Effects of a developmental, word-stage approach to spelling instruction in first grade

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The Effects of A Developmental, Word-Stage Approach to Spelling Instruction in First Grade

By

Liza Armstrong Witt

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ABSTRACT

Recent research from the past decade suggests that the traditional model of spelling instruction based on rote memorization are not as effective as the developmental, word-stage model that teaches students spelling patterns based on their stage of spelling development (Abbott, 2000; Bear, Invernizzi, Johnston, & Templeton, 1996; Bear & Templeton, 1998; Ganske, 1999; Johnston, 1999). In addition, research indicates that the use of word study and word sorting found in word-stage spelling models benefits student’s overall literacy ability. Students learn to spell as they actively investigate how words work with memorization being only a small part of this process (Rymer & Williams, 2000). The current study tests these theories. Five, first grade students participated in daily spelling instruction using a word-stage, developmental approach for six weeks, alongside pre and post test measures using a developmental spelling analysis of word features. Results of the study indicate that use of this type of spelling assessment and instruction did increase the specific word feature knowledge of participants, as well as their overall spelling ability.
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CHAPTER ONE

Statement of the Problem

I began my teaching career fifteen years ago as a teacher for students with learning disabilities at the primary level. My training and experience allowed me the opportunity to be diagnostic regarding literacy instruction, looking for ways to target students’ strengths, weaknesses, and teaching methods to improve their learning. I also spent significant time designing specific interventions and differentiated lessons to be used in the resource and regular classroom setting. During this time, I found that all students needed explicit, developmentally based instruction in reading and writing, and that the instruction I was involved in contained methods that were best practice for all students. In addition, I found that spelling instruction, in particular, was very vague and inconsistent across grade, building, and district levels. I found myself creating my own spelling units of study out of necessity, in order to give students the opportunity to be taught the spelling patterns they needed, with review of these patterns built in as further instruction occurred. My spelling units were beginning to be used by teachers’ in other classrooms as well.

My interest in balanced literacy instruction and my skill at creating differentiated lessons led me to seek an elementary teaching license, and I became a first grade teacher. I have worked in the first grade classroom for the past eight years. During this time, I still saw the need for a better way to teach spelling. I continued to use lessons that would meet all my students’ needs, but now it became more complicated. The “regular” list of first grade words was appropriate for some of my students, but there were still many students who struggled with these words, or students who knew how to spell these patterns already, and needed a more challenging list. I began to create three different lessons each week. Although this was a better match to my students’ needs, I still
found that many students memorized words for a weekly test, but would not be able to spell these word patterns correctly later on.

Incidentally, the problem of spelling instruction that is not matched to student’s needs and focuses on rote memorization for tests instead of application of word patterns, or the variance in spelling ability in at a given grade level is not unique to my classroom or district. In fact, schools across the country enlist a variety of teaching methods and programs for spelling, ranging from published basal spelling programs to teacher-created individualized spelling lists (Traynelis-Yurek & Strong, 1999). Even with the variety of techniques used in spelling instruction, dissatisfaction with the spelling instruction they are offering students is one unifying theme among teachers. Of the 42 second through fifth grade teachers surveyed by Johnston (2001), 74 percent believed that spelling instruction is not adequately addressed in the elementary curriculum. One complaint many teachers make is that retention of spelling patterns is not adequate (Johnston, 2001). For example, Templeton and Morris (1999) reported that students who memorize the spelling words with 90 percent accuracy on a weekly posttest are unable to demonstrate the underlying patterns of language. Additionally, the new Common Core Standards for Reading, Literacy and Language Foundations requires that, “students know and apply grade-level phonics and word analysis skills in decoding words, breaking words apart by identifying their patterns (R.F. 1.3) and “apply common spelling patterns and spell un-taught words phonetically, drawing on phonemic awareness and spelling conventions.” (L.1.2). When compared with the Wisconsin Model Academic Standards for Reading and Language, the core standards place a firmer emphasis on the application of skills and thinking processes, including those skills inherent in reading and writing.
In conjunction with these emerging trends and challenges in spelling instruction, recent research from the past decade suggested that the traditional model of spelling instruction based on rote memorization were not as effective as the developmental, word-stage model that teaches students spelling patterns based on their stage of spelling development (Abbott, 2000; Bear, Invernizzi, Johnston, & Templeton, 1996; Bear & Templeton, 1998; Ganske, 1999; Johnston, 1999). The stages are typically organized in five categories: Emergent, Letter-name Alphabetic, Within Word Pattern, Syllables and Affixes, and Derivational Relations. As the word study complexity increases at each stage, struggling students will require more systematic, sequential instruction and opportunities to practice the skills within each stage. Moreover, these are developmental stages should not be seen as separate and distinct from one another. Even though there are skills normally mastered and evident at each stage, some skills overlap and are present in more than one stage, especially when students are transitioning to the next stage. This vacillation holds true for students’ ages as well. There are certain ages/grade levels associated with each stage, but students may function way above or below what is “typical” for their age or grade. In fact, students may operate in two stages at once, or reach the next stage and then fall back within the previous one. The first stage in the development of word learning is the Emergent Stage, and is typically seen in children ages 0-5 years old, grades Pre-K through first or anyone who is not yet a conventional reader. The second stage of word learning is the Letter-Name Alphabetic Stage, and is typically seen in children ages five through eight; kindergarten though second grade, or “early readers”. Because there is often rapid growth during this stage, it is further divided into Early (semi-phonetic), Middle (phonetic), and Late (full phonemic) stages. The third stage of word learning is the Within Word Stage, and commonly occurs at ages seven to ten, and in late first grade through third grade. This stage lasts longer than preceding stages
because it is within this stage that students begin to work on common and ambiguous vowel patterns. Students are able to spell many words correctly due to their letter and short vowel knowledge. Up until this point, students in the earlier stages have been primarily been working on spelling words and word patterns that contain one syllable. It is during the fourth stage of word study development that students are expected to spell and study words with more than one syllable. This stage is called the Syllables and Affixes stage and is typically seen in students ages 9-14 in the upper elementary and middle grades. It is similar to the previous stages as it furthers students’ knowledge of how patterns of sound, spelling and meaning link thousands of words. At the end of this stage, students begin to study affixes; the meaning of simple prefixes and suffixes and how they can change the meaning, spelling and usage of a word. Students are studying the parts of words to find meaning, which sets the stage for the final stage of word learning, Derivational Relations, which is characterized by how words share common derivations and related base and root words, which helps them make meaning of an unknown word by breaking it apart and looking at its root or base word. This stage is part of life-long ongoing word knowledge, lasting into college and adulthood. Knowledge of how spelling develops, and the ability to assess students stage of spelling knowledge provides teachers with the tools needed to provide appropriate instruction for acquisition and application of letter-sound knowledge for spelling words and understanding their meanings.

In addition, research indicated that the use of word study and word sorting found in word-stage spelling models benefits student’s overall literacy ability. Students learn to spell as they actively investigate how words work with memorization being only a small part of this process (Rymer & Williams, 2000). Word study recommends a sequence of spelling concepts and
activities, including a categorization task for grouping common sounds or orthographic features in words known as word sorting (Abbott, 2001).

Based on my experience with spelling in the special education and elementary classroom, paired with my graduate work in literacy and language, I decided to study the effects of implementing a word-stage spelling model in my first grade classroom. My research question is, would word-stage spelling instruction improve the spelling skills of struggling readers and writers? These were students who could identify letters and sound of the alphabet in isolation, but were struggling to manipulate the alphabetic code to read and spell simple words.

To test my hypothesis, I designed a study that involved five of my Standard C students, one female and four males, all from my first grade classroom. Two of the five students in the study also received Title One services. All subjects were all considered emergent in their literacy skills, with reading levels that ranged from a Developmental Reading Assessment (DRA) that ranged from two to five. The timeline of the study was determined to be six weeks in length, with daily sessions of 20 minutes, five times a week. To gather baseline data, students were given a Primary Spelling Inventory (PSI) as a pre-test measure, word study sessions took place based on these results, and the Primary Spelling Inventory was given as a culminating post-test measure as well (see Appendix A). Spelling “quick check” assessments for each word feature were also given throughout the study. These techniques were implemented in order to determine whether their use would align with the findings of recent research in the area of spelling instruction. I hypothesized that there would be a positive correlation between the strategies used in the study and student spelling growth and letter-sound knowledge.
Key Terms

Word sorts – Compare and contrast activities in which students group like words into categories according to their sound, pattern, or meaning.

Word study – A student-centered approach to phonics, spelling, and vocabulary instruction that actively engages the learner in constructing the concepts about the way words work.

Word features- A specific part of a word that is focused on to teach that skill. For example, a feature of the word “shut” could be the “sh” sound.

Closed sort – A classification of words using predetermined categories.

Open Sort- A classification of words using categories determined by the student.

Blind Sort- A classification of words using categories that are not predetermined, and must be distinguished by the student using their knowledge of the words presented.

Concept Sort- A classification of words based on a common theme or feature.

CVC- A word with a consonant, vowel, and consonant pattern: CAT

CCVC, CVCC- Words four letters in length containing one, short vowel sound.

CVVC, CVCV- Words four letters in length containing a long vowel sound made by a vowel “e” and the end (bike) or a pair of vowels (foam).

Primary Spelling Inventory (PSI)- A spelling test that contains 32 words and is scored by number of word features spelled correctly versus the number of total words spelled correctly. This is also used to determine a students’ developmental spelling stage.

Now that an understanding of key terms has been defined, along with the purpose, demographics, and outline of the study has been established, the researcher will provide a closer look into the procedures and data collection of the study.
CHAPTER TWO

Review of Literature

Introduction

Several research-based principles regarding effective spelling instruction have emerged from two separate theories of spelling development: the repertoire theory, and the developmental process stages of spelling. The first repertoire theory was founded on the belief that students move through (two) stages in acquisition of spelling skills: first, they do not possess the ability to apply orthographic knowledge to spell, and in the second stage, the ability to spell emerges. This view proposes that correct representations of words be taught explicitly, usually in list form, with multiple attempts to generate accurate spellings from memory. Instruction may provide feedback regarding spelling errors and learning occurs by practicing words in isolation instead of within context of authentic writing. Word lists and lessons may contain a phonetic pattern, yet instruction regarding the pattern is not explored nor generalized to other words. The second view of spelling instruction, the developmental stages model of spelling, adheres to the belief that, as other literacy skills children acquire, it is developmental in nature. Students represent their knowledge of the letters, sounds and meanings of words according to their stage of spelling development. Countless benefits are accessed when teaching and assessing through the “stages” or “phases” of word learning. It provides a framework for understanding how reading and spelling develops, what skills are apparent at each stage, how one stage builds upon another, and gives teachers information on how to guide and support students to the next phase (Ehri & McCormick, 1998).
Like instruction in other areas, spelling instruction should be developmental in nature. Literacy instruction, including spelling, is most effective when it responds to children’s developmental levels and individual needs. This often is called “differentiated instruction,” meaning that instruction is differentiated to respond to children’s developmental level in reading, spelling, etc. Juel and Minden-Cupp (2000) found that differentiated phonics and spelling instruction was especially beneficial for primary-age students with the lowest levels of literacy skill, and Foorman and Torgesen (2001) reported that differentiated instruction comprises one of the critical instructional elements in promoting literacy success for at-risk children. Using developmental spelling assessments to identify instructional levels facilitates differentiated instruction. The analysis of students’ spellings provides important insights into children’s knowledge of orthography, phonology, and phonics (Morris, Blanton, & Perney, 1995).

The following is a summary of the related professional literature regarding the developmental spelling model and a synthesis of its pertinence to this research. This chapter begins first with a review of spelling research regarding developmental literacy and how reading and spelling mirror each other as children learn to read and spell. Next, studies regarding the importance of accurate, appropriate spelling assessment is reviewed as it provides critical information that informs student performance, instructional practice, and areas of needed intervention. The third section of research investigates use of instructional strategies that are based on and used within the developmental model of spelling instruction (such as teacher-supported inventive spelling, transfer of spelling skills, and word sorting) and examines their effectiveness. Following this section, research regarding spelling among special populations is discussed: students who speak non-mainstream English, English-learning students, and spelling instruction for student with disabilities is explored. Finally, studies regarding current spelling beliefs and practice of teachers
are reviewed, paired with research regarding how to implement change toward best practice in spelling instruction through effective professional development.

**Developmental Spelling**

Many researchers agree that spelling is a developmental process in which children build upon prior knowledge of words to develop their understanding of the way words are spelled (Abbott, 2000; Bear, Invernizzi, Johnston, & Templeton, 1996; Bear & Templeton, 2004.) Orthographic knowledge develops from letters and sounds, to letter patterns and syllable patterns, to meaning represented through spelling (Abbott, 2000; Bear & Templeton, 2004). Research conducted through the University of Virginia in 1986 suggested six stages of spelling development that directly correlate with reading and writing development (Bear & Templeton, 2004).

Subsequently, other researchers have expanded upon these theories to better understand the specific characteristics each of the developmental levels. Paired with the knowledge that children transition from one stage of spelling to the next, Reece and Treiman (2001) examined how the spelling behavior of first grade children changed from the fall to the spring. Reece and Treiman studied first graders’ letter-name vowels and r-controlled vowel spellings of non-words. They found that children progressed through smaller transitional stages when moving from one developmental spelling stage to the next. For example, when children are learning to add final “e” to long vowel words they first do not include the vowel, and then use an incorrect vowel to mark the long vowel and, finally, approach correct spelling. These small steps occurred as the children progressed within the Letter Name stage of spelling development. Because we know that spelling is a developmental process, the way we assess students spelling should be based on this knowledge as well.
Assessment of Spelling Skills Within the Developmental Model

The developmental stage-theory of word learning enables teachers to be informed interpreters of literacy skills and deficits and the appropriate interventions for students who struggle with reading and spelling (Hempenstall, 2004 & Bear, Invernizzi, Templeton & Johnston, 2006). Apel & Masterson (2010) conducted a qualitative case study designed to compare the effectiveness of assessment and instruction used in a traditional spelling program based on the curriculum to a spelling program with a more prescriptive approach that considers a student’s stage of spelling development and the multi-linguistic skills found within. The researchers found the prescriptive approach to spelling assessment and instruction better matched the subjects spelling ability and areas of need. This study used both traditional and prescriptive assessment measures to determine student needs as well as to provide instruction to meet identified areas of weakness.

The subject for this study was an 11-year, 7-month-old fifth grade, white male. Data was gathered to determine his grade equivalent performance in spelling using the Test of Written Spelling – 4 (Larsen, Hammill, &Moats, 1999). Results indicated the subject was functioning at a second grade, second month level in spelling. Given this information, the researchers used a well-known spelling curriculum, Saxon Phonics and Spelling Curriculum (Simmons, 2003) to develop and plan for instruction using its lessons and procedures for students in the second grade, second month of school. The subject was also given the SPELL (Spelling Performance Evaluation for Language and Literacy test: Masterson, Apel, & Wasowicz, 2002) assessment to determine spelling skills mastered or possible deficits based on patterns developmentally appropriate for the student. The results of the SPELL assessment placed him at a Level 4, which is the highest level for this particular test. Analysis of the results indicated that the subject had not mastered certain spelling skills, yet these would not be covered in the Saxon spelling
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curriculum for a student working at a second grade level (for example, CH, TCH, other long o and other long u spellings, diphthongs OY, OI, OU, and AU). Some of these skills were addressed in the Saxon curriculum as early as kindergarten, while others were addressed in first or third grade. Conversely, the Saxon materials for grade two, second month contained lessons for skills the subject had already mastered including consonant K, digraphs CK and NG, aCe, oCe, uCe, long I as Y, and spellings of patterns in most sight words. In the traditional, repertoire-based lessons, the words targeted were poorly matched to the needs of the subject, because they were not based on prescriptive assessment. In addition, the structure of the lessons contained practice on various, unrelated skills such as alphabetizing words, instead of allowing for discovery of common patterns and opportunities for application and transfer.

Apel & Masterson determined the traditional approach to assessment and instruction struggled to address the student’s needs in several ways. First, the student studied patterns mastered prior to instruction. Second, the pacing and activities did not allow enough time to ensure mastery. Besides lacking in developmental scope and sequence, the Saxon curriculum was designed for students up to third grade; a poor match for the fifth grade subject of the study. The assessment and instruction used in the developmentally based, prescriptive approach to spelling better meets students’ needs.

An additional research study conducted by Apel and Masterson (2001) predicted that assessment and interventions of the linguistic processes involved in spelling, founded in best practice, would result in an increase in students’ ability to spell and read words correctly. The purpose of their study was to develop a set of theoretically guided assessment and intervention procedures for diagnosis and remediation of spelling difficulties relating to phonemic and morphologic awareness skills and orthographic knowledge, including mental graphemic
representations of words (MGR’s). In this study, the subjects' reading skills were also assessed to determine the underlying factors contributing to spelling difficulties.

The procedures in this quantitative study were used with a thirteen year-old, Caucasian, female, eighth grade student with spelling difficulties attending public school. The subject’s only language was English; her mother reported her daughter functioning below grade level in reading and spelling. The subject had not been formally assessed or diagnosed with difficulties in these areas, yet school records report she was working below grade level since entering middle school. The independent variable in this study was the intensive group intervention program focused on increasing phonemic and morphological awareness skills, as well as orthographic knowledge. The dependent variables consisted of the subject’s scores on various assessments given.

Data collected from assessments given informed the researcher’s intervention and were comprised of the TWS-4 (Test of Written Spelling 4, Larsen et. al., 1999), a writing sample, analysis of responses on a written measure of morphologic awareness, an informal phonemic awareness test, and two subtests from the WRMT-R (Woodcock Reading Mastery Test-Revised, Form H, Woodcock, 1987): Word Attack and Word Identification.

The results of the pre-assessments were as follows: On the TWS-4, the subject obtained a standard score of 83, below the first standard deviation for students her age. Correctly spelled words were primarily one syllable, one morpheme in length. The majority of misspelled words were two syllables in length. The subjects’ writing sample was primarily comprised of simple, one-syllable words, and considered inappropriate in substance and length given her age. Because her writing contained no multi-syllabic words, the researchers conducted an additional test of morphologic awareness (taken from Carlisle’s Morphologic Test, 1988), which examined
her ability to spell words with increased syllabic length. Of the 46 words administered, 37 (84%) were misspelled with errors on both derived forms and base words. Because of the subject’s difficulty on the aforementioned spelling tasks (specifically omission of vowels and consonant sequences), an informal assessment of phonemic awareness (PA) was conducted. At the time of the study, a norm-referenced PA test based on the age of the subject was not available. The researchers developed a list of sixteen words, primarily multi-syllabic, containing patterns that mirrored the subject’s errors and were known to be difficult to segment. The subject was given the word aurally and asked to tap for every phoneme heard in a given word. The subject was able to segment only three of the sixteen words (19%) correctly. The WRMT-R was used to assess the subject’s ability to read real and nonsense words. On the Word Attack subtest, the subject received a standard score of 62, indicating scores below the second standard deviation for students her age. On the Word Identification Subtest, the subject received a standard score of 83, indicating a standard score one standard deviation below the mean for students her age. These results supported the previous assessments given: difficulties in phonemic awareness, poor MGR’s, and an impaired ability to use orthographic and morphological knowledge to read words.

The intervention activities developed for the subject directly targeted the areas of weakness indicated by assessment results. The subject was part of small group instruction in phonemic awareness and decoding skills, as well as orthographic and morphologic knowledge activities at an intensive summer camp program for students with literacy impairments. She participated with three other middle school students with similar deficits for 90 minutes a day for fifteen consecutive days totaling approximately 23 hours of instruction. The procedures included active modeling of specific skills (phonemic awareness activities, segmentation and decoding of words
in addition to orthographic and morphological awareness activities) scaffolding of student’s responses, explicit instruction in decoding and spelling strategies, encouraging the use of self-regulatory and metacognitive strategies, and establishing student’s positive view of themselves as learners. As a student demonstrated mastery of aforementioned skills, more attention was placed on other factors identified as weaknesses in spelling. Post-assessments were conducted two days after the completion of the intervention. On the TWS-4, the subject received a standard score of 89, indicating her spelling skills to be in typical, yet lower range for students her age. She was able to spell ten multi-syllabic words correctly in post-testing, as compared to one word on the pre-intervention sample. The subject’s post-intervention writing sample was just as limited as her pre-intervention sample, and contained no examples of derived forms. An analysis on the subject’s written morphologic awareness test demonstrated an increase in correctly spelled words. Of the 46 words given, 72% were misspelled as compared to 84% on the pre-intervention sample. Although still considered misspellings, the subject’s spellings on the post-intervention assessment more closely resembled the correct form of spelling than in the pre-intervention assessment. The subject’s phonemic awareness skills were reassessed using the same sixteen-word list. Post-intervention, the subject could segment 81% of the words correctly, as compared to 19% during pre-intervention assessment. Post-intervention results for the WRMT-R, Form G, were as follows: Word Attack, standard score of 95, indicating decoding skills in the average range for students her age, Word Identification, a standard score of 93, which also fell in the typical range for students her age. These results indicate an improvement in the subject’s ability to use phonemic awareness skills to decode unknown words as well improvement in her orthographic knowledge and mental representation/visual images of words.
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These results provide evidence for the effectiveness of a theory-guided approach for improving the linguistic skills that form the foundation for accurate spelling and word level reading. Assessment that provides information regarding student’s orthographic and morphological understandings is effective in targeting areas of need as interventions are designed, growth is measured, and instruction is planned. Calhoun, Greenberg, and Hunter (2010) conducted a study comparing several standardized spelling assessments to determine if they truly assessed the orthographic qualities they attest to with validity and consistency. Three standardized tests were analyzed for accurately measuring these features: number of syllables, consonant/grapheme structures, and vowels types represented. The method used was the analysis of the following standardized spelling measures: The Kaufman test of Educational Achievement- Comprehensive (K-TEA Comp), the Woodcock-Johnson 3 (WJ-III), the Wide Range Achievement Test 4 (WRAT-4) and the Weschler Individual Achievement Test II (WIAT-II). Raters were in agreement of the features being measured including syllables open and closed, consonant –le, vowel teams, R-controlled, vowel –consonant-e, and odd syllable out. Each syllable in a word was counted independently to determine the total number of syllable types represented in each assessment. The examiner manuals of these assessments all indicated they measure the subject’s ability to correctly spell words, and they all provided norm-referenced, criterion-referenced and diagnostic information. All tests increased word list difficulty as subjects progressed. The administration of word lists were also conducted in a similar fashion, with words being presented orally and used in the context of a sentence, with subjects asked to produce the word in written form.

When examined, the results of the study indicated that all assessments correlated significantly with each other in their overall orthographic features, implying that these features
are similarly represented across tests. However, only categories of Types of Syllables and All Vowels were similarly represented. The features of Long Vowels were similarly represented, along with multi-syllabic or multi-morphemic words. Another difference noted was that on the WJ-III and the WRAT-4, opportunities for non-word representation of spelling knowledge was present. Questions arose regarding the number of test items needed to establish a basal and ceiling. If a subject had to only answer three items correctly to establish a basal, was that amount a true reflection of spelling ability? Results of this study indicated that although these standardized, norm-referenced spelling assessments do assess similar orthographic features, do they provide enough opportunity to adequately measure word-features found at each developmental spelling stage? Spelling of Syllable Types and All Vowels were represented equally, whereas multi-syllabic and multi-morphic words were not. These word-types are features found often in the later stages of spelling development, and provide valuable insight into a subjects’ knowledge of word meaning. On the other end of the developmental spelling spectrum, the opportunity to demonstrate the emerging knowledge of the alphabetic principle was a feature not found across all three assessments.

This study is an example of how school personnel including teachers, reading specialists, school psychologists, etc. need to interpret results of standardized spelling tests with some element of caution as they look for additional spelling assessments that provide information about specific word features and developmental stage for the student being tested. Not only does the assessment of spelling provide us with information for remediation, it also gives a snapshot of a student’s current understanding as we plan effective instruction that supports further spelling development across literacy tasks.
Developmental Spelling Model- Instructional Practices

Because the goal of spelling is the transfer and application of skills into writing, discussion regarding teaching students to spell words correctly in this context should not be overlooked. In the past it was believed that emergent writers required accurate representation of unknown words as a model, instead of using their developing phonetic and orthographic skills to spell words based on what they heard and understood those sounds to represent— inventive spelling. Debate regarding which method, direct instruction in accurate spellings for writing, or allowing students to use inventive spelling with subsequent instructional feedback, was the focus of a study conducted by Maribeth Gettinger at the University of Wisconsin Madison in 1993. Although this study was conducted several years ago, it is included in this review of literature based on the validation it provides for use of meaningful, appropriate literacy practices within the context of a diverse elementary setting. In addition, it provides insight into the use of direction instruction to facilitate students’ progress within their level of spelling development.

Gettinger, 1993, advised direct instruction in spelling targets and reinforces accurate reproductions of letter sequences given repeated practice, whereas the use of inventive spelling targets use of effective spelling strategies and encourages generation of student’s own representation of words. Not only does use of inventive spelling encourage writing to take place, it provides a glimpse into a student’s phonemic, orthographic, and morphological understanding. The researcher proposed use of inventive spelling would result in better overall writing (content and spelling generalization), whereas use of direct instruction may result in more targeted words spelled correctly. Four, second grade boys, two identified as below average and two as above average in basic language skills, took part in a spelling intervention for sixteen weeks. The subjects received, each alternately, five weeks of an inventive spelling approach that included
time for creative writing, and five weeks of direct instruction that included guided practice on specific word lists. Through use of informal assessments, each set of boys was identified as having higher word-reading ability when compared to spelling ability.

The direct instruction group and the inventive spelling group worked with the same list of words each week. The words were based on the theme for that week: five thematic words and one high-utility word for a total of six words per week, 96 words were targeted throughout the study. One below average and one above average subject were randomly assigned to either the inventive spelling or direct instruction group. The participants in the inventive spelling group were encouraged to spell words based on how they sounded and were praised for efforts to do so. After each activity, a researcher would provide a correct model of the students’ writing directly on their paper. No direct instruction in how to spell words was given. In the direct instruction group, the participants were shown the targeted words on flashcards, were to repeat it, and spell it aloud with the researcher. At times, they were given targeted words to spell in list form, and were given immediate feedback regarding errors and asked to correct misspellings. On Friday of each week, participants were given a test on the targeted words for that week. They were also given ten minutes to create a writing sample that would incorporate the targeted words. Overall spelling accuracy was calculated based on the percentage of total words, targeted and non-targeted, spelled correctly on dictated lists and writing samples. However, if a targeted word was used multiple times in spontaneous writing incorrectly 50% or more of the time, the word was scored as an error. Accuracy on weekly, targeted words may have indicated mastery of targeted words, but accuracy on non-targeted words suggested which spelling skills were being generalized to other words in their writing. Writing samples were scored for inter rater reliability.
As proposed, subjects spelled more of the six words correctly on weekly tests when they received direct instruction and practice with words in isolation. However, non-targeted words were spelled with more accuracy for participants who engaged in supported inventive spelling, indicating generalization of spelling skills. This was seen in both the below and above average groups. The writing quality of subjects engaged in inventive spelling was rated higher than the samples produced by subjects in the direct instruction group. This supports the belief that frequent opportunities to apply knowledge by generating invented spellings had an overall positive effect on overall spelling accuracy, and refutes the idea that use of inventive spelling may reinforce inaccurate spelling. In fact, inventive spelling reinforces orthographic problem solving.

Advocates of the developmental stage theory of spelling appreciate the diagnostic value the model provides. Analyzing student performance on word-lists to determine their appropriate level of instruction is valuable and valid. However, is students’ orthographic knowledge evident in activities requiring application of skills, such as editing of written work and word sorts? Do they perform within their developmental spelling level when working on these tasks as well? Young, 2007, conducted a study of students’ performance on various spelling-related activities to determine if orthographic knowledge aligned with their current stage of spelling development consistently across tasks. In addition, the study addressed the notion that stage theories of spelling are too rigid to envelop the complexity of a classroom of learners.

This qualitative study conducted in Sydney, Australia, was comprised of six, year-three students who attended government school. Subjects were chosen using the following criteria: the ability to spell words above the pre-phonetic stage and to express themselves orally. An additional screening measure was used to identify suitable participants, the Ganske (1993)
Developmental Spelling Analysis. Initially, twelve children were identified as possible candidates. The classroom teacher’s recommendation of students based on language skills and ability to express themselves assisted with the final six participants being chosen. For each participant, five examples of natural writing responses were collected and analyzed (three journal entries and two story drafts) using the Bear, Invernizzi, Templeton & Johnson (1996) checklist. This was used to determine if a students' writing (within their specific stage of spelling development) contained elements that were either consistent or inconsistent with its known features.

The data collected using the previously mentioned measures provided information regarding a student’s stage of spelling, while additional activities including editing of written work and performance on word sorts gave information regarding student’s ability to transfer and apply those skills consistently as indicated by their developmental stage of spelling. Within these activities, participant’s spellings were scored as either correct (consistent), demonstrating orthographic knowledge above the student’s developmental stage, or incorrect (inconsistent), demonstrating orthographic knowledge below the student’s developmental spelling stage. For example, for a student functioning in the Within-Word Stage, the word “braik” (brake) would be scored as correct/consistent, since a feature found in that stage is student’s ability to use but confuse long vowels. However, if that same student had spelled the word as “brak”, it would have been scored as incorrect/inconsistent since students operating in this stage should be using long vowels, even if in error.

From the writing evidence gathered from the six participants, each performed consistently within their stage of spelling development, even across spelling-related activities such as writing in context, revising, or spelling words in isolation. Only 6 to 35 words of the 817 to 1,156 words
analyzed were found to be below or above a student’s stage of spelling development. This data demonstrated the developmental stage theory of spelling is able to provide flexibility and detail in describing spelling performance in a meaningful and accurate manner. The researchers proposed this evidence is not only useful in determining a student’s stage of spelling development, but can also be used to inform instruction and ensure mastery through the transfer of spelling skills into other areas.

Paired with the research that validates teacher’s supporting student’s emerging spelling skills and the transference of spelling skills across literacy tasks comes research regarding specific instruction strategies used within the developmental spelling framework. Invernizzi & Hayes (2004) reviewed studies regarding use of a developmental model of spelling instruction compared with traditional, whole group spelling. The goal of these studies was to determine if there was a correlation between the overall accuracy of spelling and the acquisition of specific orthographic features. In particular, one study examined the spelling performance of four third grade and two fifth grade classrooms. All students in each grade level received whole group instruction in spelling using a grade-level basal. At the end of the year, students were assessed to determine if they had mastered the set words for their given grade level. The top third of each grade level could spell most grade level words correctly. However, one third of the students in grades three and five could not spell even half of the grade level words correctly. These results indicated that whole-group instruction in spelling does not meet the needs of low-achieving spellers. This is another example of how a predetermined list of words for a given grade level cannot meet the individual spelling needs of students in the way that a developmental model of spelling instruction can.
Invernizzi & Hayes reviewed an additional study conducted with a group of 48 low achieving students chosen from seven different third grade classrooms. Both groups were considered receiving intervention, neither was taught using grade-level spelling material. Half of the 48 participants received spelling instruction at their developmental, instructional level while the control group was taught spelling using a “one-size fits all” method designed for students working a full grade level below them. This group of struggling spellers received remediation using a second grade spelling basal. Both groups were given the second grade, basal spelling posttest to assess growth. Results indicated that not only did the intervention group score higher on the second grade post-test, but scored nearly as well on the third grade basal post test, and better than grade level peers when their ability to transfer spelling skills was measured.

Subsequent research on the use of word-sorts, a specific instructional practice supported by the developmental stage theory of spelling by Joseph (2000), compared the effectiveness of word sort activities and traditional spelling instruction. Word sorts are designed to help students examine, discriminate and group words according to their sound and spelling patterns (Barnes, 1989). Joseph’s research involved a second grade, female student diagnosed with Attention Deficit Hyperactivity Disorder who also received special education services in an urban school district in Central Ohio. Because she exhibited severe reading delays, she was referred to the school psychologist. She was given the Wechsler Individual Achievement Test –Second Edition (WIAT-II) and obtained a standard score of 68; a score that placed her reading ability well below the basic reading performance of students her same age. Her classroom teacher indicated the subject could read some two and three letter words, but with difficulty and inconsistency. She experienced even greater frustration when attempting to read four letter words. The procedure used by Joseph was the administration of a 120 word screener that contained several four letter
words with the CVCV, CCVC, CVCC spelling. Errors on this screener became the foundation patterns for the study’s intervention. Words with the same orthographic patterns as the subject’s errors were placed on index cards. In order to determine the effectiveness of a word sort technique across the subjects reading performance on three different sets of words, a multiple baseline design was implemented. Each set of words contained a list of 10 words. Probes were administered during baseline sessions, using sets of words printed on index cards. Probes containing set 1, 2, & 3 words were given to the subject to establish baselines. Set #1 consisted of the following words: mold, bold, told, bank, rank, tank, rent, vent, and dent. Set #2 consisted of the following words: wave, save, gave, cave, tore, pore, sore, mate, date, and hate. Set #3 consisted of the following words: wade, made fade, back, lack, rack, tack, spin, shin, and skin. Each time they were presented, the words were shuffled and mixed. Probes consisted of the subject seeing a word card being presented and then reading a word card orally. After two sessions to establish a baseline, word sort intervention was implemented on the first set of words leaving the other two sets of words in baseline. Meaning, the subject was taught the first set of words using the word sort technique, and sets 2 and 3 were tested through administration of probes during baseline conditions but were not yet taught using the word sorts. Word sort intervention involved the subject sorting a set of 10 words printed on index cards into three categories that were determined by the instructor. The subject was asked to read the sorted words after the sort was completed. If the subject read a word incorrectly or sorted the word in the wrong category, she was encouraged to self-correct and provided with corrective feedback by the instructor if she was unable to make self-corrections. At the end of each word sort session, she was administered a probe containing the list of words that were sorted. During two consecutive instructional conditions, criterion levels of performance for words read correctly on
the probes were 90%. Instruction using the word sorts ended for that specific set of words and continued with the second set once the subject had reached mastery. Therefore, word sort instruction was conducted in a staggered-manner across the sets of words so that experimental control could be demonstrated. To assess maintenance performance on reading words mastered during instructional conditions, probes containing the words mastered were assessed overtime once instruction on those words ended. Contrary to baseline conditions where she demonstrated relatively consistently low performance levels, the study concluded the subject reached mastery criterion levels on all sets of words during instructional conditions. Only when word sorts were implemented was mastery demonstrated on word recognition performance on the probes. Notably, the subject was able to maintain recognition on three sets of words using the word sorts once instruction ended. Her maintenance probe performance ranged from 90-100% accuracy.

This case study illustrated that word sorts are a reliable and effective way to teach spelling and word recognition to children who have word recognition and spelling difficulties. Although more research is needed on the use of word sorts specifically, this is an indication that word sorts may help children make connections between reading and spelling skills more easily.

**Additional Critical Considerations**

The literature reviewed to this point has supported the developmental model of spelling and its’ effectiveness in the areas of assessment, its’ positive correlations with developmental literacy skills such as writing and reading, and how instructional practices in spelling such as word study, feature analysis and word sorting support students’ further acquisition of orthographic skills needed for spelling. However, what does current research teach us about spelling for students who typically fall outside of the norm?
The following studies address populations of students that are often under or misrepresented, although they are equally important in our schools. Given that more than 5 million students in U. S. schools live in homes where a language other than English is spoken (Padolsky, 2005), it is critical to understand how the instructional models being used in literacy development fit or require adaptation for linguistically diverse students. Considerations for teaching spelling to students who speak with black dialect, students who are English learners, and spelling instruction for students with learning or cognitive disabilities are explored in these studies, all within the framework of the developmental model of spelling assessment and instruction.

Patton-Terry & Connor (2010) designed a study to determine what effect dialect has on spelling for African American students. The quantitative study specifically focuses on African American second graders who speak in African American English dialect. The authors of this study used four specific features of speech to identify these children. The features they looked for were regular past tense inflection, postvocalic consonant reduction in final position, devoicing final consonant, and substitution. Patton-Terry and Connor assert that beginning readers who speak in this dialect may be at a distinct spelling disadvantage because they are attempting to spell as they speak. They further assert that second grade is a time when students are often assessed for learning disabilities and spelling errors, which may be a result of a dialect difference, and may lead to a diagnosis of a learning ability instead.

The authors used 92 African American second grade students for the study. The mean age of the students was 98.5 months and 54.3 of the students were female. The students were randomly selected from an area in the southeastern United States. Each of the students who were selected for the study was a native American English speaker who had shown at least one of the four features of African American English (AAE) dialect. None of the students were receiving
special education services at the time of the study. The students were selected from a single public school district in which all but one of the seven schools was at least 33% free and reduced lunch. The greatest of these schools had 84% of the students qualifying for free and reduced lunch. Each of the students participated in a relatively similar spelling curricula within each of their classrooms.

Several assessments were completed with each student to assess where they were at in their spoken language, oral vocabulary, word reading, and spelling skills. First, a language sample was completed for each student. The Diagnostic Evaluation of Language Variation-Screening Test (Seymore, Roeper & deVilliers, 2003) was used to measure how often each child produced AAE forms of words while speaking. Each child was scored based on the number of times their responses to questions about pictures included nonmainstream American English. The Woodcock-Johnson Tests of Achievement – Third Edition (Woodcock, McGrew & Mather, 2001) was used to assess each child’s overall literacy achievement. A 30 item, traditional style spelling test that targeted specific AAE differences compared mainstream American English (MAE) was given to each student to assess their spelling abilities. This spelling test was also scored for 20 orthographical patterns that are not affected by AAE dialect. Trained research staff who spoke mainstream American English at all times during each test conducted each of these tests.

Each student was scored based on the results of the test. A dialect variation score (DVAR) was calculated for each student based on the number of occurrences of nonmainstream American English that occurred during their Diagnostic Evaluation of Language Variation-Screening Test. The students who achieved at or above 85 on the Woodcock-Johnson Letter-Word Identification subtest were considered "good" or "typical" readers and numbered 78 in
The 14 students who scored below 85 were considered poor or struggling readers. While scoring the spelling test only spellings of the 30 targeted dialect sensitive (DS) and 20 dialect neutral (DN) features were scored. The entire word was not scored.

Patton-Terry and Connor were able to find statistically significant results from their study. Students who were in the typically achieving reading group and spoke AAE were more proficient in spelling dialect sensitive features than were those who were in the struggling reader group. The two groups also differed significantly in the types of spelling errors they made. The study also found a significant negative correlation between DVAR and accuracy in spelling DS features. This means the more often a student uses nonmainstream American English the more likely they are to struggle with specific spelling patterns. The difference in DVAR was not determined to influence DN spelling patterns however. Students who more regularly use nonmainstream American English do not necessarily make more mistakes with spelling patterns that are dialect neutral. This study strongly suggests that assessment and instruction for students who speak with a nonmainstream American English dialect need to be altered. Students who fit into this category may be mistakenly classified with a learning disability. The authors recommend scaffolding instruction from orthographical knowledge rather than speech production and enunciation may be more successful.

In keeping with what we know about spelling instruction and assessment of students who speak English in a non-standard form, the following study by researchers Bear & Helman (2007) examined the spelling practices and assessment results when conducted with students who are English learners. The English spelling strategies of bilingual students have not been studied to the same degree as monolinguals. In fact, a recent review of the literature by the National Literacy Panel on Language-Minority Children and Youth found only eight research studies that
focused on spelling with second-language learners (Dressler & Kamil, 2006). Participants in Bear & Helman’s study attended schools that were performing below state expectations and were English learning students in grades 1 through 6. Total number of participants was 4,085. Their schools had high percentages of students on free or reduced lunch, and the number of English learners ranged from 46 to 64% of the total school population.

The first group of students consisted of 3,945 first through third-grade students who were part of a statewide literacy initiative to improve reading achievement at the primary grades in a western state of the U.S. A second group of participants consisted of students attending one of three elementary schools in a large urban area in the Midwest. The final group of participants included English learners ranging in age from six years old to adult who attended a university reading clinic supervised by the second author. Participants in this study were primarily from Spanish-speaking homes, although more than a hundred came from Somali or Hmong-speaking homes, and a handful of students spoke other languages in the home such as Chinese or Russian. More than 90% of participants attended elementary schools with predominantly low-income students and were classified as Title I.

The primary measure of orthographic development in this study was the developmental spelling inventory (Bear, et al., 2004): either the Primary or Elementary Inventory in order to assess students’ ability to spell a series of words of increasing orthographic difficulty. Responses were awarded points for the accurate representations of: initial and final consonants, digraphs, short vowels, consonant blends, long vowels, ambiguous vowels, inflected endings, syllable junctures, affixes, and roots and derivatives. Analysis of data involved both quantitative and qualitative methods. Researchers evaluated hard copies of developmental spelling inventories from English learners in the statewide reading initiative (100 total), the Midwest projects (120
total), and the reading clinic (20 total). Each student’s spelling inventory was scored according to the number of orthographic features that were correctly spelled, and each student was assigned to a developmental stage of spelling based on their inventory results. Inventories were reviewed to see if patterns were apparent in the miscues. Using one subset of the 100 samples from the statewide reading initiative, 19 spelling inventories from English learners were match-paired to 19 native English speakers in the same schools based on developmental spelling score and grade level. These assessments were then compared for variations in the types of spelling miscues that were present (Helman, 2005). Results of the spelling inventory analysis consistently showed a lag in performance for English learners in the features correct on their spelling inventories when compared with native English speakers. English learners were identified as not meeting grade-level expectations at rates more than double those for native English speakers, and the mean Spanish-speaking student had an instructional reading level approximately one year behind grade level. Further comparison of the spelling inventories of English-learners and native English speakers found that English learners were more likely to substitute whole words for a word they knew with a similar sound and/or function. This may be due to some English learners have a relatively small set of known words from which to scaffold. Additionally, English learners often do more sounding out and use their knowledge of consonants and vowels in their primary language to spell and analyze words and there is greater variability in the spelling of English learners. English learners may appear inconsistent in their spelling; they can spell some words at particular developmental levels, but have gaps in performance. For instance, a student may spell “baby” and “phone” correctly, but spell kite as KIT and bed as BEAD. While it was noted that English learners continue to progress through the developmental stages in the same sequence as
native speakers, the development of orthographic knowledge often takes longer for English learners.

These results reiterate the previous study by Patton-Terry & Connor (2010). When assessing students who speak in non-standard English or whose primary language is not English, care should be taken to analyze results carefully so students’ abilities are not misrepresented. This research confirms those students who are learning English benefit from further instruction in vocabulary so their orthographic and semantic reference is increased; a base to draw from when unknown words are encountered.

Along with review of literature regarding students who are viewed as minorities in our schools today, the developmental spelling model and how its’ instructional strategies assist students with learning or cognitive disabilities is an additional area where research should be reviewed. Joseph and McCachran (2003) conducted a study to determine the effectiveness of a word-study approach, word sorting, used by students with mild cognitive disabilities and struggling readers without disabilities. Participants included 16 students (15 Caucasian and 1 African American) who attended a suburban elementary school in a mid-western city. Of these 16 students, 8 (six males and two females) were classified as students with mild cognitive disabilities according to state criteria with a mean IQ of 69.5, and ranged in chronological age from seven years two months to ten years two months. Non-disabled students were identified as struggling readers having scored below the 20th percentile on statewide, standardized reading assessments. Of these eight students, six were first graders and two were second graders, ranging in chronological age from six years eight months to eight years ten months.

All subjects were given identical pre and post –test measures using the Letter-Word Identification and Word Attack subtests of the Woodcock Johnson-III (WJ-III). Spelling was
assessed using a ten-item probe consisting of CVC words that had been taught within their instructional setting. Transfer of spelling was assessed using a ten-item probe, requiring students to spell words that were similar in orthographic feature to the first probe conducted. After pretests had been administered, a word-sorting lesson was implemented for 20 minutes a day over a two-month period. The instructor worked with two groups of students. Each group consisted of children with cognitive disabilities and children identified as “at risk”. Word sort instruction involved categorizing words according to similar spelling pattern using words printed on index cards. A pool of seventy words was printed on cards and contained CVC patterns. These were selected for inclusion in the word sort lessons and served as the pool of phonogram or word family words with CVC and CVCC patterns. To begin the word-study lessons, the instructor modeled the procedure for sorting words and then directed children to perform the sorting procedures. During every instructional session, each student had their own set of cards to ensure they had visual and tactile access to materials. The instructor selected three words that would serve as the guidewords that students would look to for orthographic features for sorting. Students were then given a shuffled stack of 12 index cards with words (CVC patterns) printed on them and asked to sort each word from the stack of 21 words according to the spelling patterns of three category words. After children completed their sorts, the instructor asked each child to read the sorted words aloud. Children were encouraged to make self-corrections by viewing the spelling patterns of the category words and other words in a sort. At the completion of the word sort sessions, all children were administered post-test measures.

Results of this study showed that both groups made progress in their ability to read and spell words with the CVC and CCVC/CVCC pattern. Both groups demonstrated transfer of spelling
skills on post-test measures, although students identified “at-risk” scored higher on transfer skills than students with cognitive disabilities. However, students with cognitive disabilities made greater gains when comparing pre and post-test measures. All the subjects with CD were able to sort words into categories based on similar spelling and sound patterns, and although transfer of skills was low for students with CD, word sorting was proven an effective instructional tool for phonics instruction and decoding. Participants who were identified as “at-risk” readers were able to not only able to read and spell words with the CVC, CCVC, and CVCC pattern with increased accuracy, they could use the analogy-based strategy of word sorting to help them read unknown words on the Word Attack subtest of the WJ-III and spell new words on the post-test spelling probe. Ability to decode CVC, CVCC and CCVC words within context nor the transfer of these spelling patterns within student writing outside of the procedural sessions was measured. These results mirror the previous studies reviewed in this chapter as they support the effectives of the use of instructional strategies based on the developmental model of spelling.

**Teacher Beliefs and Practice: The Role of Professional Development**

Given the research we have regarding best practice for overall literacy skills and the ineffectiveness of a traditional approach to spelling, today’s teachers have more readily embraced changes in reading instruction than spelling. In a study conducted by Johnston (2001), preservice teachers were asked to interview mentor teachers to focus on a variety of issues related to spelling. Forty-two teachers in grades two through five from 12 schools were interviewed. Open-ended questions were provided in order for teachers to describe their spelling practices and opinions. Johnston found that nearly all the teachers (93%) implemented a formal spelling program and most of the teachers described spelling as a subject that was not adequately
addressed in the elementary curriculum. Furthermore, Johnston found that teachers were using teaching models that promoted rote memorization skills.

Fresch (2007) conducted a national survey of spelling instruction that investigated teachers’ beliefs and practices regarding spelling. This study consisted of four sections that included demographics, instructional program used, theoretical statements that teachers responded to with strongly agree to strongly disagree, and three open-ended questions that focused on instructional concerns, the biggest spelling problem of students, and any additional spelling issues teachers wanted to discuss. A total of 355 teachers returned surveys. Some of the findings in this study revealed that teachers: 89% most of the time have a weekly list, 83% use one list for the entire class most or all of the time, 74% most of the time or always organize the weekly list by spelling patterns, 74% devote 60 minutes or more per week to spelling instruction and 62% use a basal spelling program. Traditional methodology consisting mostly of pretest, memorize, posttest was found to be dominant.

While teachers tended to use these types of methods for spelling instruction, they expressed the need to change their approach to provide better instruction for their students. Fresch (2007) and Johnston (2001) both found the memorization model for learning spelling words to be the most prevalent method among elementary teachers. Although these studies indicate that teachers are dissatisfied with traditional spelling instruction, understand they are ineffective, and appear open to changing how they teach spelling, little has changed in how spelling is taught in today’s classrooms. Is this because teacher’s lack the knowledge of how to implement a better model of spelling instruction?

In order to provide students with effective reading and spelling assessment and instruction, teachers must have strong knowledge of the skills of which these subjects are comprised.
Literacy–related content knowledge involves an understanding of the structure of the English language such as phonemes, affixes, and orthographic patterns. Studies have examined teacher’s literacy-related skill knowledge and the effect of increased teacher knowledge of these skills on not only their instructional practices, but the achievement of their students (Carreker, Joshi, & Boulware-Goorden, 2010). Informed teachers are better able to effectively assess student’s literacy skills and use results to inform instruction. This is of utmost importance, as students learn best when instruction is matched to their particular stage in learning to read and spell (Carreker et. al).

Carreker et. al, 2010, conducted a two-part study to investigate whether teachers who possess thorough literacy-related knowledge are better able to provide instruction and remediation in spelling than teachers who do not have this knowledge. The purpose of the first study was to assess preservice and inservice teachers to determine if a teacher’s level of experience influenced their ability to identify appropriate spelling activities for their students. The purpose of the second study was to determine whether inservice teachers who completed varying hours of professional development related to literacy skills increased their knowledge of these skills as well as their ability to apply them in the classroom and identify appropriate activities for their students.

The participants in this first qualitative study were 36 preservice teachers, who were completing a three credit reading class at a university, and 38 inservice teachers from general and special education classrooms with varying, diverse teaching experiences that were attending a one-day workshop on early literacy skills. Their years of teaching experiences ranged from three to twenty or more years in education. All participants were female, and English was their native language. Inservice teachers did not have previous intensive training in literacy
acquisition or skills except for the routine training during the adaptation of their basal reading series. Both groups of teachers participated in a survey to assess their knowledge of phonemes, syllables, and morphemes, and their ability to analyze student’s spelling errors and identify appropriate interventions or activities. In these surveys, both groups had to complete tasks such as counting phonemes, syllables, and morphemes, as well as the Spelling Instruction Assessment (SIA, Carreker, 2007). The SIA measures how well one identifies the cause of a students spelling difficulties and the best instructional practices for that given student. The SIA was comprised of common errors of spellers with learning disabilities or low scores on spelling across various assessments. Both groups were asked to analyze the errors and choose the best instructional practice for remediation from a list of possible choices.

The results from this first study indicated that inservice teachers outperformed preservice teachers in their ability to count phonemes and morphemes, and in the ability to accurately determine the cause of a students spelling difficulty and use that information to choose the best intervention. Although the inservice teachers scored better than the preservice teachers did, only 50% of inservice teachers answered more than half of the survey questions correctly. The area of greatest difficulty for both groups was in counting the number of morphemes in words containing more than three syllables. When analyzing errors of both groups, no pattern was found. However, the instructional strategy chosen by both groups was, “Have the students close his or her eyes and make a visual image of the word”, which has not proved to be an effective strategy for improving spelling difficulties.

The goal of the second study was to determine the effects of professional development on teacher’s knowledge of literacy related skills. Participants of the second study included the 38 inservice teachers from the first study who reported no prior, intensive training in literacy or
spelling. The study also included an additional 158 inservice teachers who attended varying numbers of hours of professional development on literacy-based skills. Of the 158 participants, 56 were regular education teachers who received only 30 hours of related professional development. The remaining teachers were all special education teachers or teachers of students with reading difficulties such as dyslexia. Of this group, 66 received 60 hours of literacy-related training, and the remaining 36 teachers received 120 hours of training. This last group of 36 teachers received half of their 120 hours of training in the summer, taught that year using the information they learned, and then received the second half of their training (60 hours) at the end of the school year in the summer. During the year, professional development coaches who offered specific feedback observed this group of teachers. All participants of the second study were female, English was their primary language, and years of teaching experience ranges from three to twenty plus years.

All the professional development sessions used in the second study focused on systematic and explicit literacy instruction based on best practice and current research, and all instructors remained the same throughout. The instruction of the group that received 30 hours of professional development included an introduction in phonological and phonemic awareness, common, reoccurring spelling patterns, as well as oral language, listening, and reading comprehension strategies. In the 60-hour session, special education and reading remediation teachers were introduced to the same information as the 30-hour group, but with less detail. In addition, this group received instruction on practical applications of the information presented. Finally, the teachers who received 120 hours of professional development were special education and reading remediation teachers who attended two, 60-hour sessions, teaching a year between each session while receiving feedback from trained literacy coaches.
All teachers in the second study completed the same measure as those in the first study. Except for the inservice teachers from the first study, all participants in the second study only completed the measure once. The scores for phonemes, syllables and morphemes were aggregated to arrive at a teacher’s overall literacy-related content knowledge. Results indicated that teachers who had participated in 120 hours of professional development outperformed all other groups across variables measured except syllable knowledge. There were statistically significant differences in total knowledge between teachers who had no hours of professional development and those who had received some, between teachers who had received 30 hours and those who had received 120, but there was no significant statistical difference between the groups of teachers who had received 30 and 60 hours of professional development. There was a significant difference in overall literacy knowledge between those who had received 30 hours and 120 hours of training, as well as between those who received 60 hours and 120 hours of professional development.

These two studies demonstrated that teacher training in literacy–related skills influences knowledge, and an increase in teacher knowledge affects their ability to accurately assess students’ needs and create meaningful, appropriate instruction. Teachers in both studies who had the greatest knowledge of phonemes, syllables, morphemes were better able to identify the best instructional practices as well as accurately assess underlying causes of spelling difficulties through analysis of a student’s current level of spelling and knowledge of word structures.

**Conclusion**

Of the two major theories regarding the development of spelling, the developmental, word-stage theory is better able to deliver instruction that is appropriate for all learners regardless of strengths or weakness, and provides educators with information and tools needed to
differentiate instruction for best practice (Bear et. al, 1996, Heir & McCormick, 1998). In addition, the stage approach supports the transfer of spelling related skills across developmental stages of writing, while being flexible enough to meet the needs of diverse learners (Young, 2007). One way spelling skills are supported using this approach is the use of inventive spelling supported by instructor feedback (Gettinger, 1993). The word-stages theory of spelling provides a framework for prescriptive assessment that is used to design appropriate, effective interventions and learning activities for all students (Apel & Masterson, 2010). In order to provide assessment and instruction in spelling based on best practice, educators must have the necessary background knowledge and skills (Carreker, Joshi, & Boulware-Gooden, 2010). Professional development that teaches the foundations of multi-linguistic, literacy related skills as well as how to use them for assessment and instruction is a crucial component of creating an effective spelling program based in best practice and theory.

Based on this literature, a question emerges regarding the effectiveness of a developmental, word stage approach to spelling in the classroom. Can the use of this type of spelling instruction improve the spelling skills of students in a primary classroom setting? The following section will outline the intervention conducted using a word stage spelling model and its’ procedures for implementation and data collection.
CHAPTER THREE

Implementation

Introduction

The use of a developmental, word stage model to teach spelling is an effective part of a balanced literacy program. It allows for instruction in the alphabetic principle, phonemic awareness, the patterns letters and sound create, and how those patterns are applied to read and spell words. The word stage approach to spelling instruction also offers teachers the ability to differentiate spelling instruction based on student need, can be used as a diagnostic tool to determine where a student's strengths and weaknesses lie, and what specific word patterns or phonic structures need remediation (Abbott, 2000; Bear, Invernizzi, Johnston, & Templeton, 1996; Bear & Templeton, 1998; Ganske, 1999; Johnston, 1999). The study of word patterns, or word study, is an integral part of the word-stage approach to spelling. Barnes and Morris noted that “word study recommends a sequence of spelling concepts and activities, including a categorization task for grouping common sounds or orthographic features in words known as word sorting” (Abbott, 2001). During word study, students are engaged in activities such as comparing and contrasting word features, sorting words based on different features, and learning word parts and meanings. (Bear, & Invernizzi, 2004). Word study guides students in focusing on words and their patterns in order to have a better understanding of how they work. Most students need hands-on opportunities to manipulate word features in a way that allows them to generalize beyond isolated, individual examples to entire groups of words that are spelled the same way (Bear et al, 2004). Students who lack this word pattern knowledge only have rote memorization to rely upon, which takes longer and is more easily forgotten. Similarly, what students learn about the orthographic system, in part, evolves from the accumulation of experiences with specific word spellings” (as cited by Bear, Invernizzi, Templeton & Johnston, 2008, p. 308).
Because of the strong evidence for the effectiveness of this type of spelling instruction, it was implemented in this research study to assist in testing my research question, “Would word-stage spelling instruction improve the spelling skills of struggling readers and writers?”

**Participants**

The participants in the study included five males and one female in first grade. Five participants were Caucasian, one was bi-racial, Caucasian and African American. All of the participants were enrolled in a public elementary school located in a mid-sized city in the Midwestern United States and participated full time in classroom instruction. Total enrollment at this elementary school was 440 students; kindergarten through fifth grade, fifty-nine percent of students qualified for free or reduced lunch during the 2011-2012 school year. The mean age of the students in the study was 6.9 with a range of 6.8 to 7.7 years old. The students enrolled in the study were all from the same classroom. The sample population of five students was selected for the study based on low scores in the following areas: independent reading level and phonemic awareness/phonic skills as indicated by current running records, phonemic awareness screeners, and the Quick Phonics Screener (QPS). In addition, the researcher consulted with the schools Academic Learning Coach and Title One Teacher, as all five participants in the study were considered at risk. Two of the five participants received Title One reading services thirty minutes a day, five days a week. In addition, the five students selected had permission from parents/guardians to participate in the study and had good attendance and participation in the activities implemented.

Student 1 was a female in first grade who generally produced below grade level work, and was reading at a level two based on the Developmental Reading Assessment (DRA, Beavers & Carter, 2003). At the time of the study, with the grade level benchmark for reading at this time
in first grade being a level twelve. Student 2 was a male in 1st grade that was also working significantly below grade level, reading at a level three at the time of the study. Students 3 and 4 were a males in 1st grade who struggled with grade level work, both reading at a level five, were considered at risk, but whose deficits were not significant enough to warrant Title One reading services. Student 5 was a male in 1st grade that was working below grade level in reading, although reading at a higher level than the other four participants in the study, reading at a level 7. Four of the five students were working at grade level in math, as well as other content areas. All participants were at the emergent writing stage, able to produce mostly phonemic representations of words to write complete sentences.

Students participated in the study during the word work class time, 20 minutes, five times a week, for six weeks. This structure was due to the already established routine in the classroom of students working on phonics and spelling skills independently while the researcher met with small groups. This six-week intervention was assisted by the use of an instructional aide who was able to support the rest of the first grade class two days a week during word work. All activities and assessments implemented as part of the research study were taken from a researched-based, developmental model of spelling based on the stages of word learning called *Words Their Way* (Invernizzi, Templeton & Bear, 2004). *Words Their Way* is a word study/spelling program that correlates to developmentally appropriate practice in literacy. Founded in research regarding the word stages model of spelling and reading acquisition, *Words Their Way* offers students the skills and instruction they need based on their current stage of development. With this program, students are studying and spelling word patterns at their correct level, instead of memorized or prescribed set of words for a given grade level. The assessment and instruction offers insight to the way a student decodes words for reading as well. *Words
Their Way is published by Pearson Education Company (2009). The researcher used the second edition of Words Their Way teacher materials because it provided not only a guide for implementation and assessment, but black line masters available for student use. The Word Sorts for Letter Name Alphabetic Spellers book was used in this study, as it matched the current level of the participants’ spelling stage as indicated by the baseline measure taken at the commencement of the intervention, the Primary Spelling Inventory (PSI, Appendix A).

Data Collection

The first point of data collected in this study was a pre-assessment (Appendix A) used in the Words Their Way Program called the Primary Spelling Inventory (PSI, Appendix A). This assessment consisted of twenty-six spelling words. These twenty six words were given to the participants aloud, and the participants were asked to do their best to spell them in isolation, in list form. The administration of the PSI is similar to a traditional spelling test. However, the twenty-six words given to students are carefully chosen so they represent the following word features and phonetic elements on which students are graded. For example, the list of words on the PSI is created to assess the following eight word features: beginning consonants, ending consonants, all five short vowel sounds, digraphs sh, th, and ch, -l. –t. and –r blends, long vowel words with CVCV or CVVC patterns, variant vowel patterns, and inflectional endings such as –ed, -ed, and –ing. Upon the completion of the study, students were administered an identical post-unit assessment (Appendix A) so that their growth in these eight areas could be compared. These assessments were scored by the researcher; each of the eight features were worth a total of seven points each for a total of fifty-six total word feature points, and a total of twenty six points, or one point for each complete word spelled correctly. The total amount of points possible on the PSI was eighty-two. Since this first administration of the PSI was to determine areas of strength,
weakness and the participant’s current stage of spelling development, achieving a high score was not the goal of the study. From the baseline data obtained in the initial administration of the PSI, it was evident that the five students in the study were functioning at the Letter-Name Alphabetic Stage of spelling development. As previously mentioned in the introduction to this study, a student who is working in the Letter-Name Alphabetic Stage would be working on solidifying beginning and ending consonants, short vowel sound discrimination, consonant digraphs, and blends. The Letter Name Alphabetic Stage ends with students’ emergent ability to discriminate between long and short vowels. Finally, each word on the PSI is graded on its specific features that are spelled correctly. These participants were not expected to know words in the latter stage of spelling development but were graded on total test administration (see Appendix A). At the completion of the six-week intervention, the PSI was administered again in order to measure word feature growth and retention. During the six-week intervention, participants were also given an informal Benchmark Assessment after the completion of that weeks’ word pattern. The first week’s informal assessment, Benchmark Two, was ten items in length and measured application of short vowel, CVC sounds by asking students to spell a CVC word and place it in the correct word pattern or family (see example in Appendix B). Spell Check Three was twenty items in length and measured mixed short vowel sounds by asking students to write whole CVC words for a given picture prompt. Spell Check Four was twenty items in length and required students to write whole CCVC words containing digraphs ch, sh, and th for a given picture prompt, and Spell Check Five was also twenty items in length and required students to write whole CCVC words containing “s” blends. A sample scored PSI assessment can be found in Appendix C.
Procedures

The study took place during the regular school day, in the participants’ first grade classroom, during the word work time block for the whole class. The intervention lasted duration of six weeks. Activities related to this research lasted approximately twenty minutes each session. The intervention method was implemented with fidelity, following the procedures and activities as outlined in the Words Their Way program. The format and assessment of the five day lessons remained consistent throughout the six week study; however, the word features beginning examined and sorted changed each week, in order to provide participants with appropriate intervention based on their stage of word learning. For example, students studied the –ot, -op and –og patterns using the same set of activities for the digraph patterns of -sh, -th, and –ch. Concluding the six weeks, students were again given the PSI to measure what words features they had mastered and maintained as a result of instruction. The following is an outline of the five-day lesson format used in this study. Week One will be described in detail as to demonstrate with specificity the contents of weekly lessons, with weeks two through six highlighting the specific word features taught that week versus the detail of each day’s work.

Week One: Demonstrate, Sort, Read, Check, Reflect

Word Sort Focus: short “o” vowel sound, with rimes –op, -ot, -og.

Day One.

Students had already been introduced to word and concept sorts in preparation for this intervention. We began with the short “o” word family, based on pre-test results from the PSI, which indicated that students in the group already knew the short “a” vowel sound. On day one, students were given twelve words that contained the rimes –op, -ot and –og, along with picture cards for each word. Students were introduced to the word and picture cards by the researcher
modeling the segmenting and blending of the twelve words using onset and rime cards and a pocket chart. For example, the researcher used the letter cards d, m, and p and rime cards –og, -op and –ot to model how these sound together made up the words dog, mop, and pot. Then, students were shown the twelve picture cards for that week’s word sort, were asked to identify them, and asked to place the picture cards in either the –og, -op or –ot category, based on the sound they heard at the end of that word. Students were asked to reflect upon and discuss what sounds they heard in the picture cards, and why they placed them into the given groups. If errors occurred, the researcher was able to clarify misconceptions and model correct sorting.

Day Two.

On the second day of each weekly intervention, students were given the cvc word cards and asked to read them, as well as break them into onset-rime parts for practice with segmenting and blending. For example, given the word card “hot”, a student would be encouraged to say “h-ot”. After reading the word cards, student would be given the corresponding picture cards, and asked to match the word to the picture. Once words and picture cards had been matched, students were asked to sort them according to their sound; a rhyming sort. So, students were asked to sort words like “hot”, “pot”, “cot” and “dot” together because they rhymed. Students were again, asked to verbalize why they sorted the words as they did, and were redirected to correct rhyming sounds when miscues occurred.

Day Three.

On the third day of each weekly intervention, students were given their word cards, asked to read them to the researcher or to another student in the group as the researcher listened for accuracy or miscues and offered redirection. Next, students were given word sorting sheets with word or rime “guides” at the top. For example, this week’s word sorting sheet had the rimes of
–ot, -op and –og at the top, creating three columns for sorting words. Students were asked to match their word cards to the given pictures, and then put them into one of the three given categories. Again, students were asked to reflect upon and discuss with a partner or the researcher why they sorted the words as they did. The researcher was able to scaffold instruction as needed, explicitly modeling the act of sorting words by the patterns they contained. For example, “These words both end with –op”, or by sound, “these two words belong in the same group because they rhyme or sound the same, ‘pot’, ‘hot’”.

**Day Four.**

On the forth day of each weekly intervention, students were given their picture and words cards, and participated in a blind sort. This involved the students using their cards to put them into groups based on word pattern without the assistance of guided words or rimes. Students were also asked to provide the three guide words or patterns. They were also given the words from that weeks word sort orally, and by listening, were asked to indicate where the words should be placed. The examiner was available to assist with redirection or clarifying miscues.

**Day Five.**

On the fifth day of each weekly intervention, students were asked to read, sort, and glue their word cards onto the word sorting sheet. They were also asked to create additional words that could be added to each sort. For example, words like “frog” and “smog” could be added to the -og word group. At the end of the five-day lesson, students were also given an informal assessment to check for understanding of that week’s word pattern (see Appendix B).

This five-day lesson format was followed for the next six weeks, with different word pattern studied each week, as indicated by the results of the student’s PSI. On week two, word patterns -ip, -ig and –ill were studied. During week three, the patterns –ug, -ut and –un. Week four, the
patterns studied were –et, -eg, and –en. Next, during week five, the patterns –ch, -sh, and wh, were included. Finally, in week six, the study of “s” blends –sp, -sk, -sm, and –sl.

At the end of the six week intervention, the PSI was administered as a post-test measure to determine student growth in the word features of the Letter-Name Alphabetic Stage, and the growth that was obtained through the use of differentiated and purposeful word study.

Summary

Thus, research in the area of spelling development and its’ corresponding stages of word learning indicate that countless benefits are accessed when teaching and assessing through the “stages” or “phases” of word learning. It provides a framework for understanding how spelling develops, what skills are apparent at each stage, how one stage builds upon another, and gives teachers information on how to guide and support students to the next phase (Ehri & McCormick, 1998). In addition, it enables teachers to be informed interpreters of literacy skills or lack thereof and the appropriate interventions for struggling readers (Hempenstall, 2004 & Bear, Invernezzi, Templeton & Johnston, 2006). It is for these reasons that a word study approach to spelling, such as Words Their Way was implemented as a six-week intervention in this study. The results of the procedures described above and the data collected are discussed in the next chapter.
CHAPTER FOUR

Results

Introduction

This study examined the effects of using a developmental, word-stage approach to spelling instruction. The researcher worked with a group of five first grade students who struggled with reading and spelling 30 minutes a day, five days a week for six weeks using the spelling program *Words Their Way*. To establish a baseline, a pre-test using the Primary Spelling Inventory (PSI) was administered to the students, as well as after the six week intervention in order to measure progress and answer the question, “Would word-stage spelling instruction improve the spelling skills of struggling readers and writers?” The intervention’s daily sequences of lessons promoted the student’s ability to segment and blend words, listen for rhyming sounds, notice words patterns, and sort and spell words by these patterns. Additionally, the researcher included the use of student discussion as to why they sorted or spelled words, and incorporated extension of word patterns, encouraging students to apply these patterns to other words. The results of the intervention will be displayed and discussed in the following section. Student performance in the areas of beginning and ending sounds, shorts vowels, digraphs and blends will be examined. In addition, students’ overall improvement in word features, words spelled correctly, and total test score will be displayed through pre- and posttest measures on the PSI (see Appendix C).
Primary Spelling Inventory: Pre-test

Figure A

The graph above (Figure A) represents the five areas that are assessed using the first twenty-one words on the Primary Spelling Inventory. As previously mentioned, only the first twenty-one words were administered to students based on their low reading and spelling ability. Each phonetic element was worth seven points (See Appendix A).

**Beginning and Ending Sounds.** Seven words on the PSI were scored for accuracy in beginning and ending sounds. As indicated by the graph above, all seven students were able to correctly identify beginning and ending sounds in CVC words on this pre-test measure.

**Short Vowels.** Two of the five students were able to identify four out of seven short vowel attempts, and three of the five students were able to identify three out of five. Errors in vowel discrimination were noted such as, spelling the word “gum” and “gam”.
Digraphs. This section of the PSI asked students to spell words, and then scored those words for phonetic elements such as: ch, sh, th and wh. Three of five students were able to score four out of seven points in this feature, and one student scored five of seven points. Notably, Student Number Two was unable to spell the feature of digraphs in any of the seven words given.

Blends. As with digraphs, this word feature requires students to hear, manipulate and assess sounds made up of two letters. Again, Student Two scored lower on this feature, able to spell blends accurately on one out of seven words given. Conversely, Student Three was able to spell blends in short vowel words six out of seven times. The other three students obtained scored of two, three and five.

Word Features and Words Spelled Correctly: Total Test Scores Pre-test

Figure B
The graph in Figure B represents the three separate scores that the PSI provided to the researcher in terms of what phonetic elements the students were able to spell, and how many total words they were able to spell correctly. These two data points were combined to determine a student’s Total Word Feature Score. The results are as follows. In the area of Words Features, total points possible were thirty-five: seven points for each of the five features (beginning sounds, ending sounds, short vowels, digraphs, and blends). Student One scored twenty-four of thirty-five word feature points, and was able to spell three out of twenty-one words correctly, which gave her a Total Word Feature Score of twenty-seven out of fifty-six points. Student Two scores indicated they were able to spell nineteen of thirty-five word features correctly and spell four of twenty-one words correctly, giving him a Total Word Feature Score of twenty-three out of fifty-six points possible. Student Three scored twenty-nine of thirty-five word feature points, and was able to spell four out of twenty-one words correctly, which gave him a Total Word Feature Score of thirty-three out of fifty-six points. Student Four scored twenty-seven of thirty-five word feature points, and was able to spell six out of twenty-one words correctly, which gave him a Total Word Feature Score of thirty-three out of fifty-six points. Student Five obtained a scored of twenty-nine of thirty-five word feature points, and was able to spell six out of twenty-one words correctly, which gave him a Total Word Feature Score of thirty-five out of fifty-six points.

When the above pre-test measures are studied overall, it shows that knowing word features alone does not mean that students in the study were able to spell whole words correctly, which of course, is the goal of spelling instruction. However, in the data collected after the six week intervention, the researcher examined the scores to determine if not only were gains made in specific areas of weakness, such as an increase in the ability to hear, identify and spell short
vowel sounds and digraphs, if there would be an increase in the amount of total words students could spell correctly. The following graphs are a representation of data collected at the end of the six-week intervention. As a post-test measure, the same PSI was given to all five participants and scored using identical criteria as in pre-test measures (see Figure C). Again, this post-test data was examined overall to determine growth in word features and total words spelled correctly to obtain a Total Word Features Score (see Figure D).

**Primary Spelling Inventory: Post-test**

Figure C

**Beginning and Ending Sounds.** Seven words on the PSI post-test were scored for accuracy in beginning and ending sounds. As indicated by the graph above, all seven students were able to...
maintain beginning and ending sounds in CVC, CCVC, and CVCC words on this post-test measure.

**Short Vowels.** Four of the five students were able to identify all seven short vowel attempts, and one of the five students was able to identify six out of seven. Errors in vowel discrimination were significantly lower as a result of the intervention.

**Digraphs.** This section of the PSI post-test asked students to spell words, and then scored those words for phonetic elements such as: ch, sh, th and wh. Three out of five students were able to spell digraphs accurately on six out of seven words given. Two of five students were able to spell all seven attempts at digraph features correctly. Notably, Student Two, who was unable to spell any digraph word features correctly on the pre-test measure, was able to spell six out of seven digraph attempts correctly as indicated by his performance on the PSI post-test.

**Blends.** As with digraphs, this word feature requires students to hear, manipulate and assess sounds made up of two letters. All five students made gains in this area as well. Student One was able to spell five out of seven attempts at blends word features. Student Two, who scored the lowest of the participants in this feature, still increased his ability to spell blends, increasing this word feature score from one to three. Students Three and Four were able to spell all attempts at blends correctly. Student Five was able to spell blends in short vowel words six out of seven times.
Word Features and Words Spelled Correctly: Total Test Scores Post-test

Figure D

The graph in Figure D represents the three separate post-test scores that the PSI provided to the researcher in terms of how many more phonetic elements the students were able to spell and how many total words they were able to spell correctly as a result of the six-week intervention. These two data points were combined to determine a student’s post-test Total Word Feature Score and assisted in answering the research question, “Would word-stage spelling instruction improve the spelling skills of struggling readers and writers?” The Word Feature Score for Student One increased from twenty four to thirty two of thirty five possible word feature points as indicated by pre-test measures. She was now able to spell five out of twenty one words correctly, which gave her a Total Word Feature Score of thirty-seven out of fifty-six points, a ten point increase.
when compare to her pre-test scores. The Word Feature Score for Student Two increased from nineteen to thirty out of thirty -five possible word feature points as indicated by pre-test measures. He was now able to spell five out of twenty-one words correctly, which gave him a Total Word Feature Score of thirty-five out of fifty-six points, an ten point increase when compared to his pre-test scores. The Word Feature Score for Student Three increased from twenty -nine to thirty- three of thirty-five possible word feature points as indicated by pre-test measures. He was now able to spell nine out of twenty-one words correctly, which gave him a Total Word Feature Score of forty-two out of fifty-six points, a nine point increase when compared to his pre-test scores. The Word Feature Score for Student Four increased from twenty- seven to thirty- five of thirty-five possible word feature points as indicated by pre-test measures. He was now able to spell eleven out of twenty-one words correctly, which gave him a Total Word Feature Score of forty-six, a thirteen point increase when compared to pre-test scores. The Word Feature Score for Student Five increased from twenty -nine to thirty -four of thirty-five possible word feature points as indicated by pre-test measures. He was now able to spell eleven out of twenty-one words correctly, which gave him a Total Word Feature Score of forty-five, an eleven point increase when compared to pre-test scores.
Percentage of Increase: Features, Correct Spelling, and Total Word Features, By Student

Figure E

<table>
<thead>
<tr>
<th>Students / % of increase</th>
<th>Word Features</th>
<th>Words Spelled Correctly</th>
<th>Total Word Features</th>
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</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>23% increase</td>
<td>10% increase</td>
<td>18% increase</td>
</tr>
<tr>
<td>Student 2</td>
<td>32% increase</td>
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<td>Student 3</td>
<td>11% increase</td>
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<tr>
<td>Student 5</td>
<td>14% increase</td>
<td>23% increase</td>
<td>23% increase</td>
</tr>
</tbody>
</table>

**Conclusion**

Figure E represents the percentage of increase for each participant the following areas, when comparing pre-test and post-test scores on the PSI: Word Features, Words Spelled Correctly, and Total Word Feature Scores. All students made gains in all areas assessed. Notably, although some students made gains in phonetic features, they may not have spelled whole words accurately. This is demonstrated in a higher percentage of increase in Word Features when compared to the increase in Words Spelled Correctly. Finally, results of the study will be analyzed in the following section, as well as it’s strengths, limitations, and opportunities for further research.
CHAPTER FIVE

Conclusion

The use of a developmental, word-stage approach to spelling which involved explicit instruction in word study and sorting was an effective method for increasing the spelling of first grade students who struggled in spelling and reading. All participants made gains in not only specific phonemic word features, such as short vowels, but also in the total number of words they were able to spell correctly.

Connections to State Standards

In designing this study, state curriculum standards were considered. The new Common Core Standards for Reading, Literacy, and Language Foundations requires that, “students know and apply grade-level phonics and word analysis skills in decoding words, breaking words apart by identifying their patterns (R.F. 1.3) and “apply common spelling patterns and spell un-taught words phonetically, drawing on phonemic awareness and spelling conventions.” (L.1.2). When compared with the Wisconsin Model Academic Standards for Reading and Language, the core standards place a firmer emphasis on the application of skills and thinking processes, including those skills inherent in reading and writing.

This study was developed to incorporate the literacy skills that teachers will need in order to provide their students with effective, appropriate spelling instruction as part of a balanced literacy program. Therefore, the knowledge that spelling, just as reading, is a developmental skill that can be assessed and taught as such, incorporating the use of word study and word sorting to teach word patterns, and use of ongoing assessment are all critical components that were included in the research design.
Connections to Existing Research

In addition to the Common Core Standards, recent research in the area of spelling instruction as an integral part of balanced literacy was studied prior to the study’s design and implementation. The effects of assessing student’s spelling using a word-feature analysis aligned with the results Apel & Masterson (2010) obtained in their study. They found the prescriptive approach to spelling assessment and instruction better matched the subjects spelling ability and areas of need. Additionally, this study used both traditional and prescriptive assessment measures to determine student needs as well as to provide instruction to meet identified areas of weakness.

Similarly, the researcher of the present study found that the use of the Primary Spelling Inventory (PSI) was an ideal way to determine a students’ stage of spelling development, what sounds they did or did not know, as well as what interventions and instruction were needed. In keeping with this evidence, Juel and Minden-Cupp (2000) found that differentiated phonics and spelling instruction was especially beneficial for primary-age students with the lowest levels of literacy skill. In addition, Foorman and Torgesen (2001) reported that differentiated instruction comprises one of the critical instructional elements in promoting literacy success for at-risk children. Using developmental spelling assessments to identify instructional levels facilitates differentiated instruction. Therefore, the analysis of students’ spellings provides important insights into children’s knowledge of orthography, phonology, and phonics (Morris, Blanton, & Perney, 1995).

Just as the use of a prescriptive, word-stage spelling assessment benefitted students in this study, so too did the use of a developmental model based on the word-stage approach to spelling. Invernizzi & Hayes (2004) reviewed studies regarding use of a developmental model of spelling
instruction compared with traditional, whole group spelling. These results indicated that whole-
group instruction in spelling does not meet the needs of low-achieving spellers. This is another
example of how a predetermined list of words for a given grade level cannot meet the individual
spelling needs of students in the way that a developmental model of spelling instruction can.

In addition to using a word-stage, developmental model of spelling instruction with her
participants, the researcher has used the instructional method of word sorting, which is an
essential component of this spelling model. Subsequent research on the use of word-sorts, a
specific instructional practice supported by the developmental stage theory of spelling by Joseph
(2000), compared the effectiveness of word sort activities and traditional spelling instruction.
The researcher concurs that word sorts are a reliable and effective way to teach spelling and
word recognition to children who have word recognition and spelling difficulties. While more
research is needed on the use of word sorts specifically, this is an indication that word sorts may
help children make connections between reading and spelling skills more easily.

Thus, the findings of this study aligned with much of the current research related to the use of
a developmental, word-stage approach to spelling instruction which includes the essential
components of prescriptive spelling assessment for intervention and differentiation, as well as
the use of word-sorting activities to assist students in the acquisition and retention of new word
patterns.

**Explanation of results**

The researcher implemented a six-week spelling intervention seeking to answer the
question, “Would word-stage spelling instruction improve the spelling skills of struggling
readers and writers?” The intervention’s daily sequence of lessons promoted the student’s ability
to segment and blend words, listen for rhyming sounds, notice words patterns, and sort and spell
words by these patterns. In the area of specific word features such as beginning and ending sounds, shorts vowels, digraphs and blends, all participants made positive gains. In addition, students’ overall improvement in word features, words spelled correctly, and total test scores improved as well, as measured by the pre and post-test scores on the Primary Spelling Inventory (PSI). The pre- and post- assessments demonstrated that all students were better able to hear individual sounds in words, identify what letter(s) made those sounds, hear words that rhymed, and recognize that words with a similar letter pattern often look or sound the same. For the most part, student could hear and accurately identify and discriminate between short vowel sounds, and hear and identify the two sounds of which blends and digraphs are comprised. Most of all, the number of total words that students could spell correctly increased when pre and post-test measures were compared. Finally, it is evident that not only did students spell more words correctly at the end of the study, but their spelling skills did not regress in any area: beginning/ending sounds, short vowels, digraphs, and blends.

Thus, the findings support the research that has shown that the use of a word-stage approach to spelling instruction, which includes prescriptive assessment, word study and word sorting, does increase the spelling ability of students who struggle with spelling.

**Strengths**

Reflection on the research completed in this study reveals a number of strengths. First, the decision to use a developmental, word-stage approach to spelling was made based on its solid research base of effectiveness and its ability to meet a variety of student needs. In this study, participants were part of a small group, five participants and one researcher. This allowed for a more controlled setting and greater student engagement. Word sorting activities involved the use of many learning modalities, such as speaking and movement, which assisted in the students’
being actively involved. As predicted, students responded positively to the intervention. Thus, engagement was a major strength of the study.

Another strength of the study was its predictability for students. Students could predict which activities would come next or be completed on specific days. For struggling readers and writers, this type of routine is especially helpful. In this study, routine eliminated unnecessary procedural confusion most of the time. Students were able to act as mostly independent learners with less need for teacher scaffolding by the end of the six weeks. Furthermore, the words with which students were working were perfectly matched to their level of spelling strengths and weaknesses. This was their instructional level where they could use the skills they already had and apply them to new letter patterns and words. The level of confidence and lack of frustration was an additional strength in this study.

Limitations

While the strengths of this study contributed to the outcomes that showed its effectiveness, there were also a few limitations. First, because the study was conducted with only five participants, its results, although positive, cannot be certain to be replicated in a large class setting. Because of the nature of my research question, I chose to work with a small group of students whom were all functioning in the same spelling stage—Letter-Name Alphabetic. Conversely, you may have students who are functioning in three or more stages of spelling, if this spelling program were implemented in a whole classroom setting in first grade. It would be imperative to develop routines and establish procedures so you could work with students in small groups throughout the week. Furthermore, I would like to have been able to quantify the effect this intervention had on the students’ reading within context, as well as if this spelling
intervention carried over to their everyday writing. Would I find these word patterns read and spelled correctly in their daily reading and writing?

**Recommendations for Further Research**

While the results of this study, factoring in all of the aforementioned strengths and limitations, appear encouraging, it is recommended that further research be conducted with a larger, more diverse sample. A larger and more diverse sample would allow the results of the study to be generalized to the larger population and would offer more reliability. In addition, implementing this study with a broader scope to include transfer of word patterns to reading and written work would provide data that would offer more accurate information about the effectiveness of the procedures used.

**Summary**

Overall, the study confirmed that using a developmental, word-stage approach to spelling instruction was an effective method for increasing the spelling skills of struggling first graders. While further research would be needed to confirm these findings across larger populations, the results are promising. The interventions implemented correlated with current research in the effectiveness of spelling assessment and instruction. Additionally, though the study had noteworthy limitations, instruction that incorporates the aforementioned instructional strategies has the potential to guide teachers toward the use of a developmental, word-stage approach to spelling as an effective part of their balanced literacy programs in order to improve students’ overall achievement.
References


### Appendix A

#### Words Their Way Primary Spelling Inventory Feature Guide

<table>
<thead>
<tr>
<th>Stage and gradations</th>
<th>Features →</th>
<th>Words</th>
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| Total               | /7 /7 /7 | /7 /7 /7 | /7 /7 /7 | /7 /7 /7 | /56 /26 |
Appendix C

THE EFFECTS OF A WORD-STAGE APPROACH TO SPELLING INSTRUCTION

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<th>Teacher</th>
<th>Grade</th>
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**SPELLING STAGES:** ( □ EARLY □ MIDDLE □ LATE )

**LETTER-NAME** - ALPHABETIC □ WITHIN WORD PATTERN □ SYLLABLES & AFFIXES

*Words Spelled Correctly: 5 / 26 Feature Points: 28 / 56 28 / 82 Total*

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Extra errors with 2 or more errors: 7 (7) 7 (7) 7 (7) 0 (7) 0 (7) 1 (7) 0 (7) 23 (56) 5 (26)