Developmental Spelling Analysis and Word Study: An Alternative to Traditional Spelling Programs

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Developmental Spelling Analysis and Word Study:
An Alternative to Traditional
Spelling Programs

By
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A Thesis submitted to the
Department of Education and Human Development
In partial fulfillment of the requirements for the degree of
Master of Science in Education
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Dedicated

In memory of my friend and colleague

Leonard "Len" O'Lare
1971-2000

May his love of knowledge and education live on in the field of teaching.
Abstract

The purpose of this study was to investigate the benefits of a developmental spelling program utilizing word study as the primary mode of spelling instruction versus a homogenously based traditional spelling program.

Twenty-eight first grade students were administered a developmental spelling inventory to determine their stage of orthographic development. The stages were Preliterate Stage, Early Letter Name stage, Letter Name stage, or Within Word Pattern stage.

Fourteen students in the control group received spelling instruction in a whole group setting from their classroom teacher. A traditional spelling program including weekly spelling lists were utilized. A word study based program focusing on each students’ developmental level was utilized with the experimental group. These students were placed in homogenous word study groups of three to five students according to their determined level. All students met three times per week for a three-month period.

A pretest and posttest of the developmental spelling analysis was used to identify quantitative data of student progress after the three-month treatment. Out of 14 students in the experimental group, nine improved by one level while three improved by two levels. Two students showed no growth over the period. In the experimental group, 86% of students showed growth. In the control group nine students out of 14 showed an increase of one level of developmental function while five showed no growth over the three-month period. Overall, 64% of the students in the control group showed growth.
# TABLE OF CONTENTS

**Chapter II**  
Statement of the Problem .................................................. 1  
  Purpose ................................................................. 1  
  Introduction ......................................................... 1  
  Need for the Study .................................................. 2  
  Research Question .................................................. 3

**Chapter II**  
Review of the Literature .................................................. 4  
  History of Spelling ..................................................... 5  
  Structure of Words .................................................... 6  
  Three Paradigms of Spelling Instruction ............................ 7  
  Focus of Study .......................................................... 9

**Chapter III**  
Design of the Study ....................................................... 11  
  Purpose ................................................................. 11  
  Research Question .................................................... 11  
  Methodology ............................................................. 11  
  Analysis of Findings .................................................. 16

**Chapter IV**  
Analysis and Interpretation of the Data ............................... 17  
  Purpose ................................................................. 17  
  Research Question .................................................... 17  
  Analysis of Findings .................................................. 17

**Chapter V**  
Findings and Analysis .................................................... 21  
  Purpose and Conclusions .............................................. 21  
  Implications for Future Research .................................... 24  
  Implications for Classroom .......................................... 25

**Appendix**  
  Definition of Terms Utilized ....................................... 28  
  Stages of Spelling .................................................... 31  
  Pretest and Posttest Samples ....................................... 33

**References** ........................................................................ 38
CHAPTER I

Statement of the Problem

Purpose

The purpose of this study was to investigate the benefits of a developmental spelling program utilizing word study as the primary mode of spelling instruction versus a traditional spelling program.

Introduction

How words are learned has always been a question for which researchers and educators have had a variety of theories. There are many social, biological, and cognitive forces that support the development of oral and written language skills in children. As educators we must identify the most strategic and effective way to unlock the mystery of the written language for heterogeneous groups of students. Traditionally, we have treated students as one functioning group when it comes to providing spelling instruction. This is not a successful stance to take as the varying developmental levels of children within a classroom setting can possibly range from pre-literate to more sophisticated levels of ability. Using developmental spelling assessments allows educators to meet the needs of each student through specifically identifying the level of functioning at which each child engages with the written word.

Socially children gain knowledge about words and patterns whether it be language they hear on the playground, in their home, or at nursery school. Children are socially motivated to become literate. Biological forces ensure that spoken language is innate (Lenneberg, 1967; Lieberman, 1991). These forces, however, do not innately preprogram reading and writing. Cognitive forces help children learn written words. The form of written words is called orthography or spelling. Children’s knowledge of orthography, just like oral language, is
incomplete initially and grows through experience with words in an orthographic context (Bear, Johnston, Invernizzi, & Templeton, 1996). Using categorization, rules, and criteria for determining likeness and differences between words, orthographic understanding develops and matures.

**Need for the Study**

There have been a variety of studies that have led to implications for classroom spelling programs and models of development. However, studies comparing and contrasting traditional programs versus developmental spelling programs have not been conducted to date.

Frith's model of spelling development suggests that normal reading and spelling development do not develop at the same rate and that adoption and use of strategy in one domain may serve as a pacemaker for development of that strategy in the other. (Frith, 1980) I propose that a developmental spelling program is far more effective than homogenous spelling instruction due to a mismatch of development and activities provided by teachers in traditional programs. A developmental spelling program recognizes the need for synchrony between orthographic development and reading skills. The relationship between orthographic knowledge and reading fluency has been documented throughout the developmental sequence from emergent through more specialized stages of development (Templeton & Bear, 1992).

Donald Bear attests that orthographic knowledge must develop primarily to build fluent readers. His studies indicate that a top down approach of word study fosters oral reading and eventually fluency. He listed several pedagogical implications including the fact that teachers need to differentiate spelling instruction to meet individual needs of students (Bear, 1989).
Bear also addressed the current understanding of spelling development and how this must fit with a broader model of literacy development. The need to balance spelling instruction with authentic reading and writing was an implication for this study. Due to the fact that students manipulate words in a developmental spelling program that they are interacting with as a unit (poetry, story), an authentic use for the word study activities is evident. Word study fits in a well-balanced literature program. Baumann and Ivey (1997) determined that a balanced literacy program that lends itself to individual needs fosters student knowledge, interest, and positive attitudes toward academic situations.

Many studies have been conducted to correlate reading ability and developmental spelling. Developmental spelling stages were identified for an experimental group of students in a study by Yerdomn (1994). A strong positive relationship between word recognition and spelling scores was found. It was concluded that students should be given instructional strategies in spelling at their developmental level, which promotes orthographic mastery.

**Research Question**

Will a developmental spelling program based upon individual levels of functioning benefit students more than homogenously grouped students in a traditional spelling program?
CHAPTER II

Review of Literature

Purpose

The purpose of this study was to investigate the benefits of a developmental spelling program utilizing word study as the primary mode of spelling instruction versus a traditional spelling program.

Review of Literature

Orthographic skill is the art of writing words with the proper letters according to standard usage and the representation of the sounds of a language by written or printed symbols (Webster, 2000). In other words, "orthography" refers to how words look. Looking at rimes/onsets and parts of words, with extensive practice at the alphabetic stage, children learn such general letter-sound patterns and store them in memory as units. Evidence suggests that as early as second grade, children begin to become aware of orthographic patterns (Abouzeid & Pymen, 1994). Orthographic skills continue to develop through the elementary grades. Spelling instruction needs to be composed of regular but separate periods of explicit skills instruction and literacy based experiences (Asselin, 1999). Theoretically, children acquire sight words primarily as orthographic units.
**History of Spelling Pedagogy**

For centuries, the importance of spelling as part of the process of literacy development has received great attention and debate. At the beginning of the twentieth century the manner of spelling English was quoted as follows “(Spelling) wastes a large part of time and instruction given to our students…moreover, the printing, typing, and handwriting of the useless letters which our spelling prescribes, and upon which its difficulty chiefly rests, wastes every year millions of dollars, and time and effort worth million more” (Simplified Spelling Board, 1906, p. 7). At this point in history, reform of the English language was highly debated. There were supporters of changing the English language to make it easier to write and more closely match phonetic speech (Venezky, 1980).

It was not until the second half of the century that two major works influenced the understanding that spelling had a more sophisticated and predictable pattern than the once believed “unpredictable” patterns of the English language. Chomske and Halle (1968) suggested that a word’s spelling contained enough information in order for a native speaker of English to predict the pronunciation. The example provided was this set of words: compete, competition, and competitive. Despite slight alterations, all three are predictable. They provided proof that language users derive surface phonetic representation of a word from its underlying lexical representation. Venesky (1970) took this idea further. He actually created a morphophonological description of how spelling corresponds to speech: the meaning and structure of spelling that plays a strong role in spelling and pronouncing individual phonemes.

Henderson and Templeton (1986) took this belief and explained the three layers of information that spelling represents. They are outlined in the following section.
Structure of Words related to Orthographic Development

(Based upon Henderson and Templeton, 1986)

Alphabetic: Our spelling system is alphabetic by nature. It consists of relationships between letters and sounds. Sounds are represented by a single letter or sometimes two letters paired together which are blended to create a word. This first layer of spelling is based on a left to right progression.

Pattern: Pattern goes beyond single letter sounds and focuses on the guide of grouping letters together that make consistent and matching sounds. Groups of letters that represent certain pronunciations within a single syllable are patterns that are a more sophisticated layer to the alphabetic stage. There also are letters that have an effect on the letters that surround it (i.e. r controlled vowels). Letters within patterns can also have an effect on the sound (silent e). Syllables follow patterns as well (i.e. VCCV) which can help students figure out a variety of words based upon their structure. If students possess knowledge of patterns in spelling, they will develop orthographic skills on which they can rely.

Meaning: Overarching both alphabetic and pattern knowledge is the layer of meaning. Letters grouped together can represent certain meanings. If students learn the meaning of prefixes, suffixes, and Latin stems, their orthographic skills greatly increase. This is the highest level of development commonly referred to as derivational constancy.

Edmund Henderson’s influential work Teaching Spelling (1990) commented “History has a remarkable way of repeating itself in new and better forms. This is certainly true for the teaching of spelling”. Henderson was referring to the nature of spelling instruction up until the
late 1800s. At this time in history spelling instruction focused on the alphabet, short vowel combinations, and eventually sight words. Spelling was viewed as a useful important element of the English language. Throughout the early and mid 1900s, spelling instruction was viewed as a means to express oneself in writing and not a branch of knowledge that needed to be addressed on a developmental level.

Venessky (1980) addressed the lack of emphasis on spelling instruction in the world of education. His pursuit to improve the quality and use of spelling instruction led to more readily identifiable programs in the late 1980s and 1990s. Spelling, which was almost neglected at this point in history, became part of the classroom agenda but viewed more as a “tool” for writing rather than a central focus of instruction. Due to standardized test scores in the mid to late 1990s and a closer look at what education was lacking, Adams, Ehri, and Perfetti (1993) produced research that supported the fact that spelling needed to be recognized as an underlying “proxy” for becoming a fluent writer and reader. Orthographic and spelling development is now being seen as a specific scaffold of student understanding and skill base which requires close monitoring in order to reach mastery.

Three Paradigms of Spelling Instruction

An article that compares and contrasts three different paradigms of spelling instruction gives evidence as to which type of program would be most successful. It is interesting that the author determined there are three overarching theories of spelling instruction. (Taylor, 1998). In the Traditional Paradigm classified by this author, spelling was taught passively through imitation, memorization, and rote learning. It was presumed that spelling knowledge acquired
this way would logically transfer to accurate spelling in their daily work. Challenges to this
traditional paradigm have been brought up through the years and now most educators agree that
learning to spell is a complex, intricate cognitive and linguistic process rather than one of rote
memorization. The view of students being an “empty vessel” was challenged by research
suggesting that students form basic concepts of how words “work” in word sort activities (Zutell,
1992). Also, research suggesting that only 46% of phonetic function is useful in English words
(Raves, 1994) strengthened the theory that spelling is more complex than a rote task. Several
studies also suggest that spelling is learned through integrating phonetic, graphovisual, and
meaning function rather than phonetics alone (Carlisle, 1985; Cherrington, 1985; Waters, Bruck,
& Malus-Abramnowitz, 1988). The most critical concerns were raised about the exclusive use
of formal spelling programs after it was reported that at the end of fourth grade, students who had
received no formal instruction could spell as well or better than those who had experienced formal

The second paradigm was referred to as a *Transitional Model*. It has two main features:
integration of numerous spelling strategies and significance of reading in learning to spell. These
aforementioned features emerged because phonetics alone could not explain the spelling of half of
all English words (Bareness, 1982; Templeton, 1980). Although several integration theories
evolved over the past decade, Ihara’s amalgamation theory (1994) proposed the greater
interconnectedness among phonology, morphology, orthography, and semantic/syntactic features.
In support of this integrated theory a study showed fourth through sixth graders displayed an
improvement in using a program which combined phonetic, semantic visual/graphic, and reading
functions (Carlisle 1985; Cherrington, 1985; Waters et al., 1988).
The third paradigm is the one I support in this thesis. It is a developmental spelling program commonly referred to as Word Study, which offers a variety of phonetic, orthographic, semantic/syntactic, and visual graphic activities based upon a student’s individual level of functioning. Several researchers have advocated word study as a way to reinforce phonetic, visual, and semantic knowledge. According to Bear and Templeton (1992), doing a word study program with words grouped closely and studied using orthographic principles, comparison, contrasting, sorting, and manipulation of words based upon patterns used within and outside of the context of reading, students mastery of orthographic function can be greatly improved along with their reading skills.

Focus of the Study

Through repeated exposure to words and letter-sound correspondences, children will develop orthographic function (spelling ability). Teachers need to support students in developing orthographic skills gradually by first becoming familiar with the building blocks that form the patterns: letter-sound relationships at the student’s developmental level. Through supporting students in orthographic knowledge skill, the relationships between letters of the alphabet and phonemes, the sounds that convey meaning in our language, can be mastered. Some educators believe that spelling cannot be "taught." They believe that reading experience and maturation alone may be sufficient for students to make the transition from phonetic to lexical spelling unaided. This is not true. Peters (1970) found in her research that "rational, systematic teaching" plays a major role in helping young writers with English spelling.

A wide variety of developmental spelling analysis programs developed by researchers exist and are utilized by educators. Teachers can screen students for their present stages of
orthographic development in an easy-to-administer format. The planning of developmentally appropriate activities for spelling instruction depends upon informed teachers who come to terms with the specific needs of a group of students. Based on the Developmental Spelling Analysis (Bear, Invernizzi, Templeton, & Johnston, 1996), teachers identify specific levels of orthographic development and design instruction that meets the diagnosed needs of each student. Monitoring and adjusting the level and focus of instruction periodically throughout the school year fosters individual student growth. Thoughtful teachers can, through assessment, pinpoint children's present theories about how words work and then design instruction using word sorts, word hunts, and other variations of word study that encourage children to achieve the highest levels of critical thinking (Abouzeid & Pymen, 1994). Vocabulary utilized frequently while discussing developmental spelling can be found in Appendix A.
CHAPTER III
Design of the Study

Purpose
The purpose of this study is to investigate the benefits of a developmental spelling program utilizing word study as the primary mode of spelling instruction versus a traditional spelling program.

Research Question
Will a developmental spelling program based upon individual levels of functioning benefit students more than homogenously grouped students in a traditional spelling program?

Methodology

Subjects
Twenty-eight heterogeneously grouped first grade students were administered a developmental spelling inventory to determine their stage of orthographic development. Fourteen experimental students were placed in homogenous word study groups of three to five students according to their determined level. The stages were Preliterate stage, Early Letter Name stage, Letter Name stage, or Within Word Pattern stage. The stages are described in detail in Appendix B. Fourteen students were part of the control group and received spelling instruction in a whole group setting from their classroom teacher.
**Distribution of Groups**

**EXPERIMENTAL GROUP:**
- Preliterate Stage: 2 students
- Early Letter Name Stage: 3 students
- Letter Name Stage: 5 students
- Within Word Stage: 4 students

**CONTROL GROUP:**
- Preliterate Stage: 1 student
- Early Letter Name Stage: 3 students
- Letter Name Stage: 7 students
- Within Word Stage: 3 students

**Materials**

A developmental spelling inventory from *Words Their Way* textbook (Bear, Invernizzi, Templeton, & Johnston, 1996) was utilized to determine levels of orthographic functioning. Students used word cards with whole words, rimes, and onsets as they engaged in word study activities. They also utilized blank word cards to be used for words they offered during word study activities. A variety of alphabet cards were used for students to create words. Poetry, trade books, and their daily writing journals were utilized as well to integrate the process of spelling, writing, and reading. Extensive workshops and training have given background knowledge as to how word study should be carried out using the *Words Their Way* textbook.
**Procedures**

The researcher and the classroom teacher were both trained in how to manage word study groups and spent time dialoging about the process used (activities prepared through word study program) and progress of groups.

The first Developmental Spelling Inventory was administered in October 2000. It was administered in small random groups. When a student reached frustration level, he or she was directed to stop if so desired. Tests were used to determine the level of orthographic functioning of each student. Though a larger sampling could have led to more valid results, managing more than 14 students was not possible due to limitations in the scheduled block of spelling instruction. Students who were functioning within the first four developmental levels of spelling (Preliterate stage, Early Letter Name stage, Letter Name stage, or Within Word Pattern stage) were used for the study. All plans for each lesson were kept and anecdotal notes were made regarding student progress. Classroom writing samples, which showed transfer of orthographic skills, were used to show growth. Each group met three times per week for a half hour period.

**Activities for spelling in control group prescribed by classroom teacher**

The control group received traditional spelling instruction including weekly spelling lists (which consisted of words that were related orthographically or thematically). Students wrote the words in contextual sentences, created spelling riddles, and wrote each word several times per week to theoretically memorize the spelling through rote activities. Students met three times per week for a three-month period.
Monday: Twelve spelling words are given to students. Each word is written five times in journal.

Wednesday: Spelling words written five times neatly and checked by teacher for completion.

Assignments for rest of week include:

- write each word in a contextual sentence.
- practice spelling words aloud with a partner
- repetitive spelling of word
- spelling riddles written

Friday: spelling test given with scores compiled. Words missed by students are written ten times each. New list given on Monday.

Activities for spelling in experimental group

Students met three times per week for a three-month period. Four groups of students in the experimental group worked in homogenous groups, which were formed based upon spelling inventories. The groups consisting of three to five students based upon their performance and developmental level of functioning. Students were engaged in prescribed word study activities targeting their weaknesses for a three month period. These activities were based upon the Words Their Way text (Bear, Invernizzi, Templeton, & Johnston, 1996). The researcher provided opportunities for each student to engage in each of the following steps of interacting with words: recognizing the pattern, recalling it, judging it, and applying it.
The activities in a developmental spelling program are frequently modified to meet needs of students as they progress through the three-month program. Below is a description of a typical session at each level.

1. **Stage 1: Preliterate** – Letter sound correspondences are taught and coordinated with printed word boundaries. Example of activities: concept picture sorts, letter sorts, initial consonant sorts, ending sound sorts.

2. **Stage 2: Early Letter Name** – Students typically are making logical attempts to create partial spellings of words using syllabic writing. Initial and final consonants are the focus at start of instruction. Example of activities: picture sorts, beginning and ending consonant sorts, compare/contrast letters, middle letter names, vowels (short and long). Introduce blends, digraphs.

3. **Stage 3: Letter Name** – At this stage students use vowels (short vowels evident but confused at times). Sounds are matched in left-to-right alphabetic fashion. Both vowels and consonants are represented in writing, although vowels are not spelled conventionally. Consonant blends are beginning to develop. Example of lessons: Blends/digraphs, short and long vowel work, word families.

4. **Stage 4: Within-Word Patterns** – Students have mastered the basic letter correspondences of written English and are working on the letter sequences which function as a unit (especially long and short vowel patterns). Example of lessons: Consonant patterns (blends and digraphs) vowel digraphs, diphthongs, homophones, homographs, visual patterns (i.e. VCE, CVVC, CVCE),
Analysis of Data

A pre- and posttest of the spelling development analysis was used to identify quantitative data of the final level of functioning after the three-month period of instruction. Each student was assessed on an ongoing basis through taking anecdotal notes of progress during group sessions and monitoring use of newly mastered orthographic skills in daily writing.
CHAPTER IV
Analysis and Interpretation of Data

**Purpose**

The purpose of this study was to investigate the benefits of a developmental spelling program utilizing word study as the primary mode of spelling instruction versus a traditional spelling program.

**Research Question**

Will a developmental spelling program based upon individual levels of functioning benefit students more than homogenously grouped students in a traditional spelling program?

**Analysis of Findings**

The students in this study worked to develop orthographic knowledge. Both groups were measured utilizing a spelling analysis test to determine their level of orthographic function before and after treatment. The beginning level was noted and compared to the ending level at the posttest. The researcher measured the number of level increases per student. If a student came in at level two, Early Letter Name, and posttested at Letter Name, that reveals a “+1” level increase.

The experimental group received half hour sessions of instruction three times per week. Their beginning and ending levels were tallied. Out of 14 students, nine improved by one level while three improved by two levels. Two students showed no growth over the period according
to the developmental spelling inventory. Table 1 reflects growth in 86% of the experimental group (See Table 1).

Table 1

**Experimental Group Data**

<table>
<thead>
<tr>
<th>Student ID #</th>
<th>Start Level 09/00</th>
<th>Ending Level</th>
<th>Level increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LN</td>
<td>WW</td>
<td>+1</td>
</tr>
<tr>
<td>2</td>
<td>LN</td>
<td>WW</td>
<td>+1</td>
</tr>
<tr>
<td>3</td>
<td>LN</td>
<td>WW</td>
<td>+1</td>
</tr>
<tr>
<td>4</td>
<td>LN</td>
<td>WW</td>
<td>+1</td>
</tr>
<tr>
<td>5</td>
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</tr>
<tr>
<td>6</td>
<td>ELN</td>
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<td>+1</td>
</tr>
<tr>
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<td>LN</td>
<td>WW</td>
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<td>PL</td>
<td>LN</td>
<td>+2</td>
</tr>
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<tr>
<td>14</td>
<td>ELN</td>
<td>ELN</td>
<td>+2</td>
</tr>
</tbody>
</table>

Key: PL=Preliterate, ELN=Early Letter Name, LN=Letter Name, WW=Within Word

Looking at the anecdotal notes and journal entries that reflect transfer of orthographic knowledge to daily writing, in general the growth was observable. While reviewing daily journal writing, the experimental group spelled a variety of words correctly with greater frequency than the control group. This is further evidence that word study skills improve spelling.

The students in the control group underwent three months of homogenous whole group spelling instruction. The classroom teacher utilized the lists she has used with her first grade class for the past several years. The lists were either thematically or orthographically related
(i.e. "ocean words" or "augh" words). The teacher offered spelling instruction three times per week, each session being one half hour in length.

At the beginning of the study the 14 control students were given a pretest to determine their developmental spelling level. After three months a posttest was given to determine ending levels. Nine students out of 14 showed an increase of one level of developmental function while five showed no growth over the three-month period. Table 2 presents 64% of students displaying growth over the three month period.

Table 2:

Control Group Data:

<table>
<thead>
<tr>
<th>Student ID #</th>
<th>Start Level 09/00</th>
<th>Ending Level</th>
<th>Level increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LN</td>
<td>WW</td>
<td>+1</td>
</tr>
<tr>
<td>2</td>
<td>WW</td>
<td>SJ</td>
<td>+1</td>
</tr>
<tr>
<td>3</td>
<td>WW</td>
<td>WW</td>
<td>+0</td>
</tr>
<tr>
<td>4</td>
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<td>12</td>
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<td>WW</td>
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<td>+0</td>
</tr>
<tr>
<td>14</td>
<td>ELN</td>
<td>WW</td>
<td>+1</td>
</tr>
</tbody>
</table>

Key: PL=Preliterate, ELN=Early Letter Name, LN=Letter Name, WW=Within Word

The use of orthographic skills in the control groups’ daily writing in general did not show substantial growth. Many of the words the students were able to spell were due to memorizing the listed words for the weekly test. Though the students may have been able to spell a word
correctly, it was not consistent that they carried the orthographic skill or knowledge of the spelling "rule" to other words that were not on the test.

In the experimental group it was obvious that growth was made in understanding rules of spelling. In Figure 1 changes are evident in spelling of words that reflect the VCE pattern of spelling. Looking at the first inventory administered on October 1st, errors were made on the following words which provides evidence that the student did not have mastery over the VCE pattern: *griv* (drive), *chas* (chase). On the second inventory dated January 4th (three months later) you can see that the student utilized this rule correctly in two cases (drive, chase). The student not only used it but also overgeneralized the rule when she used it on the word *flote* (float). This is referred to as "using (the pattern) but confusing it" in the *Words Their Way* text.

Pretest and Posttest sample:

**Figure 1**

![Image of spelling samples](image)
It is reflected in Figure two that three students in the experimental group did improve by two developmental levels while no students in the control group improved by more than one level. Even though the control group and experimental group were academically similar and the control group showed more growth, this is further evidence that students’ understanding of orthographic function can be fostered through a developmental spelling program. A typical pretest and posttest at each level for the experimental group appears in Appendix C.

Figure 2
Experimental and Control Group data Bar Graph:
Chapter V

Findings and Analysis

Purpose

The purpose of this study was to investigate the benefits of a developmental spelling program utilizing word study as the primary mode of spelling instruction versus a traditional spelling program.

Conclusions

Analysis of the data indicates that there was an observable difference between the experimental group that underwent three months in a developmental spelling program and those placed in whole group homogenous spelling instruction program. The methods utilized in the experimental group met students' individual needs based upon their incoming level of orthographic function. This instruction fostered students' knowledge and skill. This is reflected in the data collected at beginning and ending levels on the pre and post-tests. Informal observations and anecdotal notes taken also reflected positive gains by the experimental group. Due to the fact that the teacher in the control group did not work individually with each child, little was known about their progress other than the papers they turned in for grading and the end of week test scores.

The incoming levels of students in each group were random. Monitoring student progress closely allowed the researcher to adjust instruction as needed during each session. Immediate
transfer of orthographic knowledge in their regular classroom writing was evident. Students did not actually have a prescribed “Spelling list”. They worked with a bank of words that had similar orthographic features. Students searched for like words, manipulated them, and created an understanding of the spelling pattern (versus rotely memorizing the word) which allowed students to gain knowledge about any word with similar features. It also is a positive experience as their knowledge grows because students begin to compare and contrast words using their features. Connections are constantly made during word study sessions.

The most significant factor that may have contributed to the positive gains made by the experimental group was the fact that each student was carefully placed in a small group based on his or her developmental level. If there was only one student at the preliterate level, only one student was placed in that group. The largest number of students in a single group was five. In comparison to a ratio of 1:14, this individualized instruction had a large impact.

In the small group settings, growth not only occurred through the activities and interaction between teacher and student but also between the peers in groups larger than one student. Peers interacted and made connections through observing one another. This was most evident when students were in situations where they were on “word hunts” using their poetry folders and trade books to find specific word patterns to add to their word banks. Students discussed words they were finding, aided one another by offering successful strategies they had found useful, which led to spontaneous learning moments.

In the control group, students worked quietly at their desks writing their sentences or engaging in the assignments in a silent room. Active learning and peer discussion was not permitted. The lower functioning students who truly did not have the ability to work through the activities assigned were required to take their work home for homework rather than being offered
modified assignments. Often whole group instruction to a heterogeneous group requires modification to meet each student's needs. The control group was not receiving this.

It is clear that a developmental spelling program accommodates a variety of students' abilities and needs

**Implications for Future Research**

This study was fairly limited by the small student sample. This was due to management and time constraints in allotted blocks of "instruction". Having a larger sampling may lead to more valid results. Also, being a three-month period did not offer a clear picture of how powerful this program might be when fully implemented over a full school year in a classroom. The growth documented is only one third of the year. Even more compelling would be to follow a group of students from kindergarten through third grade where a student can potentially progress through all the stages and become sophisticated users of orthographic skills.

In addition to this, it also would be interesting to look at students who are at like developmental stages but different ages (Ex: third grader and a first grader both functioning at the "Within Word" level). It would be interesting to compare students and how they progress through the levels of functioning in relation to age.

Students from the first four levels of orthographic function were utilized in this study. In a future study, including students at the final two levels would be a more in depth experiment.

Perhaps utilizing a more structured analysis of student writing samples and usage of orthographic skill transfer would improve the study.
Implications for Classroom Practices

It is necessary that teachers understand the levels of spelling and orthographic function and how monitoring these levels and matching them to students' abilities can make a significant difference not only in the students' ability to spell words correctly, but have a sound foundation for literacy. Frustration is not a factor in word study as each activity is designed to build on their existing knowledge base and challenge the student without frustration that can occur when progress is not closely monitored.

The biggest challenge of this type of program is a commitment to organizing and maintaining group activities. Once the teacher has a true understanding of this type of program, the positive results make it worth the extra effort that must go into this individualized program. Teachers must learn to manage multiple groups. Time must be allotted to allow direct instruction in small groups, paired activities that students work on in "centers" and also independent periods. Anecdotal notebooks and folders with work samples on a frequent basis are used to reflect on students' progress and diagnose their needs.

Another implication is changing the paradigm that exists amongst many parents that spelling lists have a necessary place in their child's education. Seeing that the generation of parents we have at the elementary level grew up with spelling lists, anything else seems foreign to them and is not easily accepted. I have found that once I have conferenced with parents and explained the rationale including evidence of growth, which can be quantitatively measured, an acceptance is evident.
A developmental spelling program clearly can offer what teachers and whole school districts continually strive to obtain: a successful spelling program designed to meet individual needs. Through the data gathered and anecdotal notes kept throughout this program, it is evident that moving to a developmentally based spelling program will create more confident spellers through orthographic skill instruction and in turn create more literate students.
Appendices

Appendix A..................Vocabulary

Appendix B..................Stages of Spelling

Appendix C..................Pretest and Posttest Samples of Experimental Group
Appendix A
Definition of terms utilized:

5. **Alphabetic**: A writing system containing characters or symbols representing sounds.

6. **Biological forces**: The physical endowments of the human brain, which control the coordination of thousands of muscles necessary for speaking and listening.

7. **Cognitive**: may be described on two-levels: (a) global measures of intelligence and (b) specific problem solving skills such as decenteration and reversibility.

8. **Cognitive forces**: Mental processes through which knowledge is acquired.

9. **Derivational Constancy spelling stage**: The last stage of spelling development in which spellers learn about derivational relationships preserved in the spelling of words. Derivational refers to the way new words are created from existing words, chiefly through affixation. It also refers to development of a word form a historical standpoint.

10. **Developmental Classroom Profile**: A class roster arranged by developmental spelling stages. These rosters are used to plan homogenous group lessons.

11. **Developmental level**: One of five stages of spelling development: Preliterate, Letter Name, Within Word Pattern, Syllable Juncture, or Derivational Constancy.

12. **Emergent Level**: period of literacy development ranging from birth to beginning reading. This period corresponds to the Pre-literate stage of spelling development.

13. **Frustration Level**: A dysfunctional level of instruction in which there is a mismatch between instruction and what an individual is able to master.

14. **Instructional Level**: A level of academic engagement in which instruction is comfortably matched to what an individual is able to grasp.

15. **Letter Name spelling stage**: The second stage of spelling development in which students represent beginning, middle, and ending sounds of words with phonetically accurate letter choices.

16. **Orthographic Knowledge**: The knowledge and use of sound-symbol associations in spelling words. This ranges from simple to complex. Knowledge and use of derivational morphology is an important component of this factor.
17. **Orthography**: The writing system of a language, specifically, the correct sequence of letter, characters, or symbols.

18. **Overgeneralization**: When students try to use a phonetic rule they have memorized in a situation in which it does not apply.

19. **Phoneme**: the smallest unit of speech that distinguishes one word from another.

20. **Phonological Awareness**: Refers to a child's ability to identify, describe and/or manipulate the sound or syllabic properties of words.

21. **Preliterate spelling stage**: The first stage of spelling development before letter sound correspondences are learned and coordinated with printed word boundaries.

22. **Syllable Juncture spelling stage**: The fourth stage of spelling development, which coincides with intermediate reading. Spellers learn about the spelling changes, which take place at the point of transition form one syllable to the next.

23. **Within Word spelling stage**: The third stage of spelling in which students have mastered the basic letter correspondences of written English and are working on the letter sequences which function as a unit (especially long and short vowels).
Appendix B
Stages of Spelling Development

1. Stage 1: Preliterate - representation of whole words through scribbling

2. Stage 2: Early Letter Name - logical attempts to create partial spellings of words using syllabic writing.

3. Stage 3: Letter Name - each word has a vowel (short vowels correct). Sounds are matched in left-to-right alphabetic fashion. Both vowels and consonants are represented in writing, although vowels are not spelled conventionally. Consonant blends are beginning to develop,

4. Stage 4: Within-Word Patterns - letters are conceptualized in groups or patterns.

Children develop the understanding that certain vowel letters often indicate long-vowel or diphthong pronunciations and different consonant sequences can be used to represent the same phoneme. Most consonant blends and digraphs correct.

5. Stage 5: Syllable-Juncture - children come to understand how syllables combine to form multi-syllabic words. They learn that, at the juncture where syllables join, there may be one letter, double letters, three letters, or certain letters may be dropped. Later in the syllable-juncture stage, invented spelling patterns reveal that students also need to attend to the effects of stress or accent.

6. Stage 6 Derivational-Constancy - children begin to consider morphological features when determining spelling patterns. Knowledge of derived spellings.
Appendix C
Pretest and Posttest Sample of Preliterate Student

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DATE: Jan. 4, 2001

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Pretest: Preliterate
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### Pretest and Posttest Sample of Early Letter Name Student

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Pretest and Posttest Sample of Within Word Student

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References


Perfetti, C. A., Beek, I., Bell, L., & Hughes, C. (1987), Phonemic knowledge and learning to read are reciprocal: A longitudinal study of first grade children. Merrill-Palmer Quarterly, 33, 283-319


