Teaching and Learning the English Spelling System: Reconceptualizing Method and Purpose

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Abstract

This article discusses the need for formal, systematic instruction in spelling or word structure. Such instruction should cover a far wider domain than is usual, however. Because the spelling of words represents both sound and meaning, instruction should address both the structure of words and vocabulary development. This instruction can and should occur in a literature-based, writing-process-oriented, oral-language-enriched classroom. I establish the need for and nature of systematic instruction in the structure and meaning of words by examining three areas: (1) the development of knowledge about spelling or word structure throughout the elementary grades and the importance of this knowledge in reading as well as in writing; (2) based on this developmental picture, I describe the organization and nature of a program of formal instruction in word structure; (3) given the realities of the elementary school classroom, the need for such a program is addressed.

"A slavish concern for the composition of words is the sign of a bankrupt intellect," cries the Humbug in Norton Juster's marvelous fantasy, The Phantom Tollbooth (1961). The occasion is the Humbug's exasperation with the Spelling Bee—literally, a bee that flies about, ostentatiously displaying his ability to spell any word put to him. The Humbug's outrage, however, was certainly not the first time that this exasperation with "spelling for its own sake" was voiced while giving vent as well to an unspoken frustration with the chaotic jumble of English orthography.

Given the attitudes toward spelling and the way spelling has usually been taught over the years, one really cannot fault the Humbug too much for his outburst. In part because of this instruction and these atti-
tudes, many educators have called for the abolition of formal spelling instruction and spelling books, suggesting that a new spelling curriculum should be completely individualized and be based solely on the words each student misspells in his or her own writing (Bean & Bouffler, 1987; Wilde, 1990). Further, this argument goes, given that these words are the students' own, students will learn to spell them correctly and will learn the spelling of other words primarily through immersion in reading and writing.

Despite the face validity of the Humbug's assumptions and of the more informal approaches to spelling that some educators espouse, there are compelling arguments for formal, systematic instruction in spelling because of the role that spelling knowledge plays in conventional literacy. If not "slavishly" concerned, we should, nonetheless, be extremely interested in the structure of words—their spelling—for at least four reasons. (1) Spelling makes writing easier. (2) Spelling is a courtesy to the reader (Graves, 1983); if there were no other reason than these first two, it should be taught. (3) There is considerable order in the spelling system. It is not a haphazard chaotic frenzy of letter-sound anomalies—because of this, learning it should not be limited to the word-specific, rote-memory-based approaches of the past. (4) Spelling, or orthographic knowledge, plays a much greater role in the language arts than is popularly believed. The careful examination of words that is part of formal spelling instruction can beneficially affect not only the efficiency and quality of students' writing experiences but of their reading experiences as well (Adams, 1990; Templeton & Bear, in press).

The purpose of this article is to draw implications for spelling or word study based on the considerable body of recent research that supports the need for elementary students to study words out of context. I then consider these implications in the context of the reality of most elementary school classrooms. At the outset, it should be clear that I support the use of a formal spelling or word study program, but one that covers a far wider domain than is usual for such programs—one that addresses both spelling and vocabulary development. Given this broader emphasis, therefore, I suggest significant changes in the content of such a program in contrast to what has traditionally been included.

A critical assumption of this article is that the explicit instruction offered in a formal program can and should occur in a literature-based, writing-process-oriented, oral-language-enriched classroom. Contrary to the message often conveyed by some educators, in other words, systematic instruction in the "parts" of language—in this case, words—and purposeful reading and writing are far from being pedagogically incompatible. Indeed, such a combined or integrated approach is absolutely necessary if we are to help children realize their potential in word knowledge as well as their potential in reading and writing.

I develop the argument for systematic instruction in the structure of words by examining three areas: (1) the development of knowledge about spelling and word structure throughout the elementary grades and the importance of this knowledge in reading and in writing; (2) based on this developmental picture, I describe the format of a program of formal instruction in word structure; (3) given the realities of the elementary school classroom, the need for such a program is addressed.

The Development of Spelling Knowledge in Children

I begin by dispelling a popular myth: the encoding of words in writing and the decoding of words in reading are not totally separate processes. There is not one area in the brain where spelling knowledge resides and another where word identification resides (Brown, 1981). A common source of word knowledge underlies these processes.

This underlying word knowledge is constructed and elaborated over the course of
many years, making it possible to remember
the correct orthographic representations of
a large number of words. The primary
source of this word knowledge is actual
reading, and the primary means by which
this knowledge is exercised and developed
is purposeful writing, but there is consid­
erable evidence that the study of words out
of context also plays a critical role in this
development (Adams, 1990; Beck, Mc­
Keown, & Omanson, 1987; Templeton &
Bear, in press; Weber & Henderson, 1989).
Over the course of the elementary school
years, students' invented spellings provide
the critical insights into the nature of their
knowledge not only in writing but as it un­
derlies reading as well. Collected in both
structured and naturalistic settings, these
spellings inform us about what is going on
in a child's brain, whether the child is look­
ing at words in a workbook, in a trade book,
in a basal reader, or on a computer screen
(Henderson & Beers, 1980; Read, 1985).
Several researchers have described the
developmental progression through which
students move in their construction of
knowledge about the spelling system (e.g.,
Ehri & Wilce, 1986, 1987; Frith, 1980; Hen­
derson, 1990; Henderson & Beers, 1980;
Henderson & Templeton, 1986; Marsh,
Friedman, Welch, & Desberg, 1980; Stuart
& Coltheart, 1989; Treiman, 1987). Because
the invented spellings that students pro­
duce throughout the elementary years sug­
gest that they organize and apply knowl­
dge about words in significantly different
ways at different periods in their develop­
ment, the concept of "stages" is useful for
describing this developmental progression.
The first stage begins with the onset of
conventional literacy learning. This onset is
the point at which children have acquired
a concept of word in text (Morris, 1983),
thus understanding (1) how words in
speech match words in print, and (2) that
words consist of consonant and vowel
sounds. First, children conceptualize words
as consisting of letters that match sounds in
a straight left-to-right or alphabetic fashion.
This stage has been termed letter name
(Henderson, 1985, 1990) because the name
of a letter is the primary criterion children
use for spelling a sound. Early in this stage,
consonants and vowels are represented, al­
though short vowels are not spelled con­
ventionally because the children have not
yet learned these fairly straightforward cor­
respondences: PET (pit, Pete), CHRI (tried),
AVRETEG (everything).
Later, the effects of reading and writing
are evident as children correctly spell more
sight words and usually represent short
vowels conventionally: SIP (ship), CATOL
(cattle), TRAN (train), ROD (road). The in­
vented spellings for long vowels, however,
show us that children are still conceptual­
ing words in a left-to-right, letter-by-letter
fashion because they use only one letter to
represent the long vowel.
At the next stage, children conceptualize
word structure in relational terms rather
than in a strictly linear, left-to-right fashion.
During this stage, which Henderson (1985)
termed the within-word-pattern stage, chil­
dren develop the understanding that the
letter environment within single syllables
determines the spelling-sound relations­
ships. Letters come to be conceptualized in
groups or patterns. For example, silent­
vowel letters often indicate long-vowel or
diphthong pronunciations, so invented
spellings of these sounds appear like the
following: BOTE (boat), RIAN (rain), ROUWND
(round). Later in this stage most single-syl­
lable words are spelled correctly, while
polysyllabic words present some interesting
opportunities: the long Ε at the end of "coy­
ote," for example, may be marked by a ζ:
CYOTTEY.
With continued involvement in reading
and writing, students' word knowledge is
more characteristic of the syllable-juncture
stage: They come to understand how single
syllables combine to form written words of
more than one syllable. They learn that, at
the juncture where syllables join, there may
be one letter, double letters, three letters, or
certain letters may be dropped. What de-
termines the appropriate spelling at these junctures is the structure of single syllables within words: Students’ understanding of the spelling at these junctures depends on the strength of their knowledge of the patterns within single syllables. For example, because *brag* has a short vowel pattern, the final consonant is doubled when a suffix like *-ing* is added; because *make* has a long vowel pattern, the final *e* is dropped before adding a suffix such as *-ing*.

In the late syllable-juncture stage, invented spellings reveal that students need to attend not only to vowel patterns within single syllables but also to the effects of stress or accent: *equipped*, *prefering*, *offered*. In words such as these, whether or not the final consonant is doubled depends on whether or not the final syllable is stressed: It is in *equip* and *prefer*; it is not in *offer*.

Knowledge of polysyllabic words is elaborated as children acquire the vocabulary characteristic of Latin, Greek, and French borrowings. Beginning usually in the intermediate grades, this acquisition provides the foundation for later movement into the *derivational-constancy* stage (Templeton, 1979; Zutell, 1979) in which the exploration of words focuses on spelling/meaning relationships among words that are related through patterns of derivation. At first, children’s spelling errors reflect their continuing attention to sound rather than the meaning characteristics of words: *immediate*, *interrupt*, *computation*, *legen*, *condemn*, *illustrate*, *laboratory*. Later on, their errors reflect the more advanced vocabulary they are experiencing: *accommodate*, *nemonic*, *allege*.

These stages of spelling knowledge illustrate that first, third, and sixth graders focus on different types of information when they look at words. At each stage of word knowledge, readers immediately identify words that directly reflect the type of knowledge characteristic of that stage (e.g., one-syllable words at the within-word-pattern stage and polysyllabic words at the syllable-juncture and derivational-constancy stages), while words that readers do not immediately identify are analyzed based on the students’ stage of orthographic knowledge (Bear, 1989; Gill, 1989; Invernizzi, in press; Templeton, 1989). Specifically, how are students applying this knowledge of the structure of words in their reading and writing?

In reading, letter-name spellers survey words left to right, letter by letter, and their reading is word by word. Their reading is not fluent, and it is naturally out loud. Students at the within-word-pattern stage pick up groups of letters. As they fixate on a word, they will first pick up the beginning single consonants, or consonant blends and digraphs, and then the phonogram—the vowel and what follows. Because they are not scanning words letter by letter but organizing letters by patterns, more cognitive space is freed so that they are able to attend to the construction of meaning and to the intonation patterns of the language. Students at the syllable-juncture or derivational-constancy stages have quite abstract word knowledge that works both within and between syllables in polysyllabic words and that incorporates students’ knowledge of morphemic, or meaning, elements—prefixes, suffixes, and word roots (Templeton, 1983).

Recent research in word perception complements the developmental orthographic picture presented here and underscores the importance and role of word knowledge in reading: (1) even efficient readers fixate on most of the words in their reading—they do not read in groups of words; and (2) beyond the beginning stages of reading, context does not play nearly as important a role in word identification as once believed (Coltheart, 1987; Perfetti, 1985; Rayner & Pollatsek, 1989). The more familiar a student is with the features of the spelling system, therefore, the more rapid and efficient will be his or her processes of word identification. In turn, more processing resources can be given over to compre-
hension and understanding, allowing the construction of a model of the text that more closely approximates the interpretation the author intended the reader to construct. Without the underlying orthographic knowledge that supports efficient word identification, in other words, even the richest prior knowledge will not help the reader construct appropriately the meaning that the print on the page suggests (Perfetti, 1985).

Highlighting the importance of orthographic knowledge in reading is not to say that everything else is unimportant. It is saying, though, that other types of prior knowledge such as topic knowledge and knowledge of genre will be more likely to be called on and used efficiently if word knowledge is sufficient to the reading task: If a student is struggling to identify words, then all else begins to collapse. In contrast, if the student is skipping over or substituting different words for actual words on the page, then comprehension may seem easier, but it is not efficient because the meaning that the child is constructing does not maintain a reasonable correspondence with the information that the writing represents. This might be acceptable if any interpretation of the text is allowable but may be debilitating when the interpretation must be accurate, as when reading directions for conducting a science experiment.

How do students apply this developing orthographic knowledge during writing? Although correct spelling should not be a primary concern in writing until the editing phase, the initial encoding of words will be more automatic and efficient if orthographic knowledge is more developed. As with aspects of mechanics, initial automatic encoding becomes important “if only because without some measure of ease, without being able to assign some operations to habit, or even to indifference, the novice writer is cut off from thinking” (Shaughnessy, 1977, p. 14). From a developmental perspective, this explains why some students are letter-by-letter writers, others word-by-word writers, and others more fluent writers, encoding words almost in phrasal units (Bear, 1989). For example, early in the letter-name stage, children’s writing is letter by letter, with each word being a significant effort in itself. Because of this, compositions are usually brief—although children may not appear to have written much, they have expended considerable effort over, say, 10–15 minutes. Later, just as with reading, more cognitive space is available for planning and attending to meaning as the encoding of words is performed more automatically, in units that are now groups of letters within words.

At the intermediate grades, most students are at least in the syllable-juncture stage; in addition to the planning time allowed by rapid encoding of words, they can learn to apply analogical reasoning when encoding words whose spelling they are unsure of: “We suggest that if you are uncertain about the spelling of a word, try to think of a word that is related in spelling and meaning to the one you’re trying to spell.” Students who are taught this strategy are more likely to do the following. If they are unsure of the spelling of the “schwa” (the unaccented vowel sounding much like a short u) in the second syllable of comedy, they may think of comedian, in which the vowel sound in the second syllable is clearly heard, thus providing the clue for the schwa spelling in comedy—e.

The Organization of Spelling or Word Study

Most students need more than mere “exposure to written language through reading and the chance to practice it through writing” (Wilde, 1990, p. 276). Although we might wish that learning about the orthographic system would be “analogous to learning how to speak the language” and “ultimately be as natural, unconscious, effortless, and pleasant as learning to speak” (Wilde, p. 276), this does not appear to be the case for most students. In this regard, Charles Read (1989) commented that the
"parallel between learning to spell and learning to talk . . . is overstated . . . Virtually everyone learns to talk; not everyone learns to read and write, in any language. There is a substantial number of children and adults for whom reading and/or spelling are mysterious and difficult." And, as I explore below, there is much more that achieving students can and should learn about spelling.

It is clear that something more than simply reading and writing is required. Much recent research suggests that this "something more" is the systematic examination of words apart from their occurrence in running text (e.g., Ehri, in press; Weber & Henderson, 1989; White, Power, & White, 1989; Wysocki & Jenkins, 1987). "The arguments for including spelling instruction as a major component of the reading and language program are strong," Adams concludes in her seminal work on beginning reading (1990, p. 404), because "skillful reading depends critically on the deep and thorough acquisition of spellings and spelling-sound relationships" (p. 421), and "instruction designed to develop children's sensitivity to spellings and their relations to pronunciations should be of paramount importance in the development of reading skills" (p. 416).

In many traditional spelling activities, however, taking words out of context indeed rendered them lifeless. In the past, exposure to words was more likely to be through simply assigning words to be memorized rather than teaching about words (Gentry, 1987). The effectiveness of spelling lessons suffered accordingly, therefore, and such lessons have probably deserved the censure they have received (Wilde, 1990).

The challenge of curriculum designers of spelling or word-study programs is to arrange words and word-study activities so that spelling patterns—letters, within-word vowel phonograms, syllable patterns, meaning relationships—will become apparent. Bussis and her colleagues pointed out that "the brain, in effect, is an exquisitely designed pattern detector, but it depends on adequate information to work efficiently" (Bussis, Chittenden, Amarel, & Klausner, 1985, p. 66). In the case of word structure, this adequate information emerges not simply in on-line reading but out of context—because only by taking words out of context and arranging them in groups can the patterns emerge directly to be compared and contrasted.

Henderson (1985, 1990) and Henderson and Templeton (1986) have presented a full scope and sequence of patterns for inclusion in a formal program of study. In this section, I describe representative examples of this organization. Assuming that students are appropriately placed for word study, then a spelling or word-study program should reflect the following organizational and instructional principles: (1) at all levels, a common core of words should be examined; (2) in accordance with students' development, a variety of strategies and activities should be offered in which words are productively examined; and (3) the philosophy that spelling is logical should be reflected—this will underscore the critical role that the spelling system can play in the development of vocabulary.

"Formal instruction" means the systematic presentation and study of lists of words. Contrary to the suggestions of several educators, the words should not be selected at random from reading materials; rather they should be grouped or categorized according to a common pattern or principle and presented in a list. For example: (1) words in which long a is spelled a-consonant-e or ai; (2) words that follow the vccv syllable pattern, as in member and market; (3) related words in which a common alternation pattern occurs, as in normal-normality; and (4) words in which the -dict- and -spect- word roots occur. Furthermore, these words should be familiar to students because students have, for the most part, already encountered them in reading. A legitimate concern of many educators in years past has been that students learn to spell

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correctly the most frequently used words in writing, so the lists should consist primarily of words that students use frequently in their writing, and words they are likely to misspell (Dale, O'Rourke, & Bamman, 1971; Jacobson, 1982). Moreover, the list words should reflect the features of spelling that students are developmentally ready to examine.

Just as students with similar skills are grouped in reading and writing instruction, so should they be grouped for spelling or word study (Bear & Barone, 1989; Henderson, 1985; Morris, Nelson, & Perney, 1986). The words the students examine should be at their instructional spelling level rather than at their “frustration” level, as is all too often the case. When students are appropriately placed for word study, they can read all of the words on the list and are able to spell correctly at least half of the list words on a pretest. If they misspell more than half, then the list is at their frustration level—even if students manage somehow by dint of brute memorization to remember the words long enough to spell them correctly on Friday’s test, they are guaranteed to misspell them next week (a common teacher’s lament). This is because the words are beyond the students’ instructional level.

Teachers should not be surprised, therefore, that students cannot remember them.

One aspect of “traditional” spelling study that is still clearly supported by research is the study of words in a 3- or 4-day cycle, with a pretest on Monday and a posttest at the end of the week. Henderson (1985, p. 124) noted that “The routine of pretest, self-correction, study, posttest, and spaced review practice is a well-established design intended to insure that a core spelling vocabulary will be memorized.” This study can occur in a number of ways but should involve exercises and activities that facilitate students’ attention to particular features in the words (for example, the juncture within two-syllable words). This study should be complemented by word-sorting activities (Barnes, 1989; Morris, 1982) involving the list words as well as additional words that reflect the same pattern(s).

There are several features of English spelling that most students at each grade level in the primary and the intermediate grades may examine. If properly constructed, the lists of words that reflect these features, and the activities that focus on them will accommodate a wide ability range: “A single grade-level speller, particularly when augmented by appropriate follow-up activities, can meet a fairly wide range of individual differences in basic word knowledge” (Henderson, 1985, pp. 123–124).

Primary Grades

Students discover and examine what they know about sight words as a foundation for learning about new words. The basic alphabetic and within-word-pattern features of the spelling system that are examined include short vowels, long vowel patterns, digraphs, blends, and other less frequent vowel patterns. Examination should be focused on the comparison and contrast among words (Carroll, 1964; Henderson, 1990). At the letter-name and within-word-pattern stages, this examination is directed toward single-syllable vowel patterns. Most of these patterns are not taught directly by rule but are abstracted or constructed as students examine words that follow these patterns.

For most students, first grade is a time that the alphabetic or left-to-right letter/sound correspondence within words is explored and elaborated; children learn the common short vowel spellings as well as simple blends and digraphs. Toward the end of the year, long vowel sounds are introduced through the common vowel-consonant-silent e (vce) pattern (make; bite). Significantly, second and third grades are the time when children’s knowledge of within-word pattern develops and becomes consolidated.

Word lists themselves should begin with five or six words in the second half of first
grade and work up to about 12 words at the third-grade level. At the primary grades, comparison and contrast should be directed within and between vowel patterns: short versus long (for example, *fat* vs. *late*, *brick* vs. *bike*), long versus long (for example, the different representations of long *i*: *bike*, *high*, *find*, *my*, *height*).

The variability of vowel spellings is more sensibly and logically addressed when students compare and contrast different spellings for particular sounds. Consider as an illustration the different spellings for the long *a* sound: they are not capricious. Long *a* is rarely spelled *ai* at the end of words; it is never spelled *ay* or *ey* in the middle of syllables. As Hanna, Hanna, Hodges, and Rudorf (1966) explained years ago, the spelling of a sound depends on where the sound occurs within a word. Children’s understanding of this feature of English spelling comes only from the examination of known words.

It has been argued that, simply because of this variability in vowel spellings, requiring students to examine, for example, the different spellings of long *i* leads to simple rote memorization, with no deeper understanding (e.g., Wilde, 1990). This is true only if students are required to attempt words and spelling patterns for which they are not developmentally ready. In contrast, if students are properly placed for instruction in spelling, they already know how to read these words and have had sufficient experience with them in reading, and the types of examination and discrimination afforded in well-constructed word-study programs will consolidate their knowledge. The students will tacitly learn the conditions under which different vowel letters occur.

To give an idea of how teachers can help students “walk through” words so that students can compare and contrast short and long vowel patterns, I offer the following brief example appropriate for most second graders (after Henderson, 1990). Assuming the terms “short” and “long” vowel have already been introduced to, and learned by, these second graders at the beginning of the year, the teacher writes the word *rip* on the board and asks the students what sound the *i* stands for. He then writes *ripe* on the board and asks them what sound the *i* stands for in this word. The teacher underlines the short vowel pattern (-*ip*) and tells the students that “the short *i* is spelled by a single vowel that is followed or ‘closed’ by a consonant. This is called the ‘short vowel pattern.’” He then underlines the long vowel pattern in *ripe* and tells the students that “this pattern includes a vowel, a consonant, and a silent *e*; it is called a long vowel pattern.”

This type of simple explanation shows students how to look at single-syllable words and models how the terms or vocabulary used to refer to spelling patterns are applied. “Closed” is a term that, along with “open,” students will find quite useful in discussing polysyllabic words later on. And, of course, the terms *consonant*, *vowel*, and *silent e* are part of the commonplace vocabulary for discussing words at this level.

Although children certainly are learning polysyllabic words as sight vocabulary during the first 2 years, students do not examine these words until third grade, when they have sufficient knowledge of within-word pattern as a foundation for looking at polysyllabic words, at which time teachers help them begin to pay attention to syllables. Prior to this time, teachers should not expect students to be able to be very analytical about these words—that is, examining the juncture of syllables to determine correct spelling.

Henderson (1990, p. 68) states that “the core principle of syllable juncture is that of doubling consonants to mark the short English vowel.” Students begin to develop this understanding in second and third grade as it applies in the case of adding inflectional endings to base words (double the final consonant if the vowel is short; do not if the vowel is long). But this principle does not...
stop with adding inflectional endings; it applies within polysyllabic words as well. If a syllable contains a short vowel, then it is “closed” by a consonant sound, and the spelling is doubled. If a syllable is “open” with a long vowel sound, then the following syllable in a polysyllabic word begins with a single consonant letter. Henderson commented that a serious omission of spelling programs in the past “has been a failure to show that the spelling pattern in batted (where a silent t is added) is the same pattern that dictates the double consonants in two-syllable words like button, mitten, and rabbit.” A unit that deals with inflections -ed and -ing at the third-grade levels, therefore, could be followed by a unit containing two-syllable words that follow the same juncture pattern in which doubled consonants mark the point at which syllables join; for example, bottom, common, and sudden.

Following is a description of how a teacher can analyze a two-syllable word, helping most students in the second half of third grade become aware of what they already know and what they will probably need to attend to in the spelling of words that follow this pattern. The teacher pronounces the word doctor and asks students how many syllables it has. She then asks the students what letter begins the first syllable (writes it on the board), what letter ends or “doses” the first syllable (writes it on the board). Next she asks students what letter begins the second syllable and what letter ends or closes the second syllable. The teacher asks students to listen to the first syllable, which is stressed, and to say what letter they think spells the vowel sound in the first syllable; she then writes it on the board in the appropriate place. Next, the teacher asks students to listen as the unaccented syllable is pronounced and to guess what letter stands for the unaccented vowel sound. For this word, as the teacher has predicted, they will guess the correct letter. The students are asked if they could be absolutely certain about the spelling of the unaccented vowel if they had not seen the

word—is sound by itself a clue to the spelling in unstressed syllables? Not really, because this ending can also be spelled -er and -ar. The teacher asks them if they were to study the word doctor in order to learn its correct spelling, what part of the word they would pay attention to. Students realize the value of looking in the case of polysyllabic words such as these.

This type of guidance helps students to understand why they should attend to accent for purposes of spelling: It shows them what they already know about the spelling of a polysyllabic word (the vowel pattern in the stressed syllable) and what they need to know and therefore pay attention to.

By the end of third grade, students should have acquired a strong grounding both in basic vowel patterns and simple syllable patterns. The latter refers to accented syllables—spelling them by patterns common to single-syllable words—and paying particular attention to the spelling of the unaccented syllable because in these syllables the sound is usually little clue to the spelling of the unstressed vowels. Simple prefixes and suffixes should also be introduced toward the end of third grade.

Intermediate Grades

At the syllable-juncture level and on into the derivational-constancy level, the systematic examination of words through comparison and contrast is focused on discriminating among syllable patterns and, somewhat later, on an awareness of the spelling/meaning relationships in words (Templeton, 1983). Systematic and well-sequenced direct teaching in word structure will focus students’ attention on the spelling and meaning relationships as well as on the combinatorial aspects of English words—the ways in which affixes, base words, and word stems combine to create words and how the spelling retains and represents the meaning resulting from these combinations.

Beginning in fourth grade, most students have the requisite word knowledge and sight vocabulary to make this type of
study productive (White et al., 1989). This word knowledge will underlie students’ ability to analyze new words in their reading and to explain many of the otherwise troublesome aspects of the spelling of words. We know that they need it, because even “most high school students do not know how to decompose a word into its parts to guess its meaning” (Sternberg & Powell, 1983).

In fourth, fifth, and sixth grades, words selected for study must not only illustrate common syllable patterns and morphemic elements but, in the case of vocabulary development, be “generative” as well (Beck et al., 1987). That is, morphemic patterns that are examined should apply to a wide domain of related words.

At the intermediate grades, students will continue to examine syllable-juncture patterns, which will be a significant part of spelling or word study. Of course, when most prefixes and suffixes are added to base words, syllable-juncture principles apply. As students are learning to read the words that will later be the foundation for their understanding of orthographic structure at the derivational-constancy stage, they will be analyzing the ways in which syllables combine in words that they already know—in terms of basic syllable patterns as well as in terms of the ways in which affixes and bases combine.

In the intermediate grades, students can continue to develop an appreciation for the role of meaning in the spelling system as they examine words that are related in meaning and in spelling: for example, resign-resignation, product-production, compose-composition, and mobile-mobility. They will learn that, despite the sound changes indicated by italics in these words, the spelling remains constant to indicate the shared meaning relationship between these word pairs (Chomsky, 1970). Examination should be closely related to vocabulary study, helping students to make discriminative specific responses among related words in a family and among derivational patterns more generally. This study would begin with the examination and categorization of words in which students search for common spelling and semantic patterns as well as syntactic markers (for example, nominalization as when -ion is added to verbs: generalize/generalization) and then compare and contrast words according to these features.

Because many errors occur within the unstressed syllables of derivationally related words, the correct spelling is highlighted by referring to related words in which the corresponding vowel is stressed, thus providing a clue to the spelling. Note how a related word, in effect, “explains” the correct spelling for each of the following misspelled words: COMPUTITION (compete), LEGle (legality), CONDEM (condemnation), LABRATORY (labor). This is the point at which students should learn explicitly the spelling-meaning connection, which is both a principle and a strategy: Words that are related in meaning are often related in spelling as well, despite changes in sound. Students should be presented with a strategy for examining words that are both related in spelling and meaning and that have the different spelling/meaning patterns that characterize literally tens of thousands of English words. In the following lesson, appropriate for sixth or seventh grade, the teacher explicitly demonstrates (1) how spelling preserves meaning in derivationally related words, and (2) how students can apply a strategy for spelling the “schwa” sound in words.

The teacher writes impose on the chalkboard and underneath it writes imposition. She then asks the students if these words have a similar meaning. She underlines impos in both words and asks the students if these letters stand for exactly the same sounds in both words. The teacher reinforces the realization that the long o sound in the word impose changes to a “schwa” sound in imposition. The teacher reminds the students that, similar to these two words, a good many words are related in
both spelling and meaning, despite the fact that they are pronounced differently. But students should think of a related word and note the spelling of the corresponding stressed vowel in it for words that contain a schwa sound, as imposition does.

Learning the spelling-meaning principle involves the examination of common sound changes that occur within and between related words while the spelling remains relatively constant. As Templeton and Scarborough-Franks (1985) noted, because this type of examination, of necessity, focuses on semantic/morphological relationships shared by the words, vocabulary development should be facilitated as well—first by elaborating the common conceptual underpinnings of words such as condemn/condemnation and labor/laboratory. As students come to understand and appreciate this principle, they will understand that this is why we do not spell words “the way they sound” in English—we would lose the visual preservation of meaning across related words.

For example, rather than simply telling students to memorize where the doubled consonants occur in polysyllabic words, instruction should lead students toward the realization that the meaning of these elements underscores their spelling: There are two m's in immediate, even though only one m sound is heard because the spelling retains the prefix, im-, and the base, mediate. There are two r's in interrupt because the prefix, inter-, ends with an r, and it combines with the word root, rupt, which begins with an r.

Beginning at fourth grade for most students, the need for this type of instruction is supported by research both old and new. Years ago Dale, O'Rourke, and Bamman (1971, p. 172) observed that “organizing spelling lessons to coincide with the study of morphology gives the students a contextual structure for the study of spelling.” More recently White et al. (1989) supported the desirability of “direct morphological instruction in Grades 4 and above.” Templeton (1989, 1991) has suggested a specific scope and sequence for this instruction in which spelling (the “morphology”) and vocabulary are linked.

As students move more firmly into the derivational-constancy stage, they should explore more advanced information represented in spelling: frequent Latin word roots and Greek combining forms, etymological factors (which explain otherwise puzzling spellings such as the silent letters in knight and cupboard), and absorbed prefixes (in- + luminate = illuminate; ad + tract = attract). The vocabulary that students encounter in reading is much more of a source for exploration. This is also the point at which students systematically apply the knowledge based on the examination of known words to unknown words—an objective that I explore in the next section.

Examining word origins and the processes of word creation provides a powerful knowledge base for learning spelling and vocabulary as well as for facilitating more effective reading and writing. Many times the spelling of a word may appear odd, but an understanding of its origin provides the most powerful key to remembering the spelling. Knowing that so many words have come from mythology, literature, and historical figures provides important background knowledge for students' reading in the various content areas. In addition to coverage of Greek and Latin origins, the contributions of French should be studied (almost half of the words in the English language come from French) as well as Spanish (the language from which more words have come into English over the last century than from any other language—a phenomenon that will continue into the twenty-first century).

As Templeton (in press) summarized, “Directing students' attention to how the spelling system preserves meaning across a considerable number of word families will lead them towards a more efficient organization of word knowledge—thus leading
to more efficient and effective reading and writing.’’ Formal, systematic instruction should continue to emphasize the spelling-meaning connection—elaborating existing word and conceptual knowledge—while laying the groundwork for using the spelling system to expand students’ vocabulary knowledge: Students will apply knowledge of known words to learn about unknown words. For example, the silent n in *autumn* is explained by pointing out the related word, *autumnal*, in which the n is pronounced. Likewise, the silent n in *condemn* is explained by referring to the related word *condemnation*. Once students are explicitly aware of these relationships, they can appreciate more subtle nuances of relationships among words such as *hibernate/hibernial/exhibit*, *human/humanity/humble/humility/humus/exhume*, and *impunity/punish/punitive*. They will look at words in new ways and will never cease to be surprised. For example, one of my graduate students—a fifth-grade teacher in a low-socioeconomic-status school—was delighted when her students wondered if *nauseous* is related to *nautical*. They checked an unabridged dictionary, and sure enough—they found that *nauseous* comes from the Greek word for *sailor*—the students had enough prior knowledge to realize how this derivation occurred!

**The Roles of Teachers’ Knowledge and Spelling Basals**

Spelling knowledge develops according to identifiable stages, and it is learned through reading, writing, and systematic study. It is a powerful engine that drives much of conventional reading and writing. Both its acquisition and possession must receive deliberate and serious attention in the language arts. The central issue to which every learning and teaching issue in spelling continually reduces, then, is the importance of studying a group of words that share structural and/or semantic features—abstract, generative relationships—and doing so on an ongoing, developmental ba-

siss throughout the grades. The words must represent patterns that students will benefit from examining, patterns that underlie the orthographic knowledge students will construct throughout the elementary grades. As noted above, this knowledge, in turn, underlies the efficiency with which students read and construct a text-appropriate meaning and with which they write efficiently.

How can the format and context of the information just presented best be conveyed? Should we rely solely on the knowledge base of teachers, on published programs, or on some combination of the two? Most elementary educators do not stay abreast of the developments in the field of developmental word knowledge and its role in the language arts. Indeed, it is unrealistic to expect that, given the incredible demands on elementary teachers’ time and resources, they can stay abreast not only in this area but in all the other areas of elementary curriculum. The consequences for word study, then, are these: Most teachers do not yet have the type of knowledge base in developmental word knowledge and the nature of the spelling system to have the confidence and the ability to teach spelling both incidentally and in a theoretically sound fashion (including aspects, such as etymology, that could enliven the study of words). Most teachers still consider learning to spell primarily a rote-memory undertaking with little if any relation to other aspects of learning or teaching about words; those who are aware that there should be more to spelling study are uncertain about which, if any, words students should study at different grades as well as how teachers should respond to spelling errors that occur in students’ writing.

But even if teachers are aware of the types of patterns discussed in this article and are sensitive to the developmental levels of their pupils, it is difficult for them to maintain and reinforce this necessary attention on a regular basis in day-to-day instruction (Beck et al., 1987; Nagy, 1988). Moreover, even if they wished to, most
teachers do not have the time to search for and group words according to the families of patterns described in this article because, as I noted, teachers should not select words simply at random from basal reading series, literature-based series, or from trade books.

Thus I return to the assertion made at the beginning of this article: At least for the short term—and probably for the long term as well—a well-prepared spelling and vocabulary program can provide a knowledge base and a scope and sequence for teachers. Such a program would contrast with the vapid and uninteresting spelling series of the past in (a) the way in which the list words are selected and sequenced, (b) the scope and value of the word-study activities, and (c) the underlying emphasis on the logic of the spelling system.

Criteria and Programs

Teachers may wish to consider the following factors in evaluating spelling and vocabulary or word-study programs; publishers should consider these factors in constructing pupil texts and teachers' editions for such programs:

Pupil Texts

In the past, word-analysis instruction in reading and much spelling instruction hurried through the examination of known words or ignored it altogether, highlighting a particular phonic or structural analysis element and then seeing how it applied to unknown words. Children were presented with new information about words without consolidation of the old—leading at best to superficial understanding and rote memorization. The examination of existing word knowledge strengthens the framework into which new word knowledge will fit, and pupil texts should be constructed to reinforce this examination.

The construction of word lists has already been discussed, though the tradition of including a list of review words as well as of challenge words should be continued in order to accommodate more learners at each grade. These words should also reflect the particular pattern(s) that the basic list words address. Whether deductively or inductively presented, strategies for examining words should be made explicit at some point within a particular lesson or unit.

Although students should, of course, write the unit words in response to activities, these word-study activities should involve students in manipulating words from a variety of perspectives: categorization, analogies, cloze, definition (making a discriminative response rather than merely looking a word up and writing a sentence that includes it), figurative language (similes, metaphors), antonyms/synonyms, and denotative and connotative meanings. Geller (1985) discussed an attitude toward learning about words and an instructional environment that facilitates what she termed "wordplay"—ideally, this should be an important feature of pupil texts as well.

Pupil texts can contain additional optional pages that extend the unit lesson, relating it to other areas of the curriculum through themes and content-related vocabulary as well as providing additional information about words and opportunities for exploration.

Pupil texts should include dictionaries using all the words in the text, not just basic list words, and these dictionaries should contain, at the intermediate levels, etymological information as well.

Teachers' Editions

The potential role of teachers' editions as resource books is well documented (Anderson, Osborn, & Tierney, 1984; Winograd, Wixon, & Lipscomb, 1989). In a spelling or word study program, teachers' editions should provide basic information about the nature of the spelling system of English as well as the characteristics of developmental word knowledge, together with a theoretically sound scope and sequence. They should also contain information about placement as well as sample lesson scripts. Information should be in-
cluded concerning the types and organization of word-sort or word-categorization activities as well as "word hunts" in which students look for words that follow whatever pattern or patterns are under examination. The teachers' editions can discuss how these words can be entered and categorized in word-study notebooks, and so forth. Suggestions may be offered for adjusting instruction for more advanced word learners as well as for students who are not yet as proficient as their peers. Teachers' editions can include information about related word study/word history books, both for teachers' own information and for their students'. Finally, the editions can provide ideas for better integration with the other language arts, including reading.

This last point merits elaboration. Indeed, publishers can do a much better job of coordinating word-study sequences across the basal series that each publishes. The most important adjustment would be to correlate this study with reading or literature-based basals and English or language arts basals. Teachers would not feel themselves teaching at cross-purposes between a reading basal that suggests one way of addressing word and vocabulary study and a spelling basal that suggests another.

Many educators today are concerned about the possibility of published programs usurping the rights of teachers to exercise their own professional judgment in what and how to teach (Goodman, Shannon, Freeman, & Murphy, 1988; Shannon, 1989). Although this is a legitimate concern, an underlying assumption is that teachers can exercise their judgment because they have the information to make professionally appropriate decisions. A well-developed published instructional program can provide teachers with information that will allow them to do precisely what many basal opponents desire: empower them to make informed instructional decisions. In other words, it is one thing to say that there are problems with ineffective and in some cases counterproductive spelling programs of the past, and quite another to say that we should avoid systematic, sequenced spelling or word study altogether.

Conclusions
This article implies that a new type of spelling instruction is called for. Traditionally, instruction about words has been partitioned into word analysis, vocabulary, and spelling. And traditionally, publishers have addressed these instructional domains in reading basals, English or language arts basals, and spelling series. As a result, the study of words in the elementary classroom has been broken up in accordance with these curricular divisions. So it is that spelling has come to assume an unpleasant aura because it connotes dreary memorization of words and meaningless workbook exercises. Rather than throw the spelling texts out, however, I suggest instead that the systematic and sequenced study of word structure should be a unifying factor linking word knowledge across the traditional domains of reading, English, and spelling.

Spelling or word-study programs, therefore, have the potential to do much more than simply teach words that students are likely to use in their writing (Hillerich, 1976). Indeed—given the suggestion about study of word structure being a unifying factor across reading, English, and spelling—perhaps we should call such programs "word-study" programs instead, an approach I have taken throughout this article not out of uncertainty regarding terminology but in the hopes of subtly effecting a change! As I have suggested, such programs can help children develop knowledge that underlies not only correct spelling but also the construction of abstract knowledge structures that will underlie their advancing word knowledge and afford more efficient, effective reading and more elaborated writing.

Our necessary effort to place instruction in a more meaningful context, to render it genuine, purposeful, and authentic, should not eliminate the type of direct and system-
atic instruction in word knowledge that research is increasingly demonstrating is critical. Put differently, by not helping students to note patterns, by not helping them to acquire conscious strategies for analysis and generalization, educators are inadvertently depriving students of beneficial and timely information about words. In Bussis and Chittenden’s words, teachers are withholding the information that students need to “detect the patterns.” And many, if not most, students are not noticing the patterns and making the connections on their own.

Many contemporary educators suggest that students only be accountable for certain words they misspell in their writing as well as some new words they encounter in their reading—with no further instruction. When intermediate teachers do this, for example, they prevent students from discovering and exploring the rich network of structural and semantic relationships among words—relationships that are important not only for correct spelling in writing but also because they ultimately lead to an increase in students’ vocabulary knowledge, reading efficiency, and writing fluency and expression. If we uncritically ascribe to the learning-to-spell-is-like-learning-to-talk analogy, we ignore the implications of research not so much to our peril, but, more insidiously, to the detriment of students.

As Goodman (1987, p. 10) eloquently expressed it, helping pupils “achieve a sense of control and ownership over their own use of language and learning in school, over their own reading, writing, speaking, listening, and thinking, will help to give them a sense of their potential power” (emphasis added). Children cannot realize their potential power, however, unless they are shown what they have not discovered for themselves, and where words are concerned, there is much that, for most children, remains undiscovered.

References


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