Spelling: A Review of Literature

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Spelling: A Review of Literature

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Abstract

This is a review of the literature on spelling. The purpose for this review is to give an overview of the latest research concerning issues that affect spelling instruction. The topics discussed are complexities of the English language, how children learn, differences between good and poor spellers, how to assess children's spelling knowledge, activities designed to teach children strategies for word solving, and ideas for organizing for instruction. This paper indicates principles of effective spelling instruction. The conclusion makes a call for more research regarding visual memory and states the need for teacher inservice.
Presented in much of the recent literature about literacy learning and spelling is a strong case for providing students with a balanced literacy program in which children are actively involved in purposeful activities that immerse them in reading and writing. As a natural part of reading and writing, students will learn a great deal about words and how they are spelled. Some authors who have written about spelling and word learning recognize the lack of teacher knowledge about both the English language and the ways that young learners construct their learning about words (Fountas & Pinnell, 1998; Gentry, 1987; Glazer, 1998; Moustafa, 1997). Having this knowledge is recognized as an important link between student learning and effective instruction. According to these authors, without an understanding of the ways English is patterned and of the ways children learn, it is difficult to choose effective instructional methods which help students learn to spell (Gentry, 1987; Gettinger, 1993; Glazer, 1998). Glazer and Gettinger go as far as saying that poor spelling can be caused by poor instruction. The purpose for this review is to examine what the current literature says about spelling, so teachers who wish to improve their understandings might better link their instruction with children's needs in order to help students become successful readers and writers.

This review of literature is organized into topic areas that reflect the research about what is important for teachers to understand regarding spelling. First, the complexities of the English language, how children learn, and differences between good and poor spellers will be covered to help extend the background knowledge needed in order to make effective teaching decisions. Then, roles of the teacher including assessing children, teaching for strategies and organizing the learning environment will be discussed, linking research to practice in spelling instruction.
Methodology

I began with a general review of literature looking at balanced literacy programs and furthering my understanding of the big picture of literacy learning. This review helped me gain perspective of the roles that both teachers and students play in construction of learning. It also helped me think about the complexities of the English language and the monumental task it is for students to learn about words. This led me into more study on word learning as it relates to reading and writing and how teachers may be efficient and effective in providing meaningful learning experiences for students at varying levels of development.

Books and articles selected for this paper were identified through personal reading, recommendation by other professionals, and computerized searches at the library for literature pertaining to balanced literacy programs, spelling, decoding and student learning. The analysis and evaluation of the information in these books and articles included much reading, reflection about personal experiences with students, writing, and more reading. This review of literature includes the information from my reading that is supported by a variety of sources from many authors and by my personal experiences with children.

Analysis & Discussion

Understanding the English Language

Let's begin with looking at the role that the English language plays in word learning. This understanding will help provide some necessary background that will help us when we teach our students. In English, some words look exactly like we would expect them to because the letters represent each sound in the word (it, dad, mom, dog). Many other words do not fit the alphabetic principle so easily.
English spelling is very complex, and sometimes it doesn’t seem to make any sense. For example, consider how /oo/ sounds in words such as “look” and “book” and “good.” Those same letters sound very different in words such as “tooth” and “door.” Yet, there are other words with the same vowel sound as “look” and “book” which are spelled differently, such as “put”. The complexity of the spelling system creates some challenges for learners who are attempting to read or write words that don’t look as they sound. As teachers, it is our responsibility to understand this system because, while it looks like there is no rhyme or reason at first glance, there are many different reasons why English words are spelled as they are. We need to reflect this sense of organization to our students, as it is not helpful to them when we portray word learning as random and unpredictable (Templeton, 1991).

Almost all of the literature I have read about spelling makes reference to the complex nature of English. I particularly appreciate the way that Gentry and Gillet (1993) outline the different demands on learners as they construct knowledge about words. They write, “What makes an expert speller is the internalization of a complex system with phonetic, semantic, historical, and visual knowledge of words processed interactively and in parallel” (p. 49). In each of the next few paragraphs I will define each of these demands on the learner and give examples from our English spellings to help describe the different ways that our language is patterned.

The phonetic demand refers to the alphabetic principle, meaning that words are made up of letters that produce sounds. This is the system that children most often use first as they begin their journey toward understanding how to spell words. This system alone can sometimes produce conventional spellings when each letter represents a predictable sound in words such as “it”, “dad”, “at”, and “and.” However, the phonetic demand on learners cannot stand alone in helping children
learn how to spell. Spellings of words can vary because no one letter represents exactly one sound (Goodman, 1993). For example, "cat" could just as easily be spelled "kat", and "city" could be spelled "site." These are just two examples that lead us to realize that learners need another way of looking at words as well.

Another element of language that makes it impossible for us to rely solely on the phonetic demand for spelling is dialect (Gentry, 1987; Goodman, 1993; Moustafa, 1997; Wilde, 1992). If we were to spell based upon the phonetic demand only, spellings would vary across dialects, and it would be more challenging to communicate through written media. One of many examples portrayed by Goodman which helps to illustrate differences in dialect is, "Help in my midwestern dialect has a distinct /l/. In Louisiana it's likely to be he'p, and in Oklahoma it's hey-ulp with two syllables" (p. 44). I can just imagine how much more difficult reading would be if words changed spelling each time the author spoke differently. The task would be especially challenging if one were trying to read a message written by someone with a dialect one hadn't ever heard spoken before. The thought actually makes me thankful that spellings are common and we can look to other types of patterns to help us teach and learn conventional spelling.

The semantic demand, spoken of by Gentry and Gillet (1993), refers to words that are spelled similarly based upon meaning, yet the pronunciations differ. They share the following example: sign (/sin/), signal (/sig/+/n/), design (/zin/), and designate (/zig/+/n/). The word "sign" carries a similar meaning in each word, yet each new word offers a new pronunciation. Goodman (1993) also refers to this demand on learners as they seek to understand how words work. He uses the term morphophonemic shifts, meaning that phonemes (smallest units of sound perceived) change when they are followed by certain other sounds. One example he
shares is, "If we stick to the one-sound-one-letter rule for spellings, *situation*, for example, would be spelled something like <sitchyooayshun>. But we prefer *education* to look like *educate"* (p. 46). Another applicable example of using the semantic demand in spelling would be the use of the "ed" ending. This ending retains similar meaning, something has already happened, yet it sounds different when added to "play" (played-/d/), "want" (wanted-/ed/), and "look" (looked-/t/).

Another demand placed on learners as they move toward conventional spelling is the *historical demand*. This means that some words are spelled based on their origin. For example llama is spelled with the double l (ll), which is rarely seen in the initial position in English, because it retains its original Spanish spelling (Gentry & Gillet, 1993). English is rich with examples such as these because we have borrowed words from many languages in order to communicate effectively. Some languages we have borrowed words from include German, Danish, Norman French, Church Latin, Classical Latin and Greek. We have also taken words from Arabia, India, Polynesia, Russia and Tibet to name a few (Glazer, 1998). Templeton and Morris (1999) support this notion of historical demand on spelling when they explain that our language used to be much more phonetic in nature, evolving with the influx of new vocabulary brought in from various language backgrounds. The way these words were spelled in the original language came too, causing our spelling to move away from its phonetic foundation (p. 104). A few examples that show where some unusual spellings have come from include the roots of the <pn> spelling in *pneumonia* and *pneumatic* from Greek, roots of the <kn> spelling in *know, knee, knight, knife*, etc. from our Anglo-Saxon and Danish roots, and roots of the <gn> spelling in words like *campaign, reign and sign* from French (Goodman, 1993).
The final type of demand on the learner that Gentry and Gillet (1993) describe is the visual demand. The visual demand is described as the way that expert spellers are able to remember how words look visually and recall a picture of the word in their head in order to write it. Gentry and Gillet believe that there may be a visual coding mechanism that people are born with. They discuss the fact that expert spellers develop this ability to visually recall words, while poor spellers do not. Gentry suggests that more research needs to be done to determine whether this coding mechanism can be developed in poor spellers or whether some people’s brains just don’t come with the equipment to visualize words as well as expert spellers do (1987). The example shared by Gentry and Gillet of a time when this visual memory comes into play is with the word “carrot.” There are many spellings of this word, each representing a different meaning, and Gentry and Gillet suggest that only expert spellers are able to remember which visual representation of the word is appropriate in different contexts. Carrot (the vegetable) is quite different from karat (measuring fineness of gold, i.e. 24-karat gold), carat (measuring weight in gemstones), and caret (editing mark that indicates an addition to a text).

After looking at our English language from the perspective of the demands placed on the learner, we can see various systems of pattern within our language. We can also see that developing a strong visual memory will be important as we teach children to spell. In the next section, I will share what the literature says about how children learn, noting how each of these demands on the learner ties into children’s learning about words.

**How Children Learn to Spell**

In reviewing the literature about how children learn to spell it is clear that there is consensus on some main points. The first is that authentic reading and
writing are necessary ingredients to learning how to spell, and active engagement in daily reading and writing experiences that are personal and meaningful are very important. Second, spelling is learned over time in predictable stages. These stages of development are consistent for all learners; although, learners will go through these stages at different rates of speed and different ages based upon their literacy experiences, making the learning very personal and individual. Third, people learn by making use of patterns as they explore and discover words. These main points will be the topics of discussion in this section about how children learn to spell.

Let's begin by looking at what the literature says about the developmental stages that children go through as they learn about words. Sandra Wilde (1992) describes spelling and word learning as a developmental process that begins globally and becomes more complex and specific as time goes on. This notion of how children learn to spell has also been supported by other researchers and authors, some of whom have broken this continuum into stages that children go through as they develop understandings about writing and spelling (Calkins, 1986; Dombey, et al., 1998; Fountas, Pinnell, 1998; Gentry, 1987; Gentry & Gillet, 1993; Templeton, 1999). These stages are given different names by different people, but all reflect the idea that children learn by starting globally and moving toward more complex and detailed understandings of words. In other words, children begin with the idea that writing and drawing is done to communicate a message, and learn that words communicate differently than pictures. As they write, they generally begin with scribbles, move toward letter-like forms and come to understand that letters represent sounds. In this stage of representing sounds (learning about the phonetic demands of spelling), children may first represent a dominant sound in the word, and gradually increase the number of sounds they hear in words. Then, as they
learn to read, children discover that words do not always look like they sound, and they begin to learn that there are patterns in the ways letters represent words (learning about the visual demands of spelling). Eventually, children learn how to use meaning and word origins to help determine the correct spellings of words as well (learning about the semantic and historical demands of spelling).

While this description of children learning from more global concepts to more complex detailed information may imply that learning becomes more sophisticated over time, one only needs to look to Ferreira in How Children Construct Literacy (Goodman, 1990) to see that even at the point of global discoveries, children are doing some complex learning. Ferreira describes some of the detail about how children learn the first concepts about print. She describes how children learn to distinguish between pictorial and language print. Then, she discusses the ways that children begin to look at print in an effort to discover how written strings justify different interpretations. Finally, she describes how children learn that letters and sounds connect. As children learn these things, they are constantly hypothesizing and confirming or disproving these hypotheses. As a hypothesis is conflicted by evidence in print, children revise or discard it, replacing it with a new hypothesis about the ways that print works. So, as teachers we need to be careful not to discount the work that children are doing, even at very early levels of learning, as they construct their knowledge about print.

In the remainder of this section I will share two different yet similar ways of describing the developmental progression that students go through as they learn about words. Both descriptions will move from more global understandings that children have about words toward more specific understandings they gain as they experience more opportunities to construct their knowledge about spelling. I share
the first description provided from the work of Uta Frith (Dombey, et al., 1998) because it provides a good description about how reading and writing help children develop their knowledge about words. I share the second description from Gentry and Gillet (1993) because I appreciate the way their stages characterize developmental spellings and support the process of assessment guiding instruction. Both descriptions of the developmental progression of learning help me understand what children are perceiving about words, and this knowledge will help to inform my teaching decisions.

Reading and Writing Feed Spelling

It is especially interesting to look at the way that the reading and writing processes are interrelated and how they feed the development of spelling knowledge in children. Children who have been read to and who have had opportunities to write and draw develop the global understanding that print is meaningful and carries a message. As children experiment and develop as readers and writers, they learn a great deal about spelling. In the book *W(hole) to E phoni'cs: How children learn to read and spell* (Dombey, et al., 1998), some of the work of Uta Frith is reported to show this relationship between reading and writing and the ways that children learn about spelling from them.

Frith describes the developmental stages children go through as logographic, analytic and orthographic. These stages apply to both reading and writing. The *logographic phase* is the time when children are acquiring some words that are recognized as whole units rather than known by internal structures of the word such as letter order. The *analytic phase* is described as the time that children listen to words more closely and are able to break them down into parts in order to match
letters and sounds. This phase connects to the phonetic demands of spelling discussed earlier. The orthographic phase is when children are becoming independent readers and are able to recognize a large number of words by sight. They are also able to use their knowledge of spelling patterns and word structures to solve unfamiliar words. The orthographic stage connects to the visual, semantic and historical demands of spelling.

According to Frith's work, these phases support each other in reading and writing and move from a global to a much more detailed look at words and spelling. First, the logographic stage of reading feeds the logographic stage in writing. This means children will be developing awareness of the ways print conveys meaning, and they will begin to recognize words by sight in reading and come to the realization the same word in print always looks the same whenever it is used. Once children have established this concept of word, they will learn to write the very familiar words that they recognize.

As children move into the analytic stage, writing is the place where students have to slow down and attend to details in print, while in reading children can rely on context to help them predict and confirm what the print says without attending to every letter in the word. Therefore, the analytic stage in writing precedes the analytic stage in reading. As children work to analyze words from sounds to letters in writing, they become more aware of parts within words, and they can then transfer this to reading, helping them break unfamiliar words into parts.

Then reading will take the lead again and students will move into the orthographic stage where students are using their knowledge of spelling patterns to help them read. The reading students do at this stage will introduce them to many opportunities to discover spelling patterns within unfamiliar words, helping them
decode these words in text. Soon students will begin to transfer this developing knowledge of spelling patterns to their writing and learn to attend more carefully to spelling patterns and the visual demands of spelling (Dombey, et al., 1998).

This description of reading and writing as catalysts to developing spelling knowledge is a testament to the importance of daily reading and writing activities in the classroom. Understanding how children learn about spelling from reading and writing is an important part of the literature that will help teachers because the teacher will often be the facilitator in helping students discover the connections between reading, writing and spelling. Only when the teacher is aware of this connection will he be able to plan appropriate instruction for his students.

Five Developmental Stages.

Another helpful description of the global to specific learning that students do as they learn to spell comes through when the process is described as occurring in predictable stages such as the ones offered by Gentry and Gillet (1993). The stages they describe are very helpful in articulating the progression of learning in stages that can be assessed in order to base teaching decisions on the child's current stage of learning. The five stages are precommunicative, semiphonetic, phonetic, transitional and conventional spelling and are defined in terms of what can be noticed in children's invented spellings of words. Definitions of each stage and what children are learning within each will be the focus of the next several paragraphs.

Even before the precommunicative stage of spelling, one of the first powerful discoveries children make is the constancy of print. They begin their own writing with the knowledge that marks on paper are meaningful. They scribble and
Even before the precommunicative stage of spelling, one of the first powerful discoveries children make is the constancy of print. They begin their own writing with the knowledge that marks on paper are meaningful. They scribble and eventually discover that the marks are not random but have similar features. In Figures 1 and 2 one can see that Chris and Mark have begun to recognize that marks are not random. Some of their marks are beginning to take on characteristics of letters and some are actual letter forms. The boys also demonstrate the understanding that print conveys a message, as they each were able to tell their teacher what this writing says.

Figure 1. Chris wrote, "I went swimming in the water. I went to Minnesota."
As children enter the *precommunicative stage*, they write messages made of random strings of letters and do not yet know that letters represent sounds. These messages can only be read by the writer immediately after writing (Gentry & Gillet, 1993). To see examples of precommunicative spelling, refer to Figures 3 and 4. Here Travis and Melissa have written strings of letters they know to represent their messages. They do not yet demonstrate an awareness of sound representation beyond the possibility of the letter "Ii."

*Figure 2.* Mark reads his writing as "Sugar."

*Figure 3.* Travis indicates that this says, "I like recess."

*Figure 4.* Melissa’s writing says, "I want to be in the movie Titanic."
As children begin to discover that speech sounds correspond to letters, they are moving into the *semiphonetic stage* of writing. They do not necessarily have an awareness of word segmentation, but they are showing an awareness of the alphabetic principle. Here spelling represents some of the surface sound features in words (Gentry & Gillet, 1993). In Figures 5 and 6, one can see the characteristics of semiphonetic spelling. Brian has made the connection that letters represent sounds, and he represents beginning sounds along with some strong middle or ending sounds. He is not demonstrating word segmentation. The same characteristics are present in Julie's writing with the exception that she is beginning to segment words with spaces between letters. While these messages do demonstrate sound/letter connections, each message had to be read by its author because not enough sounds are represented to make the messages clear to others.

*Figure 5.* Brian reads, "I got a Garfield book."

*Figure 6.* Julie says, "No kicking people."
Gradually, children’s knowledge of sounds expands into more detailed mapping of sounds, and they grow toward hearing segmentations between words. They are in the phonetic stage when they are able to spell what they hear and map most of the sounds in words with letters. At this stage the print can most often be read by people other than the writer even though it does not look like English spelling (Gentry & Gillet, 1993). Figures 7 and 8 represent samples of the phonetic spelling stage. In Figure 7, Jessica represents all the phonetic sounds in the word "centers" with a letter or letters that accurately map the sounds in the word; however, one can see that her version “snttrs” has no vowels and does not look like English spelling. Yet, there is no difficulty reading her message. Similar features can be observed in Sarah’s writing in Figure 8, but Sarah represents many more vowels in her writing, possibly understanding that all words have a vowel in them.

![Image of handwriting]

**Figure 7.** Jessica’s story says, “I like centers.”

![Image of handwriting]

**Figure 8.** When writing about Valentine’s Day, Sarah says, “I would like making valentines. I would like a horse that is a heart horse.”
The transitional stage is where the visual and semantic demands of spelling are coming into play. Children are beginning to learn about some spelling patterns (for example silent e, ed, ing) and are moving away from strictly representing what they hear in words. They also begin to demonstrate knowledge of semantic differences in words such as "see" and "sea." They continue to use what they know about the sounds of English but are also demonstrating knowledge of what English looks like. Here children are gaining a large number of sight words that can be spelled conventionally, so it is from their misspellings that we can identify this stage. This stage of learning signals the beginning of formal spelling instruction (Gentry & Gillet, 1993). Joshua's writing in Figure 9 models the characteristics of the transitional stage. Most of his words are spelled conventionally, yet his misspellings use chunks that he is visually familiar with rather than strictly phonetic representations of sounds. For example, "sion" is one way of making the ending sound of "prediction," and Joshua has "ison," indicating some familiarity with that chunk that is not completely under control yet. Another example is the word "think." Joshua wrote "thingk," using knowledge of the "ing" chunk for making the middle sound in "think."

![Figure 9](image)

Joshua's prediction represents the transitional stage by having mostly conventional spelling and some spelling which indicates understanding of spelling patterns.
The final stage is conventional spelling. This stage is measured as children grow by grade level. For example, a third grade conventional speller would be a student who has mastered all of the spellings up through third grade word lists. Master conventional spellers are developed over many years of word study, reading and writing. Here knowledge of the English orthographic system and its basic rules is firmly established, and a large number of words written are known and spelled accurately. Conventional spellers are able to integrate and apply phonetic, semantic, historical and visual demands of spelling consistently, helping them apply rules to their spellings and spell irregular words as well (Gentry & Gillet, 1993).

Learning From Patterns

Having described both the critical role reading and writing play in learning to spell and the spelling stages children go through, it is time to turn our attention to a third interesting point about how children learn.

Humans are naturally attuned to perceiving and making use of patterns in all the information they take in and process. We look for patterns, create hypotheses about other information that might fit the same pattern, and act on these hypotheses. This is how human beings learn (Gentry & Gillet, 1993, 89).

Knowing that students learn from patterns is a critical piece of information that can help us choose effective and appropriate teaching strategies.

One example of a pattern to which children are attuned early in their lives is that of hearing the segmentation in spoken words between onsets and rimes (Moustafa, 1997). The onset of a word is "any consonants that may come before the vowel" (Moustafa, 41). The rime is "an obligatory vowel and any consonants which
may come after it” (Moustafa, 42). Here are some examples of words broken into their onsets and rimes: th/at, c/at, m/en, m/an, scr/unch, b/unch. Analyzing spoken words into their onsets and rimes is a skill that children apparently acquire without being taught to do so. This natural way of manipulating words comes much more easily and prior to children’s ability to segment words by phonemes (Moustafa).

Knowing this about children helps us see the advantages of teaching children to learn about words by analogy. For example, a teacher may say to a child, “You know the word ‘see,’ so you could figure out how to write ‘bee’.” This maximizes the use of patterns when children build on what they know by seeing the same patterns reflected in unfamiliar words when they read and write. Of course all patterns that sound the same do not look the same (ie. to, blue, new), but many do and children will begin by understanding that it works to represent sounds in new words by analogy in their spelling. As they gain experience with reading and writing they will discover that there are different spelling patterns that represent the same sound. It is through the application of their knowledge about visual, semantic and historical demands that they will learn which spelling to use.

So far, this paper has provided information about the English language and about how children learn to spell words. The purpose for covering these topics is to help build the background knowledge that we need as teachers in order to teach students in the most efficient and effective manner possible. The use of analogy described above is just one example of how we might use what we know about how children learn in order to determine appropriate teaching strategies. One more valuable piece of background knowledge that will help us make effective teaching decisions is understanding what the literature says about good and poor spellers.
**Good Spellers and Poor Spellers**

I believe it is important to make note of what the research says about the differences between good and poor spellers. I have chosen to include this section because I have become a believer in noting what good readers do to help me identify strengths and weaknesses of struggling readers with whom I work. Using what is known about good readers and striving to help all children do what good readers do has proven quite successful in helping children learn to read. This causes me to believe that it is also important to realize what good spellers do, so we can determine what poor spellers need in order to help them improve.

There are four suggestions in the literature as to why some spellers are better than others. Two differences which receive a lot of attention in the literature are related to the ability to visualize words and the use of multiple strategies. The other two factors related to spelling differences between good and poor spellers are attention to task and a lack of effective instruction.

**Visualization of Words**

Glazer says that good spellers can visualize words in their head, while poor spellers tend to have a poor visual memory (1998). Gentry says that expert spellers develop a memory capacity for visual images of words and discusses the idea of a visual coding mechanism in the brain for spelling. He suggests that perhaps there is an instructional activity that can teach children to develop this memory capacity (1987).
Integration of Strategies

Fountas and Pinnell (1998) say that competent words solvers do many things that relate to visual features in words, such as recognizing and forming letters quickly, checking on words they have written to be sure they look right, and having ways to remember some tricky words. However, good spellers do not rely on the visual features alone. They also use their knowledge of letter-sound correspondences to make words look like they sound, so when they are checking to be sure words look right, they are combining this with their knowledge about sounds to note whether the words represent accurate letter-sound relationships. While good spellers utilize all four of the demands of spelling (phonetic, semantic, historical and visual) through the integration of various strategies, research says that poor spellers rely only on a phonetic approach to spelling (Butnyiec-Thomas & Woloshyn, 1997; Gentry & Gillet, 1993; Wilde, 1992).

Attention to Task

Glazer adds that the inability to attend to task is also a factor in poor spelling (1998). Two examples of this that come to mind are the child who writes a word quickly and neglects to even represent all of the sounds in words and the child who copies a word letter by letter. The child who copies letter by letter is not attending to the details of the word in a way that will help her remember the word as a unit. She can just copy each letter without even thinking about sounds or visual relationships to the sounds. In this case the child is not learning to use any of the strategies of spelling.
Instruction

Glazer (1998) and Gettinger (1993) cite a lack of effective instruction as another reason for poor spelling. They are referring to a lack of appropriate instruction in the use of strategies and lack of adequate amounts of time to master words. Gentry wrote about spelling from the perspective of discounting myths regarding spelling, suggesting that teacher and parent education are very important issues as we consider messages that children receive about spelling (1987). This topic of providing appropriate instruction will be revisited in the sections that discuss the roles of the teacher in instruction.

No matter what the cause of poor spelling, it is important to consider a point that Gentry (1987) makes. He suggests that as teachers it is our responsibility to do more than point out students' weaknesses. We are obligated to go beyond that and find a way to teach students to learn. In order to do this, we need to understand and use what the research says about the demands on the learner and the reasons for good and poor spelling, so we can improve the instruction we provide to our students. We also need to recognize the individual differences in children, and start with the child rather than our curriculum when it comes to instruction (Wilde, 1992). Understanding and using research to inform teaching decisions is the first role of the teacher in providing students with outstanding instruction in spelling.

Assessment

In addition to understanding and using research to guide teaching decisions, another role the teacher takes on is assessing students and observing their writing in order to determine what they know. Learning to spell is an individual process. Even though we know people go through specific developmental stages, the 18
amount of time spent in each and the demands of spelling that each learner cues into independently are different. As teachers we need to know our students well in order to provide them with the instruction that will lead them toward developing and using all four areas of knowledge about words (phonetic, semantic, historical, visual). In the next few paragraphs I will share some of the assessment practices suggested in the literature.

**Multidimensional Assessment**

In order to get to know our students well, we need to use more than a single measure of assessment. Fountas and Pinnell (1998) suggest assessing multiple factors such as attitudes toward learning, vocabulary and word meanings, core knowledge of letters, sounds, words and patterns, ability to use effective strategies for word solving, and study strategies. They also suggest that effective assessment involves observing children in multiple settings, involves the learner so that students learn to self-assess their own learning, is ongoing and directly linked to instruction as well as more structured and formal at times. Along with the elements of assessment that they present, a variety of tools are suggested, including but not limited to, running records, spelling tests, analysis of student work and process interviews. Process interviews are described as “a conversation or oral discussion that you can use to gain insights about a reader’s or writer’s attitudes, strategies, and skills” (p. 111). Fountas and Pinnell suggest using this type of assessment with older students because young students are often able to do more than they can articulate. A process interview is usually based upon a checklist or questionnaire and can be done in a written format or orally. The questions should be open-ended so students are encouraged to give information. Chapter ten of
Fountas and Pinnell’s *Word Matters: Teaching Phonics and Spelling in the Reading/Writing Classroom* would be a very helpful resource for teachers seeking practical ideas about assessment. This chapter also shares these authors’ version of the developmental stages of word solvers and instructional implications for each stage.

**Spelling Trend Assessment**

One method of assessing a child’s stage of writing development suggested by Glazer is to use what is called the “Spelling Trend Assessment,” which she outlines in her book *Phonics, Spelling and Word Study* (1998). This method consists of focusing on a child’s writing for two weeks, gathering samples and using the “Spelling Trend Assessment” (see Appendix) to help look at patterns in the child’s writing. The Spelling Trend Assessment is a sheet of paper that has three columns on the top two thirds of the page. The columns are labeled *student’s spelling, correct spelling* and *patterns noted*. As the teacher observes the child’s writing for two weeks, she fills in each column. At the end of the assessment period, the teacher uses the bottom of the page to make note of the spelling stage the child is in by referring to the patterns noted section from above. Then she jots down some ideas for instruction based on the child’s current level of understanding. These instructional ideas are aimed toward what the child needs to learn next in order to progress to another level of understanding about words.

**Qualitative Spelling Inventory**

Another method of assessment is described by Templeton and Morris (1999). This method includes administering a qualitative spelling inventory, which
consists of graded or developmentally leveled lists of about 20 words per level. These assessments are aimed at helping one determine the developmental level that a child is functioning at so that one can choose instructional level lists of words from a published spelling series for each child.

**Developmental Spelling Test**

Gentry & Gillet (1993) have developed a developmental spelling test also. They describe their test as quick and easy to administer, controlled, and easy to analyze. This test consists of ten words. First, the teacher informs her students that the words she is going to ask them to spell may be hard and will not be counted right or wrong. Their job is to invent the spellings of the words the way that they think they might be spelled. Then the teacher asks children to spell the words and uses each word in a sentence after stating the word. The word is then restated one more time. The words used will help teachers of five-, six-, and seven-year-olds determine the specific stage of development each student is at in his spelling. To analyze the children's spellings, one looks at them to determine whether the spelling looks like that of the precommunicative, semiphonetic, phonetic, transitional or conventional speller. The chart in Table I is designed to help teachers analyze the test results. This table was taken directly from the book *Teaching Kids to Spell* as permitted by the statement in the front of the book (Gentry & Gillet, 1993, p. 44).

In summary of the assessment topic, the authors who present these varied strategies for assessing student's spelling all have the same purpose. They are all trying to find out what children know about how words are spelled. The purpose of this information is two-fold. Once teachers know what a child is using, they can
Table 1 Analyzing Developmental Spelling Test Results

<table>
<thead>
<tr>
<th>Word</th>
<th>Precommunicative</th>
<th>Semiphonetic</th>
<th>Phonetic</th>
<th>Transitional</th>
<th>Conventional</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. monster</td>
<td>random letters</td>
<td>MTR</td>
<td>MOSTR</td>
<td>MONSTUR</td>
<td>monster</td>
</tr>
<tr>
<td>2. united</td>
<td>random letters</td>
<td>U</td>
<td>UNITD</td>
<td>YOUNIGHTED</td>
<td>united</td>
</tr>
<tr>
<td>3. dress</td>
<td>random letters</td>
<td>JRS</td>
<td>JRAS</td>
<td>DRES</td>
<td>dress</td>
</tr>
<tr>
<td>4. bottom</td>
<td>random letters</td>
<td>BT</td>
<td>BODM</td>
<td>BOTTOM</td>
<td>bottom</td>
</tr>
<tr>
<td>5. hiked</td>
<td>random letters</td>
<td>H</td>
<td>HIKT</td>
<td>HICKED</td>
<td>hiked</td>
</tr>
<tr>
<td>6. human</td>
<td>random letters</td>
<td>UM</td>
<td>HUMN</td>
<td>HUMUN</td>
<td>human</td>
</tr>
<tr>
<td>7. eagle</td>
<td>random letters</td>
<td>EL</td>
<td>EGL</td>
<td>EGUL</td>
<td>eagle</td>
</tr>
<tr>
<td>8. closed</td>
<td>random letters</td>
<td>KD</td>
<td>KLOSD</td>
<td>CLOSED</td>
<td>closed</td>
</tr>
<tr>
<td>9. bumped</td>
<td>random letters</td>
<td>B</td>
<td>BOPT</td>
<td>BUMPPED</td>
<td>bumped</td>
</tr>
<tr>
<td>10. type</td>
<td>random letters</td>
<td>TP</td>
<td>TIP</td>
<td>TIPE</td>
<td>type</td>
</tr>
</tbody>
</table>

Source: Adapted from Gentry 1985.

build upon the child’s strengths to help the child learn more. Secondly, these assessments all help teachers determine what stage of development a child is in. Knowing the spelling stage a child is in will help the teacher choose appropriate instruction that will match the child’s needs, helping the child discover new strategies for solving words. This leads us to another of the teacher’s roles in providing appropriate spelling instruction, teaching.

Teaching Spelling

Teaching spelling is a challenging and complex task. In light of the research, purely traditional ways of teaching spelling are no longer appropriate. The literature refers to the traditional approach as a class spelling list that is the same for all children. Generally the teacher introduces the words and provides some time for practice with activities from a workbook, and students take a test over the words at the end of the week. The words are predetermined by a published list rather than related to the child’s writing, so spelling is an isolated piece of the curriculum.
While this type of program may work for some children, many others will have difficulty learning how to spell using a traditional approach to spelling instruction. First, the traditional approach is not centered within the context of reading and writing. This makes it more difficult for children to see spelling as a purposeful activity that can be useful to them. Second, the use of the same list of words for all students does not take the learning needs of individuals into account. Children in the same classroom are not necessarily at the same level of spelling development, and each child needs the instruction that he is developmentally ready for. Gentry sums it up when he says students with good visual memories may find spelling lists helpful and enjoy spelling. However, he also states, "When spelling is not taught socially in interaction with reading, writing, and other language arts, most kids will see no purpose or use for it. . . . For these kids, a ready-made spelling curriculum not related to their personal experience is boring. In this context, many will not learn to spell" (1987, p. 45).

As teachers and researchers have applied knowledge of English spelling and the research findings about how children learn to spell, they have come up with various ways of presenting and managing spelling curriculum. Before discussing some of the ways that are suggested for managing the overall framework of daily and weekly plans, some topics that influence decision-making will be presented first. Among the topics that will be discussed are choosing appropriate spelling words to study and research-supported teaching activities that help children learn strategies for solving words.
Words to Study

Since research indicates that children are all individual and will learn at different rates, it is fair to say that in the majority of classrooms, students are not all at the same developmental level at the same time. It would be inappropriate and unhelpful to a child at the phonetic stage of learning to study the same list of words that a transitional speller is studying. In fact, studying a list of words at all in the phonetic stage may be questionable since research suggests that the transitional stage signifies readiness for formal spelling instruction (Gentry & Gillet, 1993). This presents questions surrounding the management of a curriculum that is varied to meet the needs of individuals, a topic for later discussion. It also presents the challenge of knowing what words are appropriate for learners at different stages of development. Many authors who write about spelling discuss this topic. The discussion centers around whether words should come from predetermined lists in published materials or from the daily reading and writing that children do.

One argument made for using published spelling lists is related to the developmental nature of spelling and the lack of teacher knowledge about it. Templeton (1991) claims that not all teachers know enough about the developmental nature of spelling and about the complex patterns of the English language to develop their own lists. He further contends that it is unrealistic to expect all teachers to understand spelling to this degree. Therefore, he supports the use of published lists that group words by spelling patterns and developmental principles and include appropriate high frequency words. In later writings with Morris (1999), he also encourages the use of some words that come up incidentally in reading and writing as a portion of the words children study but warns that children will not receive the type of instruction that reflects the philosophy that
spelling is logical if all spelling instruction is based on incidental word learning.

On the other side of the debate Glazer says, "The only relevant way to make spelling meaningful to students is to use students’ misspellings found in their written products as the basis for teaching" (1998, p. 52), and "there is no better way to produce poor spelling habits than to dictate prescribed spelling words to children" (1998, p. 42). In addition, Sue Wells Welsch (1998) in a conference presentation about elements of effective instruction indicated that she believes spelling needs to rise out of reading and writing experiences. She discussed the need for children to use words a lot so that they become sight vocabulary rather than a memorization task.

Fountas and Pinnell appear to be like Templeton in the promotion of a combination approach to determining the words children will have on their spelling lists. They promote choosing core words and personal words. Core words are selected by the teacher and introduce a spelling pattern and then are added to by students as the mini-lesson introducing the pattern unfolds. Personal words are those chosen by children with support from the teacher as needed. Personal words come from lists of words that students misspell in writing and also from high frequency word lists. The patterns in core words may reflect phonetic, visual, historical or semantic demands of spelling depending upon the spelling stage a child is in (1998).

Personal experiences suggest to me that published word lists may have their place in the curriculum because it is not realistic to expect that all teachers will begin teaching with the knowledge base suitable for self-selecting words which represent appropriate principles or patterns. Many teachers need a guide to inform their teaching, especially as they begin. It appears, based on the research, that the things to
guard against would be using these lists isolated from reading and writing and using the same list for all students regardless of their developmental understandings. The other important element to consider when using a published list is the list’s appropriateness. Lists should be based on developmental understandings and should reflect key principles and patterns that children at that level of development can comprehend (Templeton, 1991).

The key to choosing appropriate words for effective spelling instruction is for teachers to assess their students to determine strengths and needs, then modify instruction for students based on developmental levels and learning strengths. In order for teachers to do this effectively, they will need to draw upon their understandings of the research about English and about how students learn. This must then be combined with the assessment data about each child to determine which strategies the child needs to learn, and which words might be most appropriate for helping the child grasp and effectively use the strategy.

Teaching for Strategies

One of the characteristics of a quality spelling program is to teach children a variety of strategies for solving words in accordance with their developmental levels (Fountas & Pinnell, 1998; Gentry, 1987; Gentry & Gillet, 1993; Glazer, 1998; Templeton & Morris, 1999; Wilde, 1992). This is based on the notion that good spellers use a variety of strategies, while poor spellers tend to focus in on the phonetic strategy for solving words (Butnyiec-Thomas & Woloshyn, 1997; Gentry & Gillet, 1993; Wilde, 1992). This section will focus on research-supported activities that teachers use to convey information about words to learners. The literature reflects large numbers of activities, but this discussion will be limited to sharing a few commonly mentioned activities that fit the theme of teaching for strategies.
Fountas and Pinnell state the goal of these teaching activities very nicely. It is “to help children develop a deep knowledge of powerful principles that they can apply in flexible ways” (1998, p. 14). The powerful principles they are referring to are defined in a set of strategies that children use to solve any word they meet: sound, look, mean, connect and inquire. These are the strategies that we want to teach for. They correlate well with the demands that English spelling places on the learner and with the definition of an expert speller from Gentry and Gillet. “What makes an expert speller is the internalization of a complex system with phonetic, semantic, historical, and visual knowledge of words processed interactively and in parallel” (1993, p. 49).

The sound strategy correlates with the phonetic demand of English spelling, meaning that children can use what they know about sounds and their representation by letters to read or write a new word. One might teach for the sound strategy by having children stretch a rubber band while they say the word slowly so they can hear all the sounds in the word, or by using Elkonin boxes (Clay, 1993). Elkonin boxes are a map to the number of sounds in a word. When a child needs assistance hearing sounds in words, the teacher can draw a set of boxes with one box representing each sound in the word. Then, the child pushes pennies into the boxes while saying the word slowly and finally predicts which letter or letters will fit in each box to make the corresponding sound. These teaching tools are especially important at the semiphonetic and phonetic spelling stages.

The mean strategy ties to the semantic demands placed on the learner. This is when children use the meanings of prefixes, suffixes and words to help them spell. For example, when writing “two,” “to” or “too” it is helpful to know what each means in order to choose the correct word for the context of the story one is writing.
Using the connect strategy requires one to think of something already known to help figure out a new word. This strategy allows children to explore all of the demands on the learner. Just as we can write some words by connecting them to the historical demands of spelling (ie. llama, know or pneumatics), we also remember how to spell some words by connecting them to meaning (ie. separate, separation) and/or visual features (ie. using “play” and “and” to spell “plan”) as well.

The final strategy, inquire, means that materials such as lists, dictionaries, charts or computers may be consulted to help learn more about words. When teaching about words, word webs and lists of words are sometimes helpful teaching tools. Once a mini-lesson is over, a teacher could hang the chart somewhere in the room to help give a reference for the strategy taught. This acts as a tool for inquiry while children are learning a new strategy.

Some commonly mentioned instructional activities that help students learn to use these strategies as they spell include making analogies; word sorts; games; have a go; look, say, cover, write, check; word building activities; and word study notebooks. According to Templeton & Morris (1999), these activities are among the best for facilitating the detection of patterns and reinforcing memory for spelling certain words. Let us look at each activity one at a time.

Making analogies. In Reading Recovery lessons, manipulation of magnets is the primary way of teaching children to make analogies. This activity always begins with simple making and breaking of known words to be sure that children understand the concept of onset and rime. In my experience, this is easy for children once they have seen a model and they understand the task. Once this is established, work with simple analogies begins, such as making “it,” “in” and “is.” If these words are known, a child can make the connection that the first part of all
these words looks and sounds the same. The next step is to challenge the child to make an unknown word based on this same principle. In this example, making the word “if” will be easy for a child if he is able to connect to the words he knows as starting the same way in both sound and letter. Gradually, we build on this concept of simple analogy using other known words. When this is firmly understood, we move to more complex analogies such as using known words “green” and “and” to make “grand,” or “green” and “in” to make “grin.” Teaching for analogy doesn’t stop here. Once children understand the concept of making analogies, teachers prompt them to use that as a strategy in reading and writing unknown words right in the context of the child’s reading and writing (Clay, 1993).

This teaching activity could also be used in classrooms during mini-lessons with large groups, small groups and individuals during the course of reading and writing activities. If one does these activities and has children thinking of words that may fit certain analogies, children will inevitably come up with words that do not fit the pattern. For example, if working with words that fit the “-air” pattern, children may think of words such as “hair,” “pair,” and “stair,” but also may come up with “where” or “bear.” This provides good opportunities for children to begin noticing that phonetic associations are not the only way to remember words, leading them to give more attention to visual features as well.

Word Sorts. This activity also helps children to notice various types of patterns in words through comparison and contrast (Fountas & Pinnell, 1998). Word sorts can be done with different sets of words to help children key into phonetic, visual or semantic concepts about words. For example, students could sort words that have the /a/ sound by spelling pattern (ay, ey, ai, a_e), helping them form a hypothesis about when it is appropriate to use these varying visual forms.
representing the same sound. Students could also sort words by sound to help them make generalizations about spelling patterns. For example, the words “cat,” “cape,” and “art” all have the vowel “a” in them, but each sounds different.

**Games.** Gentry recommends having parents get involved in their children’s learning by playing word games such as Wheel of Fortune, Hangman and Scrabble to help children have fun with words (1987). Fountas and Pinnell suggest other games like word searches, crossword puzzles and twenty questions as ways to get children looking at spelling patterns and meanings of words (1998). Concentration, word hunt races, read my mind and a variety of other games are described by Gentry and Gillet (1993). One of the great things about their book, *Teaching Kids to Spell*, is the way chapter six categorizes these games and other activities by a child’s developmental stage of writing. It is a great resource for linking research and assessment to instructional practices.

**Have a go.** This strategy employs the use of visual memory of words. A child writes a word and notices that it doesn’t look quite right, and then tries two or three different ways of writing the word. When children write, they can reread and circle words with spellings they are unsure of and try this strategy. I question the applicability of this strategy for all students based on Gentry’s assessment of his own spelling ability. He believes he lacks the visual coding mechanism that helps a person detect and correct error (1987). My question is whether or not the visual coding mechanism can be trained in young children. Gentry’s own account of his childhood spelling curriculum indicates a traditional method of studying lists of words. If we reach children in early childhood with activities that build visualization skills (such as look, say, cover, write, check), will it be easier for them to develop and use this skill?
Look, say, cover, write, check. This activity teaches children a strategy for learning new words. Children follow the steps indicated in the title of this strategy two to three times as they learn a new word (Fountas & Pinnell, 1998; Gentry & Gillet, 1993; Templeton, 1999). Specifically, this strategy can help children look at the visual details in words, and is much more useful for developing the visual coding mechanism than mere copying of words (Gentry & Gillet, p. 78).

When I use this strategy, I first have children look at the word from left to right and say the word. For some children this means using a mask to help them figure out where the eye needs to look first, next and last. After children cover and write the word it is helpful to have them notice which part of the word they wrote correctly. For example, if a child writes “reck” for “wreck,” the teacher should help her understand and focus on what she knows about this word first. Then, she will be able to give attention to the missing or incorrect details of the word (Templeton & Morris, 1999).

Some children who have a hard time remembering need the intermediate step of picturing the word in their head before they write it. Clay describes a strategy for teaching students who have difficulty remembering which follows the look, say, cover, write, check order with additional practice and repetition at each stage as necessary for helping the child remember the word (1993, p. 55). Glazer also describes a similar strategy for learners who do not pick this up automatically (1998; p. 45). Based upon the research that supports use of analogy, Templeton and Morris advocate adding the word “think” to this strategy, so that after students look, say and cover, they think about connections they can make to help them remember this word before writing it (1999).
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Word building. This activity requires the use of magnetic letters, letter cards, or a combination of cards with word patterns and letters to make words. Many authors give Patricia Cunningham (1995) credit for the term “making words” and recommend this activity for helping children attend to the sounds, visual features and connections between words (Fountas & Pinnell, 1998; Gentry & Gillet, 1993; Templeton & Morris, 1999).

Word study notebooks. These notebooks are a place for students to write down assigned word study activities and write weekly tests. They can also be used to write word sorts, webs and other activities that relate to the word lessons they are learning from. In addition, this can be a place to keep a list of words a student wants to learn (Fountas & Pinnell, 1998).

In addition to these recommended teaching activities, creating a print-rich environment with displays of writing and word work that children and teacher have done, as well as providing many opportunities for daily reading and writing will help students see the purpose for spelling. This environment will also encourage active participation, which is crucial to children’s learning.

Organizing to Teach

As teachers organize to teach, they need to create an environment in which the principles of quality spelling programs can all function. The principles listed in Table 2 represent the common themes that Fountas & Pinnell (1998), Gentry (1987), Gentry & Gillet (1993), Glazer (1998), Templeton & Morris (1999), and Wilde (1992) present in their materials. These can be used as guidelines for keeping all of the research in mind as one plans for instruction.
Table 2  Key Principles of Effective Spelling Programs

1. View spelling as a complex process.
2. Provide opportunities for word learning embedded in purposeful reading and writing on a daily basis.
3. View spelling as a developmental process that begins globally and moves toward more complex, detailed learning.
4. Allow and encourage invented spelling.
5. Provide individual, small group and large group interactions, centering instruction on the child.
6. Teach children a variety of strategies in accordance with developmental levels.
7. Use ongoing assessment to guide instruction.
8. Educate parents and enlist their support.

Several authors indicate that the way to meet the needs of many learners at a variety of levels of need is to create a workshop setting (Fountas & Pinnell, 1998; Gentry & Gillet, 1992; Glazer, 1998; Wilde, 1992). Within the workshop setting, children need to learn routines and have assigned tasks or centers to work on. The teacher's role is to facilitate learning by providing whole group, small group and individual instruction in order to meet the needs of learners. These authors recommend a buddy system for studying and testing words, as it would be nearly impossible for the teacher to administer different spelling tests for every child.
In terms of time management, research indicates that the amount of time spent in formal spelling instruction should be at least 15 minutes per day or 75 minutes per week (Gentry, 1987). The way each teacher organizes this will vary according to many factors including teacher preferences, specials schedules, etc. The general outline of the week is typically organized around a daily schedule of events such as the following. On Mondays, the teacher and children will select the words for study (approximately 6 for first- and second-grade students and 10 or more as students get older) and do some work with those words. Tuesdays through Thursdays are workshop days when children practice their words individually or in pairs using strategies the teacher has taught them. Fridays are often the day when partners test each other (Fountas & Pinnell, 1998; Gentry & Gillet, 1993; Glazer, 1998).

All of the above-mentioned authors describe their own version of this workshop format. Fountas & Pinnell’s version is very detailed and includes several tips for organization (1998). In addition to this type of approach to spelling instruction, Wilde gives an excellent description of how spelling activities can fit into the routines of the entire day (1992, pp. 66-69). Both of these resources would be excellent for further reading.

Since every teacher is different, each will modify the approach to instruction to fit the needs of students in unique ways. Every teacher needs to take what they know and do their best to provide students with appropriate, developmental instruction. I cannot describe the program that will be perfect for every teacher, every school or every child. I challenge the reader to take the information gleaned from this review, dive in and do some more reading, and then go to the classroom and give students instruction that reflects the principles of effective spelling programs. In Moustafa’s words, “The key to making the journey a
happy and successful one is that we, who already know how to read, understand how children learn to read and provide them with support and encouragement" (1997; p. xv). I believe the same applies to spelling, writing and literacy in general.

Conclusion and Recommendations

The literature indicates that there is a lack of teacher knowledge about spelling and the topics that relate to it. It further indicates that "being an effective teacher [,then,] means having a well-developed set of understandings which one can apply in practical ways based upon the special needs of the situation" (DeFord, Lyons & Pinnell, 1991, p. 182). The purpose of this review of literature has been to examine what the current literature says about spelling, so teachers who wish to improve their understandings might better link their instruction with children’s needs, the ultimate goal being to help students become successful readers and writers.

Additional research is needed in the area of the visual coding mechanism as it seems to be one of the missing links for poor spellers. Gentry writes about his own extensive background in spelling, yet he still has difficulty detecting and correcting spelling errors (1987). Would this be true even for children who have received research-based instruction that provides opportunities to develop visual memory in early childhood? The brain develops very rapidly in those years, and children are able to learn very complex tasks much more rapidly than adults. Is this one of the areas of learning that has a “window of opportunity” to be learned, or is it truly just not there in some children?

As teachers take on the responsibility to teach all students to learn, another topic of concern becomes evident. It is the need for supportive models of in-service.
Many teachers are unaware of the current research in spelling and need support for learning the background and then applying it to their teaching. Spelling is a very complex topic to understand and apply to teaching in the daily life of the classroom until one has some experiences with children and literacy development. Even then, the management and organization of such a complex system seems overwhelming until one tries it. As teachers seek to implement research-based spelling instruction, they are very often left to themselves to seek support. Teachers need fresh ideas and long-term support provided by in-service programs as well as opportunities to collaborate with each other. Administrators and Title I personnel could be of great assistance to the teachers in their buildings by seeking out these links and in some cases providing in-service and modeling for teachers themselves. Administrators can also be helpful in determining how to provide teachers with the time during the work day for collaboration and learning.
Bibliography


# Appendix

## Spelling Trend Assessment

<table>
<thead>
<tr>
<th>Student's Spelling</th>
<th>Correct Spelling</th>
<th>Patterns Noted</th>
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Spelling is: Mostly natural (temporary) ______ Mostly Conventional ______

Source(s) of words: ___________________________________________________________

Instructional Needs: _________________________________________________________

__________________________________________________________

Student's Name: ______________________ Date: _____________________________

Teacher's Name: ____________________________

(From Glazer, 1998, p. 52)