of the word in sequence.

20. Visual Memory - The ability to retrieve visual images from memory.

21. Visual Perception - The ability to perceive an image (i.e. the letters of a word) in parts and as a whole.

## CHAPTER 2

### Review of the Literature

Spelling is a traditional element of the elementary school curriculum where a considerable amount of time and energy is devoted to its mastery (Graham and Miller 2). Much of the content of spelling in the elementary schools is unjustly based on commercial textbooks. Current researchers have advised teachers to expand their instruction beyond the textbook or not to use them at all (Mihail 34; Lutz 2-3; Gettinger 42; Cronnell and Humes 59, 63; Graham and Miller 1-2; Read and Hodges 1763; Richmond 505).

Present lines of investigation in spelling methods have begun to look toward the speller's own strategies for clues which may be useful in making spelling instruction more effective. A functional view of spelling has suggested natural writing situations can provide important information about the spelling strategies used by writers. Words students need to learn can be obtained from their own writing, as well as researched word lists, words from all curriculum areas, students' daily lives, interests and needs (Mihail 34-36; Morris 4-21; Lutz 3; Radebaugh 532-536; Downing, DeStefano). Natural writing situations

also provide teachers with the opportunity to analyze spelling errors and help in delivering appropriate instruction.

Researchers have emphasized that the language arts are highly interrelated and spelling is an integral part of the writing process. Students need a lot of practice using their spelling skills in context (i.e. writing). In addition, the more meaningful words are to individuals, the more likely their spelling will be remembered (Morris 16; Lutz 3; Gettinger 44-45; Graham and Miller 13; Read and Hodges 1763; Richmond 502; Williamson 257).

Much of the language arts program can be directed to whole class instruction, where students' individual spelling needs, strengths and weaknesses can be determined, and they can be assisted in developing strategies for learning to spell. Research has emphasized the need to expand spelling programs to teaching skills in problem solving, self-correction, error pattern analysis and proofreading. Spelling skills can also be enhanced through the use of mnemonic devices and the dictionary. The emphasis on spelling should be that it is a skill learned for the convenience of all language arts with varied opportunities to use this skill in writing (Mihail 35-36; Morris 16, 19, 20; Lutz 2-3; Gettinger 44-47; Marino 173-177; Ganschow 676-680; Graham and Miller 1-2; Read and Hodges 1763).

### Students' Needs for Spelling Success

Richmond conducted a study to determine the spelling needs of pupils in a sixth grade class. Through an analysis of students' writing the following was concluded:

1. The use of a single spelling textbook for all children in a class does not meet the needs of the pupils.
2. Many pupils of the sixth grade have not developed an effective method of studying a word.
3. Incidental learning should be supplemented by direct systematic teaching, especially in the case of difficult words of high frequency of occurrence (500-505).

Graham and Miller stated spelling instruction must be direct and not incidental (6-7). Each student must be taught an effective, systematic technique to study unknown spelling words. Allowing the students to devise their own individual method was not advisable. According to a spelling model presented by Graham and Miller, the major objectives of a spelling program should include:

1. Helping students to become proficient at standard spelling;
2. Maintaining and promoting spelling growth;
3. Teaching students how to spell words they use in writing;
4. Helping students to develop effective methods of studying new words;
5. Promoting students' use of the dictionary in learning to spell unknown words; and



6. Developing in students a desire to spell words correctly (6-7, 10).

Studies by Russell compared word-study techniques of sixty-nine retarded and sixty-nine normal students with the purpose of identifying techniques students used which led to successful spelling. It was found that retarded spellers tended to use an "unthinking attack" which utilized no clues nor other aids to spelling, while the normal spellers tended to use more active methods, with a check on their achievement. An analysis of the examiner's comments in the studies revealed normal spellers used "good" methods of studying words (based on such factors as methods of attack, concentration on the task, consistency, attention to hard parts, checking one's work, etc.), while the subjects' matched pair did not. A tabulation of results indicated at least twenty-eight of the normal spellers definitely used "good" study techniques, while about nine used "poor" study strategies. In the retarded group, twenty-four students used "poor" study techniques and only two used "good" study strategies. The following were statements written by research observers which reveal the techniques used by the normal group for studying words:

1. Method of study same for all words; prints as well as writes; spends much time comparing words;

2. Method of attack is deliberate; thorough concentration;

3. Methods of testing himself;

4. Writing the word a few times seemed to help;

5. Tested self by kinesthetic and visual method on more difficult words; and

6. Consistent method of study; checking is adequate. (Russell 70-79)

The following were statements written by research observers which reveal the techniques used by the retarded group for studying words:

1. No real method of attack;

2. No attempt at system or method;

3. Method of study erratic;

4. Wrote words ten times;

5. No real method and no check on learning;

6. Inconsistent; learns mainly by spelling orally;

7. Lacked a definite check on learning;

8. Frequently misspelled word even though he looked at them while spelling; and

9. Had the practice of writing a word incorrectly three times or more before checking his performance. (Russell 70-89)

In further analysis of visual, auditory and kinesthetic methods of study applied, the results indicated the "good" spellers utilized auditory and visual techniques more successfully than the poor spellers. One of the most important findings of the study was the fact that poor spellers have not acquired an adequate technique of word study (Russell 70-89).

In studies by Hillerich, children who used some of the major spelling programs were compared with those who

followed the "research approach" to spelling. The latter spelled better after spending only three-fifths the time in spelling as compared with those who used traditional spelling workbooks. The "research approach" to spelling included (a) a word list of high frequency words (developed through a pretest with immediate correction by the child), (b) specific instruction for studying spelling words, and (c) a record of student progress. The data revealed children also need to be taught how to use a dictionary specifically for spelling, and teachers must instill in students a "spelling conscience" (a desire and concern for spelling correctly). In addition, children must be encouraged to do an abundance of writing to maintain and further their spelling skills. Hillerich stressed the word-study method is an essential part of a good spelling program and one that must constantly be taught, retaught and reviewed with children if they are to be successful spellers (302-304).

Gettinger conducted a study to compare the effectiveness of student-directed versus teacher-directed spelling instruction on children's spelling accuracy and retention. The study also examined the effects of initiating children's spelling errors alone and in combination with visual and verbal cues on spelling accuracy and retention. Nine children received four alternating experimental treatments during a 16-week spelling program. One experimental treatment included the



"teacher-directed without cues." In this approach, students were guided through a practice procedure for each word. In this practice procedure the teacher (a) showed the word on a card and said it, (b) removed the card, (c) instructed the child to write it, and (d) checked the spelling. Practice continued until the child had spelled the word correctly two times. Finally, the words were posttested. In the other experimental method, (the "teacher-directed with cues"), the conditions were the same as the previously described except for two additions. The teacher provided cues by circling in red the part of the word that was misspelled in both the error imitation and the correct model. Then the teacher told the student the difficult part of the word and instructed the child to remember it. Another approach was the "student-directed without cues." In this method the students corrected their own pretests from individual word cards. For each incorrect word, students carried out the practice on their own by (a) looking at the word on a card and saying it, (b) turning the card over, (c) writing the word, and (d) checking it. The last approach was the "student-directed with cues," which included the same conditions just described except for one addition: students circled in red the part of the word that was misspelled in both the error imitation and correct model saying, "This is the part of the word I need to remember." The control group received no formal instruction. They were simply



instructed to study and practice the words on their own. Training sessions were conducted in which the treatment was introduced, demonstrated and practiced. Students were required to carry out the student-directed procedures correctly three consecutive times prior to the actual treatment. All students received the experimental conditions. Results indicated that student-directed instruction which incorporated visual and verbal cues was most effective in increasing spelling accuracy. All four treatments were more effective than no instructional control which offered no systematic study or practice procedure, but provided for equivalent exposure time to words (167-170).

In agreement, Fulton pointed out that as far back as 1914 students following a systematic method make greater progress and retain their learning better than those given no direction for learning to spell (287-289). Horn, four years later, stressed the significance of teaching an effective method of learning to spell and the importance of using time in the first lessons each year to insure proper methods of learning. Horn also emphasized the greater value of a teacher-directed method compared to a less successful method which children use when left to themselves (70-71).

Gates has proclaimed that spelling failure is caused by the lack of an efficient method of learning to spell (1-19). Children should be taught to master efficient

techniques for self-teaching. However, often children are given a list of words without a method and they read over the list rapidly or recite the names of the letters, which is not a productive method for learning to spell words (Watson 50-68). James Fitzgerald wrote in his book:

It is mandatory that each child master and use an effective method of learning to spell . . . It seems clear that the child will learn much incidentally, but that his proficiency in writing will be improved if he is taught an effective method for the mastery of properly selected basic core vocabulary. (222)

In Margaret Peters' book, published in 1967, it was stated that learning to spell without giving students instruction on how to learn leads to haphazard techniques of little help to children (31). Gertrude Hildreth emphasized the use of independent spelling study skills. In a book entitled Teaching Spelling: A Guide to Basic Principles and Practice, Dr. Hildreth described the newer method of spelling instruction as one which seeks to make the pupil independent of the teacher's assistance in learning and mastering basic skills as soon as possible. Hildreth has written: "The chief criterion of successful achievement in spelling is the extent to which the children can help themselves achieve correct spelling" (16). Although not all children learn words by the same techniques or benefit from the same instruction in word study, they should not be left unaided to work out any spelling system (Hildreth 229). Strickland wrote: "Every child's interest in

spelling is greatly increased when he learns an effective method for studying spelling words" (75).

### Components of a Word-Study Method

Ruth Strickland further stated that people differ in their methods of recalling the spelling of a word. Some remember the visual image of it, some say the syllables to themselves noting the sound pattern, others write the word and decide whether it looks right. Children, too, have differing degrees of sensory awareness and ability to stow away images of words. Consequently, all spelling methods should emphasize more than one sensory approach to spelling. Children who learn spelling easily will not continue to use all the steps in the suggested method. They will discover which elements or steps are of most worth to them, and will minimize or cease to use the other steps. Poor spellers may need a great deal of guidance and encouragement while they learn what adaptations of methods are best for them and what reinforcement they need in order to attain mastery (74-75).

Graham concluded that a teacher can promote positive attitudes toward spelling by showing students that spelling is personally important to them (563). One way a spelling conscience can be stimulated is by providing students with efficient learning techniques. An effective word-study method should concentrate on the whole word, require careful pronunciation, visual imagery, overlearning, and auditory and kinesthetic reinforcement (564).



Schonell wrote of the absolute necessity of emphasizing to disabled spellers the various sensory channels for learning words (the visual, the auditory, and the kinesthetic). A child or adult may be handicapped by one rather weak sensory channel. However, if such an individual is bombarded by several sensory stimuli supporting each other in emphasizing the structure of a word to remember, he will inevitably attend to and learn the word. Schonell further pointed out that the visual, auditory and articulatory elements must be firmly reinforced by writing. By writing, attention can be focused and help bridge the gap between visual and auditory symbols by successive production of the constituent parts of the visual form. This writing which gives children the feel of the word is vital to correct spelling. Schonell concluded, as children progress they become less and less aware of the visual, auditory and articulatory elements until they achieve the machine-like movement, which stimulates a chain reaction supplying the whole word. Writing, in turn, bridges the gap between visual and auditory symbols which involves auditory and articulatory elements (204-247, 297-340). In addition, Brothers and Holsclaw stated a crossing and integrating of visual, auditory and kinesthetic modalities are needed before the spelling of a word becomes a subconscious automatic process (25-28).

Gates and Russell advocated an elaborate and lengthy



diagnostic test which is designed to investigate and reveal the most congenial method a particular child employs in spelling. Although spelling disabilities are usually a highly individual matter, the eclectic approach to the remedial teaching of spelling is suggested. This remedial method of word-study relies on a multiple of senses which includes (a) attention to hard spots of words, (b) pointing out familiar word forms in longer words, (c) syllabifying, visualizing, hearing, pronouncing the word, (d) spelling the word orally, and (e) writing the word (30-41).

An analysis of Personke and Yee's model of spelling behavior revealed all spelling is processed from among a number of "complementary channels" (284). No one complementary channel (memory, kinesthetic, check, proofread, proofread-rewrite) is correct for spelling a particular word each time it is encountered. Adjustment in one complementary channel affects all other channels, and reinforcement of correct responses enlarges the store of the memory drum. The internal inputs, particularly of the immature speller, are subject to constant change. This shifting from one channel to another is the best indication of the complementarity of the channels, and the need for mastery of all channels of processing (284).

Westerman stated many channels overlap in learning to spell. However, some channels may be stronger within an individual than others when performing spelling and written

tasks. The channels used to detect preference included auditory-vocal, auditory-motor, visual-vocal, visual-motor and multi-sensory. Although the multi-sensory approach was recommended for children with learning disabilities, it should never be assumed that sensory "bombardment" is best for all children. An uncluttered approach is often more productive for the success of many spellers (41-42).

### Specific Word-Study Methods

Fitzgerald stated it is difficult to present a method for learning to spell a word which will fit the needs of all pupils. But, it is necessary in group teaching to use a method that will meet the basic spelling needs of all normal children. Since the average child uses the four senses when learning to spell, the integration of vision, hearing, speech and writing should be used in the teaching of spelling (30-37). The following is a strategy outlined by Fitzgerald which has been used successfully for assisting students in learning to spell words:

1. Meaning and Pronunciation - Look at the word. Pronounce the word. Use the word correctly in a sentence.
2. Imagery - See and say the word. See the syllables of the word. Say the word, syllable by syllable. Spell the word.
3. Recall - Look at the word. Close your eyes and spell it. Check to see whether your spelling is correct. (In case you make an error, do steps (1), (2), and (3) again.)

4. Write the Word - Write the word correctly. Dot the i's. Cross the t's. Close the o's. Check your writing to see that every letter is legible. Check your spelling.

5. Mastery - Cover the word and write it. If it is correct, cover it and write it once more. If you made a mistake, do all the steps over again until you learn to spell the word (38).

The crucial importance for normal children to have an effective method, such as these five steps of learning to spell a word, cannot be overemphasized. Fitzgerald stated: "The active use of such simple steps is vital to the success of a spelling program" (38).

Horn, as early as 1919, recommended a practice method for students to use when learning to spell words. This word study practice procedure proved to be superior to those developed by the teacher or the pupil. Through Horn's extensive research the following set of rules were designed to embody the conclusions of various experiments in learning to spell. Horn's first word study method included the following steps:

1. Look at the word and say it to yourself.
2. Close your eyes and visualize the word.
3. Check to see if you were right. If not, begin at step (1).
4. Cover the word and write it.
5. Check to see if you were right. If not, begin at step (1).



6. Repeat steps (4) and (5) two more times (71-72).

Horn, again in 1954, gave a series of steps in learning to spell a word. They consisted of the following instructions:

1. Pronounce each word carefully.
2. Look carefully at each part of the word as you pronounce it.
3. Say the letters in sequence.
4. Attempt to recall how the word looks, then spell the word.
5. Check this attempt to recall.
6. Write the word.
7. Check this spelling attempt.
8. Repeat the above steps if necessary until the word is correctly spelled (19).

Horn claimed these steps involve visual, auditory and kinesthetic imagery as well as an emphasis on recall. Better spellers may not need to follow all these steps habitually, but even the best spellers may find it safer to use them in learning words which may cause them difficulty. Poor spellers are likely to need special help and encouragement in using all the steps. The steps which require the recall of a word make learning a more active process, since it is the ability to recall the correct spelling of a word which is needed in writing. Therefore, the steps which provide for attempts to recall the correct spelling of a word should be strongly emphasized (1-32).



Russell concluded in a study that multiple and complex instructional steps were cumbersome and boring for good spellers and confusing and ineffective for poor spellers. The results further revealed that pupils should use fewer steps than suggested by Horn to learn to spell words. The method employed in this study eliminated all the steps but the vitally useful ones. This method, Russell claimed, centered on intense uninterrupted study and analysis of the word. If the students wrote the word correctly the first time, that was an indication of mastery. However, students were asked to write it a second and a third time to "stamp in" the correct spelling before going on to the next word. Using this technique, the forty-one pupils in a sixth grade class showed considerable spelling improvement during a five month period. The teacher thus contributed a major part of success to the learning of a simple technique for individual spelling study which had not been used previously (70-81).

This word study method was presented in 1962 by Gilstrap. The following were the steps tested by Gilstrap:

1. Look at the word and say it softly. If it has more than one part, say it again, part by part, looking at each part as you say it.
2. Look at the letters and say each one. If the word has more than one part, say it again, part by part.
3. Write the word without looking at the book (481-483).

Ganschow who advocated the analysis of error patterns to remediate spelling difficulties felt that irregular words (those which cannot be predicted through a rule) must simply be learned. Remembering how to spell words necessitates the use of both auditory and visual skills. Ganschow recommended a multi-sensory approach for teaching children to spell words. The researcher also claimed the following self-monitoring practice steps help children learn words effectively:

1. The student writes the word on a sheet of paper folded into five columns. Correctly spelled words are written in column one.
2. In column two the student writes the word heard from a language master or tape recorder, then corrects the word using the model in column one.
3. The student studies the words missed.
4. The student then takes the test in the next column repeating this process as many times as necessary to learn the word. (289-291)

Hanna, Hodges and Hanna in a book entitled Spelling Structure and Strategies, advocated the use of the multisensory-multimotor approach. The authors stressed that even if linguistic analysis and the inductive approach were used, the methods will not be completely effective unless sensory modalities and motor mechanisms used help entrench the spelling of words in the pupils' central nervous system. These modalities and mechanisms include:

ear, voice, eye and hand learning. Some children are predominately visual-minded (a visual image of a word is stored in the mind). Such children, according to Hanna et al., learn to spell primarily by looking at the graphemes which form the written word. Other children are predominately "hand-minded" in learning (122-124). Hanna et al. stated that children learn to spell primarily through the physical act of writing. This is an act which involves the muscles and nerve endings in the finger and arm so that a network of neurons is created in the central nervous system. Such children are likely to rely upon writing a word to be sure of correct spelling. Therefore, a modern spelling program should encourage students to use all available sensorimotor equipment when they are learning to spell. Hanna et al. placed particular emphasis on the sensorimotor processes of hearing and speaking. The sensorimotor process is "the foundation upon which can be developed a power to spell correctly a very extensive American-English vocabulary" (122-124). When using a combination of multisensory learning, ear and voice learning play the major role in a modern approach to spelling. In addition to the multisensory-multimotor techniques of teaching spelling, there are others that are useful. The authors suggested the following type of study steps help in teaching pupils to spell the words when the orthography deviates greatly from the alphabetic principles:

1. Say the word.



2. Look at the word.
3. Write the word without looking at the copy and say the word internally while writing the word.
4. Proofread the word.
5. Identify the errors, if any.
6. Restudy the word. (Study again any word misspelled by repeating the steps over again from the beginning.)

These steps should not be used to the exclusion of phonological, morphological, and contextual analysis of the phoneme-grapheme correspondence (122-124).

Fernald developed a visual spelling method for learning disabled students which consisted of finger tracing in the first stage. The tactile finger training sensory channel was considered primary, although other channels were emphasized. In stage two, after tracing the word, the child was required to look at the word, write the word without looking at the copy, and say the word while writing. Auditorization of the word while writing was considered important because "it is necessary to establish the connection between the sound of the word and its form, so that the individual will eventually recognize the word from the visual stimulus alone" (4). Fernald assumed a complex interrelationship in the inter-sensory perception of learning, the route being from tactile to auditory to visual. Based on this hypothesis, the approach was to establish more effective visual



learning through the tactile-auditory channels. The Fernald approach to spelling included the following steps:

1. The word to be learned should be written on the blackboard or on paper by the teacher.
2. The teacher pronounces the word very clearly and distinctly. The child pronounces the word.
3. Time should be allowed for each child to study the word. The object of study is to develop an image of the word so that the child will be able to visualize the word after the copy has been removed.
4. The child traces the word with verbal repetition, then writes the word several times on a separate piece of paper while using verbal rehearsal.
5. The child erases or covers the word and writes from memory. If incorrect, the tracing and saying steps are repeated.
6. Some arrangement should be made so that it is natural for the child to make frequent use in written expression of the word learned.
7. Finally, it is necessary that the child be allowed to get the correct form of the word at any time he is doubtful of its spelling.
8. If spelling contests are desired, a written format should be used instead of an oral format (40, 181-210).

Based on Ragan's book, Modern Elementary Curriculum, the "normal steps of learning" (269-283) should be followed in teaching spelling. According to Ragan, the

steps were:

1. Initiating a first-hand experience with an object in the environment;
2. Hearing the word applied to the object;
3. Saying the word applied to the object;
4. Learning the meaning of the word;
5. Reading the word in a sentence;
6. Writing it from a copy; and
7. Spelling it from memory.

Ragan further stated that tests can be an effective teaching tool when they are corrected by the pupils and the results utilized by them (269-283).

Gillingham and Stillman advocated the "Simultaneous Oral Spelling" method which uses a multi-sensory approach (53, 184). This method taught children to see, hear and feel the spelling of words through articulation and kinesthetic experiences. This approach also introduced students to words in a carefully constructed sequence which moved from highly regular words to words having regular rules to irregular words. The approach required adherence to a five-step procedure in which:

1. The teacher pronounced the word;
2. The child repeated the word;
3. The child spelled the word orally;
4. The child wrote the word naming each letter orally as he formed it; and
5. The child read the word (53, 184).

According to Hildreth instructing pupils in an elaborate formal series of steps for word study (applied uniformly to all spelling words) is both unnecessary and undesirable. An elaborate formal series is unnecessary if the children are learning to spell words for use in writing that they already use in conversation and have met in writing. Also a formal series is undesirable because few children will remember to follow all the steps or have the patience to use the procedure with each word. However, it is beneficial for most students to have a brief list of suggestions for studying all difficult words. Difficult words will scarcely be mastered without study and practice based on a particular plan. Hildreth recommended that the following outline be reviewed periodically for the students by the teacher:

1. A familiar word is studied in written form on the blackboard, displayed on a chart or card.

2. The teacher pronounces the word clearly and distinctly while the pupils observe the word. Then the children pronounce the whole word or pronounce the syllables of longer words.

3. Time is allowed for each child to study the word. The pupils are instructed to (a) look at the word to get a clear-cut impression of it, saying it repeatedly, syllable by syllable, and (b) see if the word can be written just as it is said. (Do the letters agree with the sounds?) Special attention must be given to non-phonetic elements in words.



4. Students are directed to shut their eyes and see if they can get a picture of the word in their mind. If they cannot, they can remember the parts that are written the way they say them by pronouncing the word over to themselves or feeling their hand make the movements of writing the word. They should look away to test the visual image and their memory of the word and hard spots, if any.

5. When they are sure of every part of the word they shut their book, cover or erase the word and write it, saying each syllable to themselves as they write it.

6. Then they try to spell the word by writing it, saying the sounds as they write or saying over the letters, trying all the time to visualize the word correctly. The good spellers say the word over to themselves as they are writing it, sounding out the word parts carefully. The students practice writing the word several times without the copy. This is a step the pupil must never omit.

7. The writing should be compared with the correct copy to check results. The pupils should not stop to erase or correct an error. Instead, students should turn over the paper and write the word again. If an error is made, they do not rewrite the word more than three times on the same day. Later in the day students should try writing the word from memory.

8. Some arrangements should be made so that pupils can make frequent use of the studied words. The children may practice composing sentences or short paragraphs using the studied words (229-231).



Hildreth contended that the major aspect in the previously stated word study spelling outline was to get a clear-cut picture of the whole word as it is normally written or printed; inspect each word carefully and pronounce it accurately; put it out of sight and write the whole word picture from memory; keep writing the word from memory until the form is fixed in the mind. Hildreth also stressed that these steps can be taught as a class exercise. A chart containing a list of the suggestions should be hung in the classroom to remind pupils of the steps in the word study procedure (229-321).

Graham and Miller conducted a study utilizing a word study worksheet and concluded an effective study method could be established by developing a worksheet that specified the study pattern in a step-by-step manner. Initially, in the study, the students used the worksheet under teacher supervision to learn each unknown spelling word. Gradually, the worksheet was phased out as the study method became internalized. They determined that an effective word study method concentrates on the whole word and requires careful pronunciation, visual imagery, auditory and kinesthetic reinforcement and systematic recall (i.e. overlearning). Graham and Miller suggested the Cover-and-Write Method (publisher unknown) as a word study technique. They recommended:

1. Looking at the word, saying it;
2. Writing the word two times;

3. Covering and writing one time;
4. Checking work;
5. Writing word two times;
6. Covering and writing one time;
7. Checking work;
8. Writing word three times;
9. Covering and writing one time; and
10. Checking work (10-11).

From their research, Johnson, Langford and Quorn found that systematic word study procedures are superior to unsystematic procedures. However, there appears to be no superior system. Therefore, if children develop their own method of effective learning, they should be allowed to retain it. Consequently, according to Johnson et al., for children who do not appear to be able to develop a systematic procedure, the teacher should provide one and attempt to see that it is used. The effective procedure advocated by these authors for word study was:

1. Looking at the word and saying it aloud;
2. Covering the word and trying to imagine what it looked like (it might help to close one's eyes);
3. Opening eyes but keeping the word covered while writing the word;
4. Uncovering the word and comparing it with what was written; if the word was misspelled, trying again steps one through three; and

5. Having someone read the spelling words, writing them down as heard, checking spelling and relearning those missed by repeating steps one through four (584-585).

Edna Furness stated in the article, "Seven Signs of a Successful Speller," that learning to spell is a complex matter involving seeing the word distinctly, hearing it clearly, comparing what one sees with what one hears, recalling the word, writing the word and knowing the meaning of it in the context of one's own written expression. Furness claimed these are "the pieces in the pattern whereby a student becomes a successful speller"

(2). The word study procedure recommended by Furness was:

1. Looking at the word closely;
2. Pronouncing the word accurately;
3. Analyzing the word carefully;
4. Writing the word;
5. Comparing the written word with the copy; and
6. Practicing writing the word (2).

Nichols concluded from a study that after four months of specific spelling instruction children made significant gains in spelling achievement. The areas of instruction included in the study were proofreading, word meaning, handwriting, and visual and auditory discrimination. The following activities were typical of the kind of instruction provided:

1. Proofreading. (Cross out misspelled words in a paragraph. Find in the dictionary the correct spelling



of words. Read one another's papers and check misspelled words. Keep list of spelling demons.)

2. Word Meaning. (Select a word that makes a sentence true. Classify miscellaneous words under given headings.)

3. Handwriting. (Teach cursive to the third grade students and attempt to create a desire for writing and spelling accuracy.)

4. Visual Discrimination. (Flash card drill for quick recognition. Find in a list a word that has been flashed and circle it. Write flashed words after short time interval has elapsed. Select rhyming words from a list of words.)

5. Auditory Discrimination. (Listen for words beginning with certain letters or blends. Indicate word when heard. Listen for words that rhyme. Listen for certain letters or blends. Circle letters heard given a list of words. Listen to words and discover those which begin or end alike (154-159).

A spelling model developed by Brothers and Holsclaw pointed out behaviors which they determined were needed for accurate spelling in writing situations. These behaviors included:

1. Copying, which means writing a word to match a printed or dictated model;

2. Proofreading, which requires the critical reading of all written words to establish whether or not they are correctly spelled;



3. Rewriting, which follows proofreading and means the correction of any errors one finds;

4. Writing from memory, which means consciously stopping to recall a word or a rule before or while writing; and

5. Spelling without thinking, which is the automatic and instantaneous writing of words without pausing to think about spelling (25).

According to the researchers, copying, proofreading and writing were the essential behaviors which should be incorporated into all study methods for learning to spell words. These three behaviors should be used with words in all the curriculum areas, not merely with spelling vocabulary (26).

Greene and Petty suggested the following method for studying the spelling of words. This method was provided as a guide to assist teachers in developing a spelling study method with their students. The guide stressed:

1. Looking at the word carefully and pronouncing it correctly; if not sure of the pronunciation, seeking a proper source for the correct spelling; saying the word slowly and clearly while looking at the word; stressing each syllable of the word in sequence;

2. Covering the word or closing the eyes while pronouncing and visualizing the word. Next, trying to visualize the way the word is written while repeating each

letter in sequence, being particularly sure to visualize how the middle of the word looks;

3. Looking at the word again making sure that each word was correctly said and visualized, if not, starting over;

4. Covering the word and then writing it, thinking carefully how the word looked; checking the accuracy of spelling (if word was misspelled, beginning again);

5. Repeating this two or more times without looking at the book or at previous attempts; and

6. Writing sentences using the word (263).

Nicholson and Schachter's model of the spelling process involved the integration and interaction of three elements: language knowledge, internalized rules and visual association. According to the authors, spelling instruction and application should incorporate all three elements in order to enable the student to acquire a variety of spelling skills and strategies. The first component, language knowledge, is something all children bring to the spelling task. Children come to school with a well-developed language competence which enables them to understand English words. The second component, internalized rules, enables children to predict and write the most probable spelling for words (i.e. "ck" is a phoneme which is expected to appear at the end of a word and not the beginning). The third component of this spelling model, visual association, was described by

Nicholson and Schachter as the "visual dictionary in our heads" of words in graphic form (805). The visual associations can help children to develop automaticity in spelling by storing some words as unique items (i.e. at, cat, hat, mat). Also, visual association can be used to produce a specific spelling of a word and as a verification to check the written form. This kind of checking behavior is defined as proofreading. Therefore, the strategy by Nicholson and Schachter for teaching spelling skills relied mainly on visual association. The sequence developed for this teaching procedure was:

1. Looking at the word;
2. Saying the word;
3. Closing eyes and trying to see the word;
4. Looking at the word again;
5. Covering the word and trying to write it; and
6. Checking to see if the word was spelled right

(805-809).

Another theoretical model of the spelling process was presented by Simon and Simon. The researchers revealed in this model a technique similar to Nicholson and Schachter for recalling the spelling of words. One important phase of this model involved a "generate-and-test process" (118). During this process, the speller formulates a written spelling word based on stored phoneme-grapheme association information. This production is then tested using the stored visual recognition process. If a visual match fails, a further spelling could be formulated (118).



### Visual Memory and Imagery

Cripps stated that sight is the preferred sense for checking the correctness or incorrectness of spelling words. Cripps emphasized that spelling is a visual and not an auditory skill (127).

Hendrickson proposed that there is a developmental acquisition of the visualization ability. The ability to make visual comparisons leads to the development of visual memory or visual recall, which in turn is the foundation of visual imagery. Mastery of the visualization process was considered by this writer to be an important function in spelling proficiency. Hendrickson wrote:

As the child learns to visualize, he learns to look and observe. He learns to see, listen and learn more. He learns to see in less time. He learns the visual ability of substituting symbols for experiences, and he learns symbol manipulation as a visual activity which, when adequately learned, produces a good writer, good reader, and good speller. When he can visualize a word, he can spell it, regardless of how it sounds. (42)

Peters in 1967 suggested that individuals should be directed to the visual channel because:

1. Vision is our preferred sense, as humans;
2. It is only through the visual familiarity with written language we learn the serial probability of words;
3. Words that look alike form meaningful connections through their visual patterns (i.e. word families; and
4. Visual learning provides a check. We learn to spell a word. We look to see if it is correct. If it does not "look right" we learn and check again.



peters stated that "no other perceptual avenue provides such a mechanism of verification as seeing with one's eyes" (16). Therefore, time spent on spelling can be used effectively if children are taught to attend carefully to the word's structure, to look for the hard spots, to identify familiar word sequences within long words, to break words into syllables, and to exercise visual imagery (16).

In a later book by Peters, Success in Spelling, published in 1970, it was pointed out that knowledge of serial probability depended upon visual perception of the word. The knowledge of serial probability is not only a sub-skill essential to the encoding skill of spelling, but also for proofreading. Peters defined proofreading as the scanning of words which assists individuals in identifying unfamiliar letter sequences. Peters advocated that teaching proofreading skills to children leads to an increase in their spelling ability. Also, visual perception of the form of the word is one of the most important elements when learning to spell a word (76-77).

Marsha, Friedman, Welch, and Desberg developed spelling strategies based on the assumption that visual memory of a word is necessary in order for a child to understand and spell words with silent letters correctly (343). Horn reported that students' spelling achievement was superior when spelling methods emphasized the visual presentation of words. The poor spellers were reported as

being relatively deficient in using visual imagery. Therefore, Horn urged teachers to spend some time with students, drilling and recalling the visual image of words. Horn recommended that teachers instruct pupils to close their eyes and recall the spelling of a word, then immediately check the word by comparing it with the correct form (65-70).

Fehring stated that the human organism receives stimuli from the five basic sensory channels: visual, auditory, tactile/kinesthetic, olfactory, and taste. Cognitive processing of the sensory stimuli produces the information needed to spell the word and contributes to its retention. Also, Fehring determined that in order to write a word one must have a graphic representation of the word within one's memory. It was the observation of the writing of the word which led to the assumption that visual memory must be involved in the spelling process. Cues which come from the sensory channels assist in the retrieval of word information which may be a single or a complex interaction of these sense channels (1-61).

Fitzgerald agreed with Fehring that visual presentation and imagery are important factors for correct spelling when writing. Fitzgerald contended that the child must form a mental image of a word in order to write it from memory. The image of a word is established through the aid of visual, oral, auditory and kinesthetic processes. When developing a mental image of a word, the

use of all sensory channels increases spelling capacity. Fitzgerald pointed out when learning to spell a word, the word should be removed or covered, then the child should attempt to recall the word from memory and finally check for accurate spelling. The word is recalled through various sensory channels. Fitzgerald explained that in the visual channel the word is checked syllable by syllable; in the oral channel the spelling of the word is checked according to letter sounds; and in the motor channel the word is written and checked with the copy of the word (31-35).

Johnson, Langford and Quorn wrote that it is necessary to confirm the spelling of a word by comparing it with the image stored in one's visual memory (i.e. Does the word look right?). Words written repeatedly in quick succession with no check from memory for accuracy cause students' spelling to become a purely mechanical process (585-586).

Hildreth indicated that children who have severe problems in learning to spell need help with building clear-cut images of words. According to the researcher, children can obtain a clear visual image of a word by looking at it carefully as they think of its meaning and say the word. Hildreth stressed that students need to say the word many times to hear how it sounds and to feel it on their tongue (36-40). Hildreth also stated that auditory, visual, speech-motor and hand-motor impressions



tend to reinforce one another and make the image clear and deep enough so the child can recall the word from memory. In addition, review and practice are essential in order for a student to be able to retrieve and retain the correct spelling of a word. Children who have difficulty with spelling need many repetitions of the visual form of the word and this can be accomplished by using the spelling words in functional writing (107). Hildreth wrote that "a major cause of misspelling is inadequate acquaintance with the visual form of the word" (37). According to the research, a teacher should emphasize visual imagery as well as sound letter association, in order for students to spell accurately and to learn readily (37).

Fernald's book on remedial instruction indicated differences in the ability of individuals to create images of words. According to Fernald's studies, some people tended to get visual images of words, while other people either get no visual image at all or very vague ones. The individuals who received no visual images remembered things in terms of sounds and received "auditory images" (182). The individuals who received visual images pictured the word as envisioned. Individuals who received very vague visual images recalled the word in terms of lip and throat movement, or the movement of the hand as letters are created during the writing of a word. According to Fernald, most people get a combination of all three of these imagery types (182-187).

Kline reported that students learn to spell more effectively when learning by methods favorable to their image type. However, even when the learner used a multiple of methods in which some techniques were designed to be directly opposed to an individual's image type, the difference in learning to spell words was slight (381-400).

According to Peters' book, Success in Spelling, imagery is of great importance to spelling. Recall, whether immediate or delayed, involves imagery of some kind. The shorter the exposure and the longer the sequence of letters in words the more individuals must rely on some form of imagery to reconstruct the sequence. As children mature, their preferred form of imagery develops from a generalized system, which may or may not have strong visual, auditory or kinesthetic emphasis. The author proclaimed that relying on visual imagery to spell words is an advantage which can be taught (18-19).

Several researchers have conducted studies in the methodology for teaching visual imagery. Radaker conducted a retention study on spelling achievement which established the groundwork for a strategy for teaching visual imagery. The results of this study indicated that the spelling performance of the children who received training in the creation of visual images improved significantly greater than those who did not receive the treatment. In Radaker's study, the imagery practice

groups were given training in creating images of words on practice lists. Each subject had three-by-five cards containing the words. As each word was presented, the subject was directed to note the letter sequence. The subject (with closed eyes) tried to arouse an image of the word in large, glossy, black letters on a white background. It was suggested to the subject that the word be visualized as though it were projected on a large outdoor theater screen. Once the image was aroused, the subject tried to stabilize the image and retain it as long as possible with a maximum objective of one minute for each word. Unstable images (words which could not be recalled correctly) were stabilized by imagining that the words were created from large metallic letters with holes punched in the top and bottom to accommodate fantasy nails. To improve retention it was also suggested that the subjects imagine fantasy paste being applied to the back of the letters to glue the words in place. Following a two-week period, it was suggested to the children in the "imagery practice" group that they use this method for the study of spelling words (370-372).

Horng, in the field of visual imagery, used a technique similar to Radaker's. Horng's study for learning to spell words involved the use of three treatment groups. The experimenter provided imagery suggestions to one group while the second group was asked to form their own visual images to assist in recalling the spelling of



words. A control group was given no instructions regarding imagery. Horng's results demonstrated that visual imagery is subject to manipulation. Individuals unable to formulate visual imagery prompts for themselves can use suggestions from others to help them perform better and to retain more on subsequent recall tasks. Horng, as did Radaker, concluded that the use of suggestions or directed visual imagery prompts were necessary to assist individuals in recalling the spelling of words (203-212). These studies essentially confirmed an earlier study in which Kuhn and Shroeder concluded that increased visual interaction with words aids recall in spelling among elementary students (865-869).

In a study conducted by Sears and Johnson, visual imagery was compared with auditory and kinesthetic factors among upper elementary students. Each of the treatment groups used different methods of studying spelling words. The visual imagery treatment consisted of using suggestions given by the teacher. Radaker's imagery suggestions were used again as closely as possible. Overhead transparencies were used in this study rather than word cards to emulate a situation which could be used for large-group instruction. During the treatment, the teacher asked the students to look carefully at the words as each were displayed. Next, the teacher covered the words and suggested:

1. Seeing if students could still see the image of the words in their minds;

2. Imagining the item displayed on a large outdoor screen;

3. Imagining each letter of the item pasted onto the screen with fantasy paste; and

4. Remembering the word by imagining themselves nailing each letter in place with fantasy nails.

The computer treatment group used a computer program written for this experiment. This self-paced program required the students to give attention visually to the items as they were displayed. It differed from the visual imagery treatment in that no suggestions were given to form visual images. The auditory treatment method focused on correct pronunciation and the relationship of the sounds in words to letters that represent them. The words were tape recorded by the teacher by pronouncing each word, and then spelling each word, syllable by syllable. The taped lessons asked the students to listen, repeat the pronunciation and spell with the tape. The teacher served as a model. The kinesthetic treatment method required the students to copy each word two times. The study was conducted over a period of four weeks. The results following testing revealed that visual imagery was superior to auditory for both spelling performance and retention. The results also supported the hypothesis that visual imagery was an important factor in spelling performance

and retention, particularly when coupled with appropriate imagery suggestions (230-233).

A study conducted by Caban, Hambleton, Coffing, Conway and Swaminathan investigated a procedure expressly designed to evoke and enhance mental imagery in spelling instruction. The major purpose of the investigation was to compare the effects of three approaches to spelling instruction on learning and retention of one hundred-fifty eighth grade students. The instructional approaches were as follows:

1. "Mental Imagery" Treatment--Each of the subjects were given a word booklet, magic slate and plastic stylus. Subjects were instructed to take each word in the booklet, in order, and to attempt to form a mental picture of it, reproduce the word on the slate with the word booklet in view, then without. The subjects were instructed to check the spelling, erase the slate and repeat this process five times.

2. "Drill and Practice" Treatment--Subjects were instructed to take each word in order and write it ten times on a practice sheet.

3. "No Directions" Treatment--Subjects were given their own workbooklets to practice their words in whatever manner selected.

Thirty minute sessions were given to each group to cover fifteen words. The results indicated that the group using the mental imagery approach to spelling scored



higher than the other two groups on spelling tests administered immediately after instruction and again seven days later (15-21).

Judi and Walter Lesiak, and Kirchheimer investigated differences which distinguished good and poor spellers at the third and sixth grade levels on tasks which were selected to measure a variety of visual and auditory sub-skills. There were three tasks selected to tap visual discrimination and visual memory ability. The first was a word discrimination test purporting to show how well children rely on the length of a word, its internal design and external configuration to perceive a word. This test was designed to measure the ability to recognize a word as a word. The tests consisted of ninety-six items. Each item was composed of five groups of letters, only one of which was a word. The subjects were to select the group of letters which formed a word. The other two tests which tested visual memory were the primary and intermediate versions of the Durrell Analysis of Reading Difficulty-Visual Memory for Words. In the primary version, subjects were shown a word for three seconds and then were to select the word seen from a choice of five or seven alternatives. In the intermediate version, the subjects were to attempt to write from memory the previously exposed word. The data indicated the third grade students classified as good spellers scored significantly higher on the three visually oriented tests than the third grade students classified as

poor spellers. However, for the sixth grade children, on these three tests only the intermediate version of the Durrell Analysis of Reading Difficulty-Visual Memory for Words showed significant difference between good and poor spellers (491-494).

Radebaugh individually interviewed third and fourth grade students about personal strategies for spelling words. Both the high achieving and low achieving spellers were able to provide information about spelling strategies. The information from the interviews revealed that phonetic generalizations, a strategy used frequently in instruction and appearing in spelling textbooks, was not a strategy used by the students. Low achieving spellers tended to sound out words, letter-by-letter, or divide longer words into parts and proceed sound-by-sound. High achieving spellers indicated a much larger number of spelling strategies and were more likely to break longer words into parts and then apply common English spelling patterns, frequently using visual imagery (532-536).

A study by Fehring investigated the concept of visual memory and its relationship to the spelling process. The researcher examined the tests of a group of Australian elementary school children's attempts to spell words containing silent consonants. It was concluded, based on Fehring's research, that visual memory was necessary to explain the correct spelling of words with silent letters. Three spelling groups, consisting of three hundred and sixty

third and fourth grade subjects were administered a spelling test containing twenty words with silent consonants. These words were chosen from The American Heritage Word Frequency Book. The results of the spelling test indicated a statistically significant correlation between word frequency and correctness in spelling for each age group. An analysis of incorrect spelling attempts by students indicated an acceptable level of knowledge of orthographic patterns and the visual structure of words. Fehring concluded that the data supported the study's hypothesis that frequent visual contact with words is necessary for learning the English orthography. According to researchers, this knowledge can be acquired through teaching acceptable orthographic patterns, and providing students with extensive experiences in both written and oral language (1-61).

#### Boys vs. Girls Spelling Performance

Baldwin, in a 1975 study, examined the effect of teacher inservice training and knowledge of research upon teacher perceptions of spelling procedures and practices, and upon the spelling achievement of male and female students. Involved in the study were 70 fourth, fifth and sixth grade teachers in twelve elementary schools and their 1493 students. The teachers were assigned to one of three treatment groups. In one group teachers were given a copy of a monograph, which dealt with research-supported and nonsupported practices in the teaching of spelling.



Teachers also participated in five sessions of in-service based upon the monograph. The second group of teachers were given a copy of the research monograph, but no in-service training accompanied it. The third group of teachers were not given the monograph, nor did they receive any in-service training in the area of spelling instruction. The pupils of the teachers in each of the three treatment groups were given two spelling tests: one a list of sixty words developed by the researcher, and the other one consisted of the spelling section of the Iowa Tests of Basic Skills. Following the treatments the same tests were administered approximately 4 months later. A third administration of the two tests was conducted 7 weeks later. The pre-test, posttest, and delayed-recall test scores were compared using the analysis of variance statistical test. Significant differences in achievement spelling scores between boys and girls were noted on all student measures, in favor of the girls (88-145).

In another study, the effectiveness of an instructional improvement project was studied by Broderius. Teachers were provided inservice education in a class called the Essentials of Instruction. The content of this class focused on instruction (Teaching/Learning Cycle) and Clinical Supervision. This inservice education taught specific innovative instructional techniques for the improvement of the Language Arts achievement scores. Teachers from two groups were identified. The first group

taught students using the Innovative Process while the other group used a traditional model for teaching. The California Achievement Test scores were obtained for 598 fifth grade students in spelling. Achievement gain scores were used to examine the differences between boys and girls taught by the two groups of teachers. The results of the testing revealed that students taught by non-users showed slightly above average gains. Girls seemed to score slightly higher in spelling than boys (1-25). Morton found that girls tend to be more proficient than males in spelling prior to receiving instruction in spelling (25-29).

#### Summary of the State of the Arts

The research revealed that children need to know a systematic method for learning to spell new and/or difficult words. Many students have poor methods of studying words and therefore should be taught an effective method. When referring to a direct word study method, most of these researchers advocated a multi-sensory approach. Although the visual channel was favored, it was recommended that all modalities be taken into consideration when developing a strategy for teaching spelling. It was noted that individuals learn to spell more effectively when learning by a method favorable to an image type. Based on these findings, it seems logical that if teachers teach students how to spell words through a multiple of senses, it will not exclude a favorable image type.

In close examination of the methods proposed, it appears the underlying "key" in learning to spell was the way one practices spelling, including the degree and amount of times the learner must retrieve words from memory. This basic concept appears to be excluded from today's classroom spelling instruction. Although it was evident that word-study techniques, which apply to this principle, have been around for a long time, these techniques are not taught. The basal speller is predominately used today due to the lack of time and/or lack of knowledge on the part of the teacher (Lutz 2; Morris 8; Gettinger 41-43; Graham 1-2; Jorm 1; Cronnell and Humes 59-65; Graham and Miller 1-2; Read and Hodges 1763; Russell 1). The basal spellers are still being criticized on the basis that children are simply required to copy words and that sufficient reinforcement is not required (Gettinger 41-43; Cronnell and Humes 59-65; Read and Hodges 1763). At the same time research has shown that to learn to spell one must have many experiences retrieving/recalling the word from memory. While some teachers attempt to supplement basal spelling series, many may be using ineffective techniques to teach the spelling of words, such as having students write the words five times each. In this case, children are simply asked to copy the words with no form of word study which has been shown ineffective. Writing sentences and definitions for spelling words by copying from the book may also be a less effective approach, if the objective is



to teach students how to learn to spell new or difficult spelling words. In reference to these activities, more value may be received from spelling lessons if applied differently and consistently with research. For example, following directed activities using the dictionary to determine the meaning and pronunciation of unknown spelling words, the students should write sentences with spelling words given orally by the teacher or a tape, each time checking the spelling of words using the dictionary or other dependable sources. These alternatives may provide more effective initial teaching strategies to promote greater learning of spelling words and better application of the words in the future.

In conclusion, although this review of the literature provides guidelines for developing an effective method for learning, it is not a total spelling program. A factor which should be brought out is that most of the individuals who have advocated a word study method also agree that the more meaning a word has for a child, the more easily the child will learn to spell it (Stoodt 303-304, 312; DeHaven 257; Furness 2; Hanna, Hodges and Hanna 170, 181, 192, 206; Read and Hodges 1763; Ragan 269-283; Horn 16-17; Fitzgerald 31; Nichols 154-159; Fernald 187; Williamson 257-260; Fulton and Paterson 287). Therefore, instructional time must be devoted to developing the meaning and use of words. A complete Language Arts program should provide practice to ensure that skills and materials

taught during spelling instruction are applied successfully in all areas of the curriculum. Thus, students need considerable practice in applying their spelling skills through various kinds of writing activities (Stoodt 303; DeHaven 247, 256-257; Temple and Gillet 425; Lutz 3; Graham 3; Furness 2; Greedy 235; Gee 212-219; Read and Hodges 1763-1764; Ragan 27-271; Greene and Petty 263; Hildreth 229-231; Strickland 76; Nichols 154-159; Fernald 181-210).

In summary, these points should be noted in reviewing the actual studies conducted. The studies using procedures to improve spelling performance may have been influenced by motivational factors. The special training could have given the children an increased desire to learn to spell the words. In addition, the achievement in spelling may have been due to concentrated attention to words rather than on types of training. In later studies it may be difficult to show evidence to support the contention that children actually use a form of imagery in their spelling behavior and continue once the practice sessions are over. These factors need to be considered when conducting further related studies.

## CHAPTER 3

### Procedures

The purpose of this study was to determine the effects of the "Word-Study Integrated Spelling Instructional Model" versus the "Traditional Spelling Method" of teaching spelling to fourth and fifth grade students on spelling achievement. Based on this particular purpose the following questions were investigated:

1. Will there be a significant difference in the spelling achievement scores of students in the experimental group who receive instruction by the "Word-Study Integrated Spelling Instructional Model" versus the control group of students who receive the "Traditional Spelling Method"?

2. Will there be a significant difference in the spelling achievement scores on the spelling retention test for the experimental group of students who receive the "Word-Study Integrated Spelling Instructional Model" and the students in the control group who receive the "Traditional Spelling Method"?

3. Will there be a significant difference between the spelling achievement scores on the posttests of the boys and girls in the experimental group who receive the



"Word-Study Integrated Spelling Instructional Model" approach?

In order to answer the questions instigated by the purpose of the study, several procedures were used. The procedures are described in this chapter under the following topics: (1) null hypotheses, (2) description of subjects, (3) research design and procedures and (4) analysis of data.

### Null Hypotheses

Each of the three basic research questions served as the foundation for the corresponding null hypothesis. The following three null hypotheses were stated and tested at the .05 level of confidence:

1. There will be no significant difference in the spelling achievement scores of students in an experimental group who receive instruction by the "Word-Study Integrated Spelling Instructional Model" versus the control group of students who receive the "Traditional Spelling Method."

2. There will be no significant difference in the spelling achievement scores on the spelling retention test for the students in the experimental group who receive the "Word-Study Integrated Spelling Instructional Model" and the students in the control group who receive the "Traditional Spelling Method."

3. There will be no significant difference between the spelling achievement scores on the posttests of the boys and girls in the experimental group who receive the

"Word-Study Integrated Spelling Instructional Model" approach.

### Description of Subjects

The subjects in this study were thirty fourth and fifth grade students attending an elementary school located in the Southeastern section of the United States. The neighborhood served by the school was of a lower socioeconomic level in an urban type setting. The students attending this school represented a population of various ethnic backgrounds. The particular elementary school in this study consisted of approximately six hundred twenty-five students, kindergarten through fifth grade. The organizational structure of the school consisted of two grade levels within each classroom (i.e. kindergarten-first grade, second-third grade and fourth-fifth grade).

The subjects participating in this study included fourth and fifth grade students assigned to two different split classrooms. In each classroom students were homogeneously grouped in reading and spelling for a portion of their language arts instructional time. For the purpose of this study a sample of thirty students with similar academic achievement levels were selected from the two classrooms. These students' reading achievement levels ranged from the end of third grade to the beginning of fourth grade, according to Holt, Rinehart and Winston reading level tests and the California Achievement Test reading scores. None of the thirty students in this sample

had been placed in special education classes for the educable mentally handicapped or gifted, nor were any of the children retained or accelerated in their school placement.

The random selection procedure was used to determine which group would receive the experimental treatment and which would serve as the control group. The experimental group consisted of fifteen students, nine boys and six girls. The control group consisted of fifteen students, seven boys and eight girls.

There were two female teachers involved in this study. Both teachers had taught at this particular school for approximately eighteen years. The teacher of the experimental group had been teaching a total of twenty years and the teacher of the control group had been teaching a total of twenty-three years. The participating teachers had earned a Rank 1 which is equivalent to approximately forty-eight hours of educational courses above the Master of Arts in Education.

Permission to conduct the study was obtained from the Superintendent of the School District, Director of Instruction, and the School Principal. Parents were initially informed about the study through personal contact with a follow-up letter which explained the study in detail. No subject participated in the study without parental written permission.



## Research Design and Procedures

A pretest/posttest quasi-experimental design which consisted of a control and an experimental group was used in this study. The total population of the study consisted of thirty students selected from two split fourth and fifth grade classrooms. Fifteen students in one classroom served as the experimental group and received the "Word-Study Integrated Spelling Instructional Model" approach. Fifteen students in the other classroom served as the control group and received the "Traditional Spelling Method."

The "Word-Study Integrated Spelling Instructional Model" stressed students' understanding of the meaning and use of spelling words; introduced and monitored students' use of strategies for learning to spell words; required students to frequently retrieve words from memory through various activities with immediate feedback and provided opportunities for students to utilize independent spelling study skills. The teacher of the experimental group was supplied with a weekly outline of spelling lesson plans, based on the "WSISIM" to study and follow. (See Appendix A, "Experimental Group Spelling Lesson Plan"). All questions and procedures were clarified prior to the beginning of the study.

The control group received instruction based on the "Traditional Spelling Method." The "Traditional Spelling Method" of instruction was largely based upon objectives

of the lessons in the commercial spelling basal. These lessons were supplemented each week by providing opportunity for the students to copy the words and define or write sentences with the weekly spelling words. The teacher of the control group used the basal spelling teachers' manual to assist in teaching the spelling lessons. (See Appendix B, "Control Group Spelling Lesson Plan").

The basic difference between the "WSISIM" and the "TSM" included the following. In the "WSISIM" approach, instructional time initially focused on students' understanding of the meaning and use of the spelling words. Much student-teacher interaction and student practice was involved. In the "TSM", time initially was spent by the teacher explaining directions from the spelling textbook to the students. In comparison to the "WSISIM", the "TSM" provided less student-teacher interaction, which has an effect upon students understanding the meaning of spelling words and knowing how to read the word. Another major factor which differentiated the "WSISIM" approach from the "TSM" was the manner in which the students were directed to study the spelling words. In the "WSISIM" approach, the students studied the spelling words using a teacher-directed and monitored word-study method. Students utilizing the "TSM" studied the words independently and were given no formal word-study method to use. An additional factor which separated the "WSISIM" from the "TSM"

was the manner and amount of times the students were required to retrieve the spelling words from memory. For example, the "WSISIM" approach required students to dictate the teacher's sentences containing the spelling words, while the control group wrote the sentences independently copying the spelling words from the textbook. Another point which differentiated the "WSISIM" from the "TSM" involved practice tests. In the "WSISIM" approach, the teacher allowed for frequent practice tests to enable students to retrieve the spelling words from memory and to immediately check the correctness or incorrectness of words. None or few spelling practice tests were administered by the teacher who used the "TSM" nor was opportunity provided for students to practice the spelling words by giving each other spelling tests. The "WSISIM" approach and the "TSM" were also different pertaining to the manner in which the students utilized the dictionary. Students utilizing the "WSISIM" were taught how to use the dictionary to check for the correct spelling and meaning of the words written from memory. Students instructed by the "TSM" used the dictionary and spelling textbook to copy the spelling words and the definitions of the words. Finally, in the "WSISIM" approach, the teacher directed and monitored all spelling activities. In the "TSM", teacher direction and monitoring of students' spelling activities was limited. (See Appendix C, "Comparison of



Spelling Procedures for the Experimental and the Control Group").

The instructional spelling approaches for the control and experimental group began at the beginning of the school year to establish a routine and avoid change in instructional procedures. The spelling instruction period consisted of twenty minutes each school day for both groups. Provisions were made to teach any spelling lesson missed by a student. Therefore, all instructional time was equalized for all students in both groups.

Each school week a new set of twenty spelling words were introduced to the students participating in the study. The spelling words used for each group were selected from the basal, Basic Goals in Spelling by Kottmeyer and Claus. All students at the same level received the same spelling words. The study extended over a period of twelve school weeks and a total of two hundred words were introduced to each student.

A spelling pretest was given at the beginning of each school week and again as a posttest at the end of each school week. In order to test students' retention of the spelling words over a period of time, a test containing fifty words was administered two weeks after the treatment was completed. The words for the test were randomly selected from the words studied during the experiment. Performance measures included: (a) number of correct words on pretests, (b) number of correct words on posttests, and

(c) number of correct words on retention tests. The total raw scores on the tests from the experimental group and the control group were calculated and compared to each other to measure spelling achievement.

In both groups all tests were administered in the following manner. The teacher (a) pronounced the word clearly for the student, (b) used the word in a sentence to show its meaning, (c) repronounced the word clearly again for the students, and (d) provided sufficient time for the subjects to write the word before continuing to the next word on the test.

All the tests from each group were scored by the researcher. One-third of each student's papers (pretests, posttests and retention tests) were checked by an independent grader. In every case interrater scoring agreement for accuracy or inaccuracy of individual words was 100%. On the pretests/posttests, incorrect responses were written out correctly beside the incorrect spelling for each student in both groups. All weekly pretests/posttests were returned to the students on the next school day. For the experimental group the teacher used the pretests to identify the most frequently misspelled words, so they could be focused upon during the weekly lessons. On the day after the pretests, students in the experimental group recorded the number of correct spelling words from the pretest on the chart in the individual spelling folder (See Appendix D, "Progress Chart"). Tests were kept in

the subjects' folders for the students' reference. In the control group the graded pretests were returned to the students to examine and use as preferred. No formal directions were given by the teacher. The teacher did not use the test for instructional purposes during the remainder of the week.

### Analysis of Data

The data for the two groups were summarized in the following manner. Each student was identified in terms of gender and belonging to the control or experimental group. The data were then summarized in terms of the number of words spelled correctly on the pretests, posttests and retention tests. The three null hypotheses were tested as follows:

#### Hypothesis One

The statistical t-test of independence for even groups was used to determine whether the difference between the spelling achievement scores obtained from the ten weekly posttests of the experimental and the control group were statistically significant at the .05 level of confidence.

#### Hypothesis Two

The statistical t-test of independence for even groups was used to determine whether the difference between the spelling achievement scores on the retention test for the experimental and control group were statistically significant at the .05 level of confidence.



### Hypothesis Three

The statistical  $t$ -test of independence for uneven groups was used to determine whether the difference between the spelling achievement scores of the boys and girls who received the "Word-Study Integrated Spelling Instructional Model" approach were statistically significant at the .05 level of confidence.

## CHAPTER 4

### Results

This chapter contains a summary of the data and tests of the hypotheses related to the study. The data were summarized and analyzed according to the procedures outlined in Chapter 3. The data analysis consisted of statistical testing of each of the three null hypotheses. For this purpose, appropriate data were extracted and shown in tables indicating the results for each test. A summary of the results completes the chapter.

#### Summary of Data

The data consisted of points accumulated for words spelled correctly. Each word spelled correctly accounted for one point on the pretests, posttests and retention tests. Weekly total points equaled twenty on each pre- and posttest. Points available on the retention test were fifty. The total possible score obtainable on the pre- or posttests was three thousand points, and seven hundred and fifty points on the retention test.

The total pretest raw score for the experimental group was 1949 and 1932 for the control group. Inspection of the total pretest raw scores revealed a seventeen point difference between the experimental and the control group.

Given the large number of total points available, there was less than one percentage point between the two groups. The pretest raw scores ranged from 53 to 178 for the experimental group and from 92 to 172 for the control groups.

The total posttest raw scores for the experimental group was 2776 and 2509 for the control group. Examination of the posttest total raw scores revealed a 267 point difference between the experimental group and the control group. There was a sizable difference of 8.01 percentage points between the two groups. The posttest scores showed a range of 139 to 199 for the experimental group and a range of 121 to 192 for the control group.

The total retention test raw scores for the experimental group was 628 and 514 for the control group. Comparison of the retention test total raw scores showed a 114 point difference between the experimental and the control group. The calculations showed a difference of 8.55 percentage points between the two groups.

In the experimental group, there was a difference of 827 points between the total pretest and posttest raw scores. In the control group, there was a difference of 577 points between the total pretest and posttest raw scores. Comparing the scores of the experimental group against the scores of the control group, the experimental group was 250 points higher on the posttest with a gain of 233 points. In the experimental group it was noted that the highest individual score gain from pretest to posttest



was 112 points, while the highest individual score gain from pretest to posttest for the control group was 79 points. In the experimental group the lowest individual score gain from pretest to posttest was 21 points, while the lowest score gain from the pretest to posttest for the control group was 19 points. Table 1 shows the comparison of the raw scores from the pretests, posttests, and retention tests for the experimental and control group.

Table 1

Comparison of the Pretest, Posttest, and Retention Test  
Raw Scores for the Experimental and Control Group

Total Student Number	Pretest			Posttest			Retention Test		
	E	C	D	E	C	D	E	C	D
1	178	172	6	199	192	7	50	46	4
2	172	158	14	198	188	10	49	43	6
3	170	151	19	197	174	23	49	39	10
4	166	150	16	199	169	30	47	32	15
5	164	145	19	195	189	6	46	44	2
6	152	145	7	193	192	1	48	39	9
7	152	131	21	187	170	17	43	35	8
8	141	120	21	196	152	44	45	37	8
9	138	118	20	184	176	8	39	34	5
10	125	117	8	196	155	41	45	35	10
11	98	115	17	166	156	10	24	32	8
12	89	114	25	176	153	23	38	26	12
13	86	109	23	174	188	14	28	19	9
14	65	95	30	177	121	56	36	27	9
15	53	92	39	139	134	5	41	26	15
Total	1949	1932	17	2776	2509	267	628	514	114

\*E=Experimental Group

C=Control Group

D=Differences

## Analysis of Data

### Null Hypothesis One

$H_{01}$ : There is no significant difference in the spelling achievement posttest scores of the students in the experimental group who receive instruction by the "Word-Study Integrated Spelling Instructional Model" versus the control group of students who receive the "Traditional Spelling Method." A statistical t-test of independence for even groups was applied to determine the difference between the mean total posttest scores of the experimental group and the control group. A  $t$  value equal to or greater than 2.048 would have been necessary to exceed the 0.05 level of significance. Therefore, the difference between the total mean spelling scores obtained from the posttests of the experimental and control group were statistically significant at the 0.05 level of confidence. The difference between the spelling scores obtained from the pretests of the experimental and control group were not statistically significant at the 0.05 level of confidence. indicating that groups were initially closely correlated. Further inspection of the data shows that the variance on the pretest was greater for the experimental group than for the control group, suggesting that the scores were initially more widely separated. However, following treatment, the variance was closer for the experimental group. Accordingly, the null hypothesis was

rejected and it was concluded that the mean spelling scores of the posttests of the participants in the experimental group were significantly greater than the mean spelling scores of the total posttests of the students in the control group. This information is illustrated in Table 2.

Table 2  
Mean Pretest and Posttest Differences Between  
the Control and Experimental Group

Test	Experimental Group			Control Group			Differences			t-value
	Y	S	S	Y	S	S	Y	S	S	
1	129.93	1720.92	41.48	128.8	558.74	23.63	1.13	1162.18	17.85	.0919
2	185.06	275.63	16.60	167.26	474.92	21.79	17.80	199.29	5.19	2.51

\*Significant at the .05 level of confidence.

1 = Pretest

2 = Posttest

### Null Hypothesis Two

$H_0$ : There is no significant difference in the spelling achievement scores on the spelling retention test for the experimental group of students who received the "Word-Study Integrated Spelling Instructional Model" and the students in the control group who received the "Traditional Spelling Method." A statistical t-test of independence for even groups was applied to determine the difference between the mean spelling achievement scores obtained from the total retention test scores in the experimental group and the control group. The difference between the mean spelling achievement scores on the retention tests of the experimental and the control group



were statistically significant at the .05 level of confidence. Therefore, the null hypothesis was rejected and it was concluded that the mean spelling achievement scores on the retention tests of the students in the sample receiving the experimental treatment were significantly greater than the mean achievement spelling scores on the retention tests of students in the control group. Table 3 shows a comparison of the two scores.

Table 3

Mean, Standard Deviation, Variance, and Differences in Retention Test Scores Between the Control and Experimental Group

	Group		Differences	t-value
	Experimental	Control		
$\bar{X}$	34.27	41.87	7.6	*2.72
$S^2$	56.78	59.98	3.2	
S	7.53	7.74	.21	

\*Significant at the .05 level of confidence, p 2.048.  
 1+1 critical t, p 0.05,  $H_0$  rejected.

### Null Hypothesis Three

$H_{03}$ : There is no significant difference between the spelling achievement scores on the posttests of the boys and girls in the experimental group who receive the "Word-Study Integrated Spelling Instructional Model" approach. A t-test of independence for uneven groups was applied to determine the difference between the mean spelling achievement scores

obtained from the ten weekly posttests for the experimental groups. The difference between the mean spelling achievement scores obtained from the posttests of the experimental boys and girls was not statistically significant at the .05 level of confidence. A t-value equal to or greater than 2.16 would have been necessary to exceed the .05 level of significance. Accordingly, the null hypothesis was accepted and it was concluded that the mean achievement scores from the total posttests of the boys in the experimental group were not significantly greater than the mean spelling achievement scores from the total posttests of the girls in the same experimental group. (See Table 4).

Table 4

Mean, Standard Deviation, and Differences in Posttest Scores Between the Boys and Girls in the Experimental Group

	Group		Differences	t-value
	Boys	Girls		
$\bar{X}$	179.44	193.5	14.06	1.714
S	18.31	9.65	8.66	

p 2.16

### Summary of Results

For the experimental group of students receiving instruction by the "Word-Study Integrated Spelling Instructional Model" the mean spelling achievement scores on the total posttests were significantly greater than the mean

achievement spelling scores on the total posttests of the students in the control group receiving the "Traditional Spelling Method." The mean spelling achievement scores on the retention test of students in the experimental group were also significantly greater than the mean achievement spelling scores on the retention test of students in the control group. In addition, no significant difference was found in the mean achievement scores on the total posttests between the boys and girls in the sample receiving instruction by the "Word-Study Integrated Spelling Instructional Model."

The "Word-Study Integrated Spelling Instructional Model" approach appears to be as beneficial for boys as it is for girls. Further implications reveal the "Word-Study Integrated Spelling Instructional Model" approach may be a more effective teaching method for increasing boys and girls spelling achievement level than the "Traditional Spelling Method" at the fourth and fifth grade level.



## CHAPTER 5

### Summary, Conclusions, and Recommendations

#### Summary

The purpose of the study was to investigate the effects of the "Word-Study Integrated Spelling Instructional Model" versus the "Traditional Spelling Method" on fourth and fifth grade students' spelling achievement. The study focused on three research questions:

1. Will there be a significant difference in the spelling achievement scores of students in the experimental group who receive instruction by the "Word-Study Integrated Spelling Instructional Model" versus the control group of students who receive the "Traditional Spelling Method"?

2. Will there be a significant difference in the spelling achievement scores on the spelling retention test for the experimental group of students who receive the "Word-Study Integrated Spelling Instructional Model" and the students in the control group who receive the "Traditional Spelling Method"?

3. Will there be a significant difference between the spelling achievement scores on the posttests of the boys and girls in the experimental group who receive the "Word-Study Integrated Spelling Instructional Model" approach?

A review of the literature was used as a foundation to develop the strategies incorporated into the "Word-study Integrated Instructional Model." These strategies included the following:

1. Students' spelling achievement improves when utilizing a systematic method for learning to spell new and/or difficult words.
2. Children's spelling improvement is related to word study methods which utilize a multi-sensory approach.
3. Subjects' spelling performance is affected by the degree and amount of times words are retrieved from memory.
4. Individuals' spelling achievement coincides with the understanding of the meaning of spelling words.
5. Students' spelling ability is affiliated with the application of spelling words in various kinds of writing.

While the literature described a number of studies offering evidence that these teaching strategies incorporated into the "WSISIM" would have an impact on academic performance, none of the sources available dealt directly with "WSISIM." Therefore, the present study was specifically designed to investigate the relationship between the program developed and the students' spelling achievement.

The literature review supplied ample evidence that children need to know a systematic method for learning to spell new and/or difficult words. When referring to a direct word study method, most researchers advocated a multi-sensory approach. In addition, it was found the

degree and amount of time used by learners to retrieve words from memory was critical to learning to spell. Also, the more meaning a word had for children the more easily the spelling of the word was learned. Therefore, students need considerable practice in applying spelling skills through various kinds of writing activities. However, evidence in the literature suggested that teachers do not apply these basic principles to teach spelling.

The empirical part of the study involved a sample of thirty fourth and fifth grade students which included fourteen girls and sixteen boys. The elementary school where the study was conducted was located in the southeastern section of the United States. A pretest/posttest quasi-experimental design which consisted of a control and an experimental group was used in this study. Fifteen students in one classroom served as the experimental group and received the "WSISIM" approach. Fifteen other students in another classroom served as the control group and received the "TSM". Students' spelling performance was measured prior to and following the treatments. Performance measures included: (a) number of correct words on pretests, (b) number of correct words on posttests, and (c) number of correct words on retention tests. The total raw scores obtained from the experimental group and the control group were calculated and compared to each other to measure spelling achievement.

The data consisted of points accumulated for words



spelled correctly. Each word spelled correctly accounted for one point on the pretest, posttest and retention tests. The data were analyzed at the 0.05 level of confidence using  $t$  tests. For the experimental group of students receiving instruction by the "WSISIM" the mean spelling achievement scores on the total posttests were significantly greater than the mean achievement spelling scores on the total posttests of the students in the control group receiving the "TSM". The mean spelling achievement scores on the retention test of students in the sample receiving instruction by the "WSISIM" were also significantly greater than the mean achievement spelling scores on the retention tests of students in the sample receiving instruction by the "TSM". There was no significant difference between the total spelling achievement pretest scores of the experimental group and control group. In addition, no significant difference was found in the mean achievement scores on the total posttests between the boys and girls in the sample receiving instruction by the "WSISIM".

When examining the range differences in raw scores on pretests, posttests and the retention test the following information was identified:

1. The pretest raw scores exposed a range of 125 points for the experimental group and a range of 80 points for the control group, a difference of 45 points between the two groups. In other words, the experimental group of scores on the pretest were more spread out than those of the control group on the same pretest.

2. The posttest raw scores revealed a range of 60 points for the experimental group and a range of 71 points for the control group, a difference of 11 points between the two groups. Although both group scores moved closer to the mean on the posttest, the experimental group scores moved much closer around the mean in relation to the range of scores on the pretest. A total difference of 65 points closer for the experimental group and nine points closer for the control group, from pretest to posttest. A total gain difference of 56 points for the experimental group.

3. The retention test raw scores exhibited a range of 26 points for the experimental group and a range of 25 points for the control group, with a difference of one point. Although, there was a significant difference in the spelling retention test scores of the experimental group and the control, in favor of the experimental group. This data is illustrated in Table 1.

A statistical t-test of independence for even groups was applied to determine the relationship between the mean spelling achievement pretest scores of the experimental and control group. Comparison of the two groups demonstrated that the scores of the experimental group were much more spread out than the scores of the control group. However, the difference between the spelling scores obtained from the pretests of the experimental and control group were not statistically significant at the 0.05 level of confidence. A t value equal to or greater than 2.048 would have been

necessary to exceed the 0.05 level of significance. Therefore, it was assumed that the achievement pretest scores of students in the experimental group were not significantly greater than the control group.

### Conclusions

There were three major conclusions:

1. Students' spelling academic scores were significantly greater when utilizing the "WSISIM" rather than the "TSM".
2. Children's spelling retention scores were significantly greater when applying the "WSISIM" as opposed to the "TSM".
3. Boys' and girls' spelling achievement scores were not significantly different when instructed by the "WSISIM".

These three conclusions of the empirical research were consistent with the literature. However, future research should devote more attention to individual teacher differences when utilizing the "WSISIM". A major problem would be the establishment of an accurate measure of teacher expectations with respect to students' ability level. Once established, this measure could then be correlated with teacher behavior utilizing the "WSISIM" and students' spelling achievement.

The mean retention test scores revealed a mean difference of 7.6 points between the experimental and control group. The mean total raw score of the experimental group was only slightly higher than that of the control



group. As stated earlier, there was no significant difference between the two groups on the retention test. The standard deviation and variance of the two groups were also approximately the same.

Examining the differences between the mean posttest scores of the boys and girls in the experimental group revealed a difference of 14.06 points. Further examination between the boys and girls in the experimental group showed that although the mean scores were approximately the same, the standard deviation of scores for the boys was greater than that of the girls by a difference of 8.66 points. Therefore, the scores of the boys were slightly more spread out around the mean than those of the girls in the experimental group.

### Recommendations

A number of recommendations are being made as a result of the study.

1. It is recommended that the spelling teaching technique be duplicated, since it is the first study conducted utilizing the "WSISIM".

2. It is recommended that the present research study be duplicated with other more diverse populations. There is a lack of research documenting how the "WSISIM" versus the "TSM" affects spelling achievement with various populations.

3. It is recommended that in replicating the present research with other samples teacher expectation be documented

by reliable and valid measuring instruments. It is entirely possible that teacher expectations may have influenced the results of this study.

4. It is recommended that greater emphasis in future studies be placed on individual teacher differences and the role they play in influencing the various relationships researched in the present study. What teacher behaviors influence spelling achievement regardless of methodology used (for example, the belief that all students can learn)?

5. It is recommended that this study be replicated utilizing both treatments with the same teacher to alleviate teacher differences.

6. It is recommended that if the study is carried out by the same teacher one school year should be devoted to the "WSISIM" and another year to the "TSM". This would help to avoid the influence of change during the same year.

7. It is recommended that the study be carried out over a longer period of time to measure spelling retention.

8. It is recommended that replicated studies be conducted at least a year after the implementation of the treatment to avoid the effects of the new methodology's initial influence on students' learning (i.e. motivation).

9. It is recommended that the implications of the present study be made available to and used by teacher training institutions. Teachers should be aware of teaching techniques/principles useful for enhancing the learning process.

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## APPENDICES



## APPENDIX A

Experimental Group Spelling Lesson PlansActivities for Monday:

1. Administer pretest over spelling words in weekly lesson to students. (Each word will be stated, used in the given sentence and restated by the teacher, giving students time to write the words on paper. No words will be repeated after the test.)
2. The teacher reads the words to the student and assists individual students (if necessary) in reading the words correctly to the class. (Words are displayed for all students to see and pointed to as they are read.)
3.
  - (a) The teacher and/or individual students define and use each spelling word in a sentence correctly for the class. Each word is "pointed out" as it is discussed, (for example, a child or teacher may point to the word, underline the word or place a marker by the word).
  - (b) Students are directed and assisted in locating some of the definitions of unfamiliar words in the spelling book glossary or dictionary. Individual students share these definitions with the class.
  - (c) Sentences and/or definitions are written for words students are unfamiliar with and displayed for all students to see and read.
4. The teacher checks to see if students can read the spelling words by asking students to read various words.
5. The teacher checks to see if students know the meaning of the spelling words. This is done by one or a combination of the following activities:
  - (a) The students write a correct sentence and/or definition on the chalkboard, overhead projector or chart, for the spelling word. (The teacher may write the students' sentences or definitions.)

- (b) Students will write a sentence with a spelling word(s) to create a story on the chalkboard, overhead projector or chart. (The teacher may write the students' sentences.)
- (c) The students write sentences and/or definitions with the spelling words on their sentence strips and share them with the class.
- (d) Some students and/or the teacher will write sentences or definitions for the rest of the class to supply the missing spelling word, (on the chalkboard, overhead projector, chart or sentence strips).
- (e) The students supply missing spelling words from prepared short stories or passages. Then they will share their answers with the class and tell why they fit in the sentence.

### Activities for Tuesday:

1. Complete items number 4 and 5 from Monday with the remainder of the spelling words.
2. The teacher directs the whole class through the word-study practice for each spelling word, using the overhead projector. The steps are:
  - (a) Look at the word on the overhead projector, carefully.
  - (b) Pronounce the word correctly.
  - (c) Discuss the features of the words, examine their similarities and differences compared to other words, examine sound-symbol association and practice spelling words by syllables or morphemes, apply generalizations or orthographic rules if applicable, focus on the words' hard spots (highlight them with colored markers) and develop mnemonic devices to help students remember how to spell the words (example, a friend till the end), etc. Refer to teacher's spelling manual for suggestions.
  - (d) Close eyes and try to picture the word in your mind as if the black letters are on a large white outdoor screen. Other suggested activities to keep the image stabilized:
    - Imagine the word is created from large metallic letters with holes punched in the top and bottom to accommodate "fantasy nails" and stabilize the image.
    - Imagine "fantasy paste" being applied to the backs of the letters to glue the word in place.



- Shine a "fantasy floodlight" on the image of the word until it is fixed in the mind.
- (e) Try to keep the word in your mind for about 50 seconds and form the letters, (from the word in your mind) on your desk, with your fingers.
- (f) Open eyes and check image with original spelling.
- (g) Write the word on your paper without looking and check to see if your spelling is correct.
- (h) Continue steps (d) through (g) four more times, and if necessary, repeat steps (a) through (c) also. Remind students that this is a self-study technique for learning new or difficult words.

### Activities for Wednesday:

1. Complete item number 2 from Tuesday with the remaining spelling words.
2. The teacher dictates sentences with half the spelling words, to the student. (Sentences may contain more than one spelling word.)
3. The teacher directs the students as a group and individually to check the spelling of some of the spelling words using the dictionary. The teacher monitors, teaches dictionary skills and the process of elimination to locate misspelled spelling words. Then the students are given the correct spelling for the remaining words to check their spelling. Students are directed to correct all misspelled words.
4. The students take a practice posttest given by the teacher and self-check their spelling words as a group. (Teacher calls on students to spell the words correctly. Teacher or individual students write the word on the chalkboard, chart or overhead projector for all students to check their own spelling for the word, visually, too.)
5. The students use the word-study method to practice spelling the words missed. (Students are monitored by the teacher walking around the room and individually checking to see if they are using the word-study method correctly. Assistance is given to help students follow the steps correctly.)



### Activities for Thursday:

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1. The teacher dictates sentences with the second half of the spelling words to the students.
2. Follow steps 3 through 5 from Wednesday.

### Activities for Friday:

1. The teacher directs the students to study their spelling words for the first seven minutes of spelling class. (Students are monitored by the teacher walking around and individually checking to see if they are using the word-study method correctly. Assistance is given to help students follow the steps correctly.)
2. The students take their posttest over the spelling words in the weekly lesson. Each word will be stated, used in a sentence and restated by the teacher, giving students time to write the words on their papers. No words will be restated after the test.

### Materials for Monday-Friday:

1. Teacher's spelling manuals
2. Students' dictionaries or spelling book glossaries
3. Students' paper and pencils
4. Chart with spelling words
5. Chalkboard and chalk, overhead projector, sentence strips and/or chart paper
6. Markers

## APPENDIX B

Control Group Spelling Lesson PlansActivities for Monday:

1. Administer pretest over spelling words in weekly lesson to students. (Each word will be stated, used in the given sentence and restated by the teacher, giving students time to write the words on their paper. No words will be repeated after the test.)
2. The teacher discusses the rule(s) or generalization(s) for the weekly spelling words.
3. The teacher explains directions from the students spelling textbook for their daily lesson.
4. Students are directed to complete approximately half of the weekly textbook exercises for the lesson in written form.
5. The teacher checks the students' work and returns it with corrections if necessary.

Activities for Tuesday:

1. The teacher explains directions from the students' spelling textbook for their daily lesson.
2. Students are directed to complete the weekly textbook exercises for the lesson in written form.
3. The teacher checks the students' work and returns it with corrections if necessary.

Activities for Wednesday:

1. The students are directed to write definitions with their spelling words.
2. The teacher checks by making spelling corrections, etc. and returns them to the students the following school day.

Activities for Thursday:

1. The students are directed to write sentences with some of their spelling words.
2. The students are directed to study their spelling words by writing them five times each.
3. The teacher checks the students' sentences and makes necessary corrections, then returns the students' paper the following school day.

Activities for Friday:

1. The teacher directs the students to study their spelling words for the first seven minutes of spelling class. (Students are monitored by the teacher walking around and individually checking to see if students are studying the words in some manner.)
2. The students take their posttest over the spelling words in the weekly lesson. Each word will be stated, used in a sentence and restated by the teacher, giving students time to write the words on their papers. No words will be restated after the test.

Materials for Monday-Friday:

1. Teacher's spelling manuals
2. Students' spelling books
3. Students' dictionaries or spelling book glossaries
4. Students' paper and pencils



## APPENDIX C

Comparison of the Spelling Procedures for the  
Experimental and the Control Group

ExperimentalVersusControl

- |  |  |
|--|--|
| <p>1. Time initially is spent making sure students understand the meaning of the words. Students practice stating the words correctly, seeing them written and writing them.</p> | <p>1. Time initially is spent making sure students understand directions in the basal to complete their spelling lesson independently. The teacher reads the spelling words to students. Little teacher checking or student practice is provided to determine if students understand the words or their ability to spell them.</p> |
| <p>2. Students write words using a teacher directed and monitored word-study method.</p>   | <p>2. Students write words independently, given no word-study method to use.</p>   |
| <p>3. Sentence dictation requires students to retrieve the spelling words from memory.</p>   | <p>3. Independent sentence writing requires students only to copy spelling words.</p>  |
| <p>4. Students learn how to self check, to see if their words are spelled correctly and identify their definitions using the dictionary or spelling book glossary.</p>           | <p>4. Students learn how to copy their spelling words and definitions from the spelling book glossary or dictionary.</p>   |

5. Frequent practice tests to retrieve words from memory.

6. Teacher direction and monitoring of all spelling activities.

5. No or few practice tests.

6. Limited teacher direction and monitoring of spelling activities.

Name \_\_\_\_\_ Beginning Date \_\_\_\_\_ Ending Date \_\_\_\_\_

Pretest 1

Post Test 1

Pretest 2

Post Test 2

Pretest 3

Post Test 3

Pretest 4

Post Test 4

Pretest 5

Post Test 5

Pretest 6

Post Test 6

Pretest 7

Post Test 7

Pretest 8

Post Test 8

Pretest 9

Post Test 9

Pretest 10



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