Beyond Phonics: Integrated Decoding and Spelling Instruction Based on Word Origin and Structure

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In this paper, the relevance of word structure knowledge to decoding and spelling instruction is discussed. An explicit, discussion oriented, direct approach to teaching decoding and spelling based on word origin and structure results in improved reading and spelling. This instruction leads students to a comparison and contrast of letter-sound correspondences, syllable patterns, and morpheme patterns in English words of Anglo-Saxon, Romance, and Greek origin.

One common characteristic of dyslexic children appears to be their inability to decode and to spell words accurately. Indeed, children who are poor decoders are apt to be poor spellers. Furthermore, decoding and spelling are related as they both share a common orthography (Bryant and Bradley 1980; Henderson 1980). Those tenets that are useful for decoding are equally useful for spelling. Yet, in most schools today, instruction in these two areas is separate and independent.

There is growing evidence that structured, sequential, multisensory teaching based on an alphabetic (those techniques often based on the "Orton-Gillingham" approach) provide reading-disabled children with appropriate strategies for both decoding and spelling (Enfield 1976; White 1986). There is also evidence that once students learn the structure of English spelling, based on historical factors of word origin, and use this structure to analyze unfamiliar words, both reading and spelling improve (Henry 1988).

In this paper, I begin by describing the structure of English orthography and suggest this structure as a curricular framework for decoding and spelling. I then present an instructional approach for integrating decoding and spelling instruction. For teachers already using the "Orton-Gillingham" approach or one of its many adaptations, this paper provides

a way to organize this important body of information. For those who are unfamiliar with this approach, the model will serve as a means of placing decoding concepts in a coherent framework.

The Structure of English Orthography from an Historical Perspective

Orthography refers to the spelling system of any language, and the regularity of English orthography has been disputed. No less an authority than George Bernard Shaw bequeathed part of his fortune to the cause of spelling reform (Balmuth 1982). However, orthographic features begin to make more sense when one takes an historical/structural perspective. Venezky (1970) studied the patterns in present-day English orthography and found support for a structural basis to written English.

Numerous historical forces shaped the development of written English, a polyglot, with Anglo-Saxon, Romance, and Greek all playing a role in establishing the words read and written today (Balmuth 1982; Hanna, Hodges, and Hanna 1971; Nist 1966). Figure I illustrates how the language is carved along its historical "joints." (After Calfee and Associates 1981; Calfee and Drum 1986)
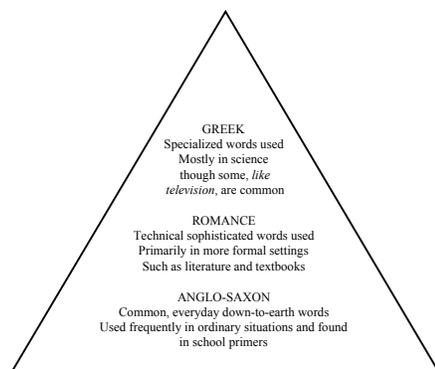
GREEK
Specialized words used
Mostly in science
though some, *like television*, are common

ROMANCE
Technical sophisticated words used
Primarily in more formal settings
Such as literature and textbooks

ANGLO-SAXON
Common, everyday down-to-earth words
Used frequently in ordinary situations and found
in school primers

Figure 1. The layers of the English language.

Orthographic structure refers to the patterns present in a word. These patterns may be single consonants and vowels and the consonant and vowel combinations known categorically as *letter-sound correspondences. Syllable patterns* and *morpheme patterns* (the prefixes, roots, and suffixes of a word) compose two other major classes of word structure.

These two themes, rarely pointed out to teachers or their students, flow through the curriculum and instruction portrayed in this paper

(Table 1). In the following section, I discuss each layer of language and suggest patterns found in the three structural categories.

Anglo-Saxon Layer

Words of Anglo-Saxon origin are characterized as the common, everyday, down-to-earth words, used frequently in ordinary situations. Nist (1966) provides a clever example of Anglo-Saxon words:

> . . . English remains preeminently Anglo-Saxon at its core: in the suprasegmentals of its stress, pitch and juncture patterns and in its vocabulary. No matter whether a man is American, British, Canadian, Australian, New Zealander or South African, he still *loves his mother, father, brother, sister, wife, son and daughter; lifts his hand to his head, his cup to his mouth, his eye to heaven and his heart to God; hates his foes, likes his friends, kisses his kin and buries his dead; draws his breath, eats his bread, drinks his water, stands his watch, wipes his sweat, feels his sorrow, weeps his tears and sheds his blood; and all these things he thinks about and calls both good and bad.* (p. 9)

Although the criteria for selection of words and patterns is often obscure, the primary source of Anglo-Saxon words is Old and Middle English (Balmuth 1982). Venezky (1970) described the basic patterns of Anglo-Saxon letter-sound correspondences, and Calfee and his colleagues (Calfee and Associates 1981; Calfee and Drum, 1986) categorized this information (See Table II).

This model is useful for organizing the basic letter-sound correspondences in the curriculum. Graphemes (the letter patterns) are organized either into consonant or vowel patterns. Single-letter consonant spellings

Table I
Word Origin by Word Structure Categories: Framework for a Decoding and Spelling Curriculum

	Letter-Sound Correspondences			Syllable Patterns			Morpheme Patterns	
Anglo-Saxon	cap set	stand brisk	that ship	tennis	sister	napkin	railroad	pigtails
	pin/pine	car	beat	hobo	cabin	hundred	like	bid
		tall	crown snow				unlike unlikely	forbid forbiden
Romance		direction spatial excellent			inter- intro- -ity			prediction disruptive admission
Greek		physics chemist			auto- micro-			microscope chronometer physiology

Table II

Basic Anglo-Saxon Letter-Sound Correspondences

Consonants		
Single	Blends	Digraphs
b, c, d, f, g, h, j,	bl, cl, pl, sl, . . .	ch
k, l, m, n, p, q, r,	br, cr, dr, pr, . . .	sh
s, t, v, w, x, y, z	st, sm, sn, sp, sw, . . .	th
	tr, tw, . . .	wh
		. . .
	-st, -lf, -nd, -nt, ...	

Vowels			
Short/Long	-r & -l Controlled	Digraphs	
		1 *sound*	2 *sounds*
a mad, made	ar	ai, ay	ea
e pet, Pete	er, ir, ur	ee	ei
i pinning, pining	or	oa	ie
o cop, cope	. . . .	au, aw	oo
u cuter, cutter	al, all	oi, oy	ou
(y)		ew, ue	ow

seldom vary; each letter stands for a specific sound. Only *c* and *j* (and sometime *s*) have more than one sound. Consonant blends, made up of two or three consonants retaining their individual sounds, are common. Consonant digraphs, newly formed in Middle English times, combined Romance letters with Germanic phonology. An *h* is added to a consonant to form a new sound (e.g., *sh*ip, *ch*ump, *th*is, *wh*at).

Even vowels, the most difficult sounds to learn, have a pattern. Single vowels are generally either *short* or *long*. A vowel-consonant-vowel pattern generally marks the first vowel as *long* (or saying its own name). In the second vowel category, the vowel plus *r* or *l* is treated differently. These patterns are best presented as combinations, e.g., *ar*, *or*, *er*, *ir*, and *ur*. Vowel digraphs—consisting of two adjacent vowels—cause numerous complaints from students, yet they do have an identifiable structure. Most have only one vowel sound, and only a few have two. One pattern, *ou*, has several sounds though *ou* as in *house* is the primary sound.

It should be noted that a relatively few words lie outside of this structure, defying regular letter-sound correspondence. These words, the "weird" words of the language like *rough*, *does*, *only*, *laugh*, and *said*, contain complex rather than simple structure and must be memorized by students. Knowledge of letter-sound correspondences is not much help in either reading or spelling these words; they must be rote-memorized.

Anglo-Saxon based words have a variety of syllable patterns. Students learn that each syllable must have a vowel. Evidence shows that students have more difficulty recognizing written syllables than in hearing syllables in words (Balmuth 1982). Readers may learn to recognize vowel-

consonant-consonant-vowel (vccv), vcv, vcccv, and cvvc patterns in words like *napkin*, *hobo*, *hundred*, and *create.* These are useful separations to know when one analyzes unfamiliar words.

Anglo-Saxon morphemes are found in both compound and affixed words. These words tend to be simple because they contain regular orthographic features. Compound words are generally comprised of two short words joined together to form a new, meaning-based words. Current computer technology is the impetus for many new compound words such as *hardware*, *software*, and *firmware*. Words of Anglo-Saxon origin are affixed primarily by adding prepositions as prefixes, and short suffixes to base words that can stand alone (e.g. *forgiven*, *beholden*).

Romance Layer

This layer of language, made up primarily of words of Latin and French origin, consists of technical words used in more formal settings. These words are often found in the literature or social studies texts in the upper elementary and later grades. Because these words are longer, many students expect them to be more complex. Yet, in many cases the words follow simple letter-sound correspondence.

The stress patterns, however, are complex. The schwa, or unstressed vowel sound, is common (as in *éxcellent*, *dire_tion*). When one pronounces *excellent*, for example, stress occurs on the first syllable so the initial *e* receives the regular short sound. The following two *e*'s, appearing in unstressed syllables, have the schwa sound (∂).

Vowel digraphs, often so difficult for students to acquire in Anglo-Saxon words because of their variability, interference from previously learned associations, and occasional irregularity, appear in Romance words in only one pattern. Common in Romance words are the suffixes such as *tion*, *tious*, *tial*, *sion*, *cial*, *can*, and *cious*. Here the vowel digraph always has the schwa sound because these suffixes are unstressed.

In addition, the consonant is typically variable as well. The letters c, s, and t, when followed by a vowel digraph, combine as the /sh/ sound as in *nation*, *partial*, *social*, and *admission*. (*Sion* is also pronounced as /zh n/ in words like *erosion* and *invasion*.)

Words of Romance origin also become affixed, but neither the base word nor the affix stands alone (e.g., *interrupted*; *transmitting*; *prevention*). Nist (1966) suggests another key example:

> So great, in fact, was the penetra*tion* of Latin a*f*fixing during the *Re*-nais*sance* that it quite *un*did the Anglo-Saxon habit of *com*pounding as the leading means of word form*ation* in English. (p. 11)

The power in learning Latin word roots lies in the fact that more are completely "regular." That is, they follow a one-to-one letter-sound correspondence. For example, *rupt*, *struct*, *port*, *form*, and *tend* can be spelled by knowing basic letter-sound associations.

Greek Layer

Greek words, like many of their Romance counterparts, entered English by the thousands during the Renaissance to meet the needs of scholars and scientists. Letter-sound correspondences are similar, but words of Greek origin use the sounds of /ph/, /ch/, and /y/ found in *chlorophyll.*

The Greek layer tends to compound forms or roots in words appearing largely in scientific texts (e.g., *microscope*, *hemisphere*, *physiology*). The following passage from a middle school science text (Cooper et al. 1985) shows how short words of Anglo-Saxon origin mix with longer Romance words, but how the scientific terminology is couched in words of Greek origin.

> Suppose you could examine a green part of a plant under the *microscope.* What would you see?
>
> Here are some cells from the green part of a plant. The cells have small green bodies shaped like footballs. They give the plant its green color. They are call *chloroplasts.* A single green plant cell looks like this.
>
> Chloroplasts are very important to a plant. As you know, plants make their own food. This food-making process is called *photosynthesis.* It is in these *chloroplasts* that *photosynthesis* takes place. (p. 20)

What the Child Needs to Know

The structural-historical framework shows what the child who is learning to read needs to know. The reader needs to recognize the sound patterns of speech in the symbols printed on a page. The problem for the learner is to decode the print to represent for himself or herself a coherent set of sound representations. For example, the student must learn that words can be broken down in several ways; that words are made of letters that have sounds; and that words are made up of syllables and of morphemes.

Thus, students need to learn the following:

1. A number of letter-sound correspondences organized within categories such as consonants, vowels, blends, consonant digraphs, and vowel digraphs.
2. The most common ways to divide words into syllables.
3. Common morpheme patterns—prefixes, roots, suffixes, and compounds.
4. The productive rules of the written form of the language.
5. An understanding of the history of the English language in order to understand the apparent complexities of the written language by contrasting (a) the regularity of words of Greek and Latin origin with Anglo-Saxon words that generally have less regular letter-sound correspondences, and (b) syllabic and morphemic patterns that differ according to word origin.

Students' Knowledge of Word Structure

What do children actually know about word structure? In a recent study, (Henry 1988) I assessed students' ability to identify patterns within words and their technical vocabulary for discussing decoding concepts. Students identified the following patterns within sets of words from three language origins (Anglo-Saxon, Romance, and Greek).

• Consonants	• Blends	• Compound words
• Vowels	• Consonant digraphs	• Prefixes
• Short vowels	• Vowel digraphs	• Roots
• Long vowels	• Syllables	• Suffixes

Students circled structural patterns and morpheme patterns, found constituent words in compound words, and divided words into syllables. They also completed word recognition and spelling tasks. The reading recognition subtest required students to identify a dictated word in a multiple choice array. Student spelled real words having both regular and irregular orthographic patterns as well as synthetic words that were orthographically regular.

Upper elementary grade students in both regular and learning disability classrooms had limited word structure knowledge. Within the letter-sound correspondence category, only the vowels were well known by students. Students had little understanding of complex letter-sound correspondences such as short and long vowels, blends, and consonant digraph.

In addition, students had little understanding of the common morpheme patterns. Few children could identify prefixes, roots, and suffixes in words. This knowledge was particularly weak for the reading-disabled children in the sample. (It has been my experience that these children are rarely exposed to these patterns, largely because teachers believe students must master all letter-sound correspondences before going on to the prefixes, roots, and suffixes found in multisyllabic words.) Almost all children could identify the constituent words in compound words.

Children also had difficulty dividing words into syllables. Performance in this area suggests that children have few opportunities to practice this skill. Few children used syllable division as a strategy for analyzing long, unfamiliar words.

Additionally, while almost all children recognized the correct spelling for a dictated word (word recognition task), they exhibited extreme difficulty spelling words from dictation. Even good readers had difficulty spelling grade level words they had not "memorized" for a weekly spelling test.

In summary, children knew relatively little about the major structural facets of words. The language-learning-disabled children knew almost nothing about syllable and morpheme patterns. While they were able to

do well on the multiple choice word recognition task, they were unable to spell similar words from dictation. These results are not surprising, given the piecemeal character of basal decoding instruction. The curriculum segment known as "phonics" is presented to students as a series of isolated graphemes (the written letter or letters) with corresponding phonemes (the units of sound in a language). Rarely is this information organized for either teachers or their students. For example, most basals present nearly 200 isolated letter-sound correspondences without placing patterns into discrete categories. Blends, such as *br*, *st*, and *mp* may be taught adjacent to consonant digraphs *sh* and *th* without explaining the difference in these structures.

Phonics offers a strategy for decoding and spelling that works when the letter-sound correspondence system carries all the demands of word analysis. Unfortunately, decoding instruction largely neglects syllable and morpheme patterns, perhaps because these techniques are primarily useful for the longer words found in literature and subject matter text beyond grade 2 or 3, at which point decoding instruction becomes virtually nonexistent in most schools. Without recognizing the value of syllabic and morphological patterns, the student is constrained from using clues available to identify long, unfamiliar words.

Other problems are also inherent in the traditional basal approach. Students have little direct instruction on new patterns. By contrast, they spend most of the class time completing work sheets. Additionally, instruction today rarely reinforces the patterns learned for reading with the spelling of words containing those patterns. Rather, spelling is taught as a separate skill, unrelated to reading. Also, students are provided with few examples of words fitting frequently used patterns. For example, while *ea*/é/ is found in hundreds of words, students may read only a handful of words using this pattern. For the benefit of all children, it will be useful not only to organize letter-sound information, but to go beyond phonics alone.

An Alternative Model for Decoding and Spelling Instruction

There is a school of thought about reading that says decoding is unimportant or can be learned by just having opportunities to read. My position is that decoding should be explicitly taught, not only in the primary grades, but in the upper grades as vocabulary becomes increasingly difficult. Explicitness is aided by learning a technical vocabulary to talk about decoding concepts. Clark and Clark (1977, p. 555) noted that a technical vocabulary is important in talking about any domain. This "metalanguage," grounded in a conceptual structure, provides not only a means for discussing concepts but for organizing a huge number of isolated elements. Among the terms that I have found useful for establishing a "Decoding Instruction Register" are:

	Letter-Sounds	
Linguistic Terms	*Correspondences*	*Morphemes*
grapheme	consonant	compound word
phoneme	vowel	prefix
morpheme	short vowel	root
word	long vowel	suffix
syllable	blend	
phonics	consonant digraph	
schwa	vowel digraph	

Sharing this common vocabulary facilitates discussion between teachers and students. When teachers in all grades in a school use the same terms, continuity develops throughout the grades for talking about decoding concepts. It also allows students to reflect on the structure of the English orthography as they attempt both to read and to spell words.

Decoding is often taught as a set of performance skills; the thesis of this instruction is that instruction has to be supported by a reflective understanding of the structure of English orthography. The basis for that structure is grounded in the history of the language and well explored by Nist (1966), Balmuth (1982), and Venezky (1970). Reflection builds on a simple structural framework for organizing the area and technical language to both think about and discuss that structure.

Structural factors comprise a set of components within the decoding curriculum that can be separably taught and discussed. *Letter-sound correspondences* can be divided into consonants and vowels and blends and consonant or vowel digraphs. A variety of *syllable patterns* provide opportunities for contrast. *Morpheme patterns* require students to focus on the prefixes, roots, and suffixes of long words. Lessons may focus on prefixes as opposed to suffixes, or on contrasting consonant blends and digraphs.

These patterns become the strategies available to decode unfamiliar words. For example, the word *understatement* can be pronounced by isolating a number of letter-sound correspondences (u-n-d-∂-r-s-t-a-t-m-∂-n-t), by recognizing four syllables (un-der-state-ment) or by identifying three morphemes (under-state-ment), or by a combination of the three strategies. A reader may recognize the initial two morphemes, *under* and *state*, but may need to "sound-out" *ment* letter-by-letter.

The fluent reader first looks for familiar morphemes in unknown words, then makes decisions based on syllable division, and only when these strategies have been applied, falls back on letter-sound associations. Beginning or poor readers, on the other hand, appear to use only one strategy; they "sound out" the word by letter-sound correspondences. While this may be reliable for short, regular words, it furnishes little help for longer words.

The instruction described in this paper combines two instructional approaches, Orton-Gillingham and Stanford Project READ.[1] Students,

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[1]Stanford Project READ is not related to the Enfield-Greene Project Read well-known to *Annals* readers.

often identified as "specific learning disabled," or "dyslexic," learn to decode and spell reasonably well using an approach based on the theories of Samuel Torrey Orton (1937). The "Orton-Gillingham" technique places strong emphasis on the features of written English, primarily letter-sound correspondences. Gillingham and Stillman (1956) devised a structured, sequential treatment ". . . based upon the close association of visual, auditory and kinesthetic elements . . ." (p. 40). This multisensory technique also incorporates syllable patterns, a few key morpheme patterns, and spelling rules and generalizations. In addition, the teachers' manual contains information regarding the evolution of the English language, because the authors believed that children could learn to read and spell by understanding more about the language system and by incorporating a structured, sequential alphabetic approach.

The current instruction extends the Gillingham approach by taking into account the three major word origins, and by explicitly organizing decoding information by word origin and pattern differences. My interest in this aspect came about at Stanford University in collaboration with a public elementary school effort developed to enhance literacy. Stanford Project READ (Calfee and Henry, 1985) emphasizes student mastery of the thoughtful use of language, printed and spoken, for problem solving and communication. The decoding segment of the Project provided an opportunity to combine much of the Orton-Gillingham content within a historical and structural framework.

The Stanford Project approach (a) views the elements of reading as separable components, (b) takes a structured and reflective approach to reading instruction, and (c) uses small group discussion as the primary mode of instruction. The Stanford Project focus on organizing concepts was beneficial for organizing letter-sound correspondences, syllable patterns, and morpheme patterns into specific categories. The Project also fostered the need to highlight the differences in words due to word origins and the necessity to emphasize syllabic and morpheme patterns as strategies for decoding. The Project became the vehicle for combining a language-based decoding and spelling curriculum. The following propositions provide a context for the decoding instruction:

— *Simplicity* is essential; human beings have trouble performing any complex task unless it can be organized into a small number of relatively coherent subtasks.
— There is an *interrelatedness* among the language skills; literate persons are distinguished not only by their ability to read, but by how they write and speak, and even by how they listen.
— Teaching the *formal* use of language, as contrasted with the naturally occurring uses, is an important goal of school, and may be the most important outcome of a reading program.
— Direct *teaching,* coupled with *small-group discussion*, is a vital component of reading instruction.

The focus on discussion techniques is especially well-suited to dyslexic students. These students are intelligent and often have excellent abilities in oral language. When teachers rely on worksheets, students have few opportunities to use and to expand their intellectual and verbal abilities.

The Stanford Project stresses not only *content*, but also *structure* and *process*. *Content* refers to the subject matter, the materials, and the activities undertaken for the lesson. For example, the content of a decoding lesson may be an introduction to the four common consonant digraphs (ch, sh, th, wh). Each activity centers around these patterns.

The *structure* in decoding, involves both the frame of reference or the set of orthographic rules or patterns which apply to the content of the lesson and synthesizing the results of analysis. One set of structures associated with decoding instruction is the Anglo-Saxon and Romance affixes. Part of the structure entails being aware of constraints of the structure within words, i.e., prefixes may not be placed at the end of a word.

Process is the analysis of a topic, and comprises the pedagogical techniques and critical questions that lay out the content. For example, the methods for dividing affixed words fit into this category. Process questions are both simple and provocative: "How are the words in lists 1 and 2 alike and different?" "How does understanding these roots affect both decoding and meaning?"

The instruction organizes decoding concepts for teachers, and thus for their students. Teachers use the "Decoding Instruction Register" to teach the curriculum of decoding through explicit discussion of decoding concepts. They teach specific decoding strategies based on letter-sound correspondences, syllable patterns, and morphemic patterns, and word origins. Teachers provide opportunities for discussing related concepts, and for reading and spelling numerous words fitting productive patterns. Activities are designed to engage students actively; students spend little time in isolated drill and practice in workbooks.

Teachers develop metalinguistic and metacognitive awareness by training students to understand the structure of the language viewed from its historical origins and by providing new strategies for decoding— strategies for reflecting upon and monitoring what they read and wrote. Students become aware of the process of strategy selection based on the structure and origins of the words presented.

The Lessons

The goal of this instruction is an understanding of the language system. Lessons are based on both word origin and word structure. Instruction begins with a conceptual basis and moves to the pragmatics. The curriculum model discussed earlier (See Table 1) forms the basis for instruction, and provides teachers and students with a framework for decoding. The instruction is based on the belief that decoding and spelling can be taught more logically and coherently to all students.

Lessons can be divided into five specific units focusing on the three

categories of word structure, or strategies, available for analyzing unfamiliar words, i.e., letter-sound correspondences, syllable patterns, and morpheme patterns; and on the three layers of language forming the basis for the majority of words in English, i.e., Anglo-Saxon, Romance, and Greek. Students learn specific decoding and spelling strategies based on this model. The notion of word origin from an historical perspective flows through each unit. The design and sequence of the instructional units remain the same for all students, although words selected for practice differ depending on grade level. For example, first graders may only be introduced to Anglo-Saxon letter-sound correspondences. Upper grade elementary students may organize letter-sound information, but may focus on syllable and morpheme patterns in multi-syllabic words.

The goal is to make students keenly aware that words of different origins may have different patterns. For example, words of Greek origin add three new letter-sound correspondences, /ch/ as in *chorus*, /ph/ as in *phonograph*, and /y/ as in *symphonic*.

Topics for instruction are organized as follow:

Unit I	Letter-Sound Correspondences
Unit II	Syllable Patterns
Unit III	Layers of Language
Unit IV	Morpheme Patterns
Unit V	Practicing Strategies for Long, Unfamiliar Words

I. *Letter-sound correspondences. As* these patterns are introduced, the correspondences are organized into a logical set of six categories found in the $2 \subseteq 3$ matrix described earlier. This matrix represents the way letter-sound correspondences can be organized for instruction. In addition to learning the patterns in each category, students explicitly learn the terminology specific to word features.

Teachers usually place a chart of this matrix in the classroom. As the teacher presents new patterns, she writes the pattern in the appropriate cell in the matrix. Students learn that words have both consonants and vowels, the two major headings. Consonants are either single letters, blends, or digraphs. Single-letter vowels can have either short or long "sounds," often lose their traditional sound when followed by -*r* or -*l*, and are called vowel digraphs when combined with other vowels. Almost all graphemes, the letter patterns appearing in words, can be placed in one of these six cells. This makes it possible to organize within a coherent frame the almost 200 different letter-sound patterns.

II. *Syllable Patterns.* Students begin by discussing the meaning of the term "syllable" and practice counting the number of syllables in a group of 2-5 syllable words. During this unit they discuss both simple and complex syllable division patterns, depending on grade level. These patterns exist in most multisyllabic words. Students read long words and divide

them into syllables. They also spell words, being sure to count the syllables before writing, and to say each syllable as they write.

The following syllable patterns should be included:

Label	Pattern	Examples
Label	*Pattern*	*Examples*
Closed (short vowel)	VC/CV	rabbit, interrupt
Open (long vowel)	V/CV	hobo, vacation
Closed	V/CV	solid, limit
Consonant –le	Consonant –le	tumble, bugle
Unstable digraphs	V/VC	theater, hierarchy
Non-digraph, vowel pairs	V/VC	triumph, diary

Only older students need to learn V/VC patterns. These patterns prevail in words found in upper-grade texts.

III. *Layers of Language: Anglo-Saxon, Romance, Greek.* Students study how different word origins influence word structure and, therefore, English orthography. Teachers present the growth of written language, tracing the link of picture drawing, pictographs, and ideograms to alphabetic writing. They then describe the events contributing to the formation of English. This information can be found readily in dictionaries and encyclopedias, or in the Gillingham-Stillman (1956) manual.

Letter-sound correspondences, and syllable and morpheme patterns are contrasted for each layer of language. Anglo-Saxon letter-sound correspondences, syllable patterns, and morpheme patterns that consist of compound words and affixation as well as common but irregular words are considered. Next the schwa sound prevalent in words of Romance origin along with common prefixes, suffixes and roots are introduced. Teachers also initiate their students to the patterns prevalent in Greek words.

IV. *Morpheme patterns.* The meaning based morphemes make up thousands of English words. This unit focuses primarily on Latin based prefixes, roots, and suffixes. Prefixes introduced include *re*, *pre*, *de*, *pro*, *dis*, *mis*, *trans*, *ex*, *uni*, *inter*, and *intro.* Among the suffixes are *ist*, *ant*, *ent*, *ible*, *or*, *tion*, *tious*, *cial*, *cian*, and *sion.* Latin roots include *rupt, form, tract, script*, *spect*, *struct*, *dict*, *flect*, *fer*, and *mit*/*miss.* An example of such a lesson will be presented shortly.

Lessons focusing on Greek combining forms such as *auto*, *phono*, *hydro*, *hyper*, *chron*, *micro*, *hemi*, *graph*, *meta*, and *sphere* need to be included. (For numerous examples of words with Romance and Greek roots see *Instant Vocabulary* by Ida Ehrlich, published by Pocket Books, 1972.)

V. *Strategies for analyzing long words: Reading and spelling.* This unit allows students to synthesize the information from previous units. Students practice using their new skills as they analyze long, unfamiliar words taken primarily from content area texts. Students follow the sequence used by most fluent readers. They first check for affixation and roots. The next step is to divide words into syllables. Only if these two strategies fail, do they use letter-sound correspondences. In spelling, students first re-

peat the word, listen for syllables and try to identify common affixes and roots. Teachers encourage their students to use letter-sound corespondences only after they attempt the morpheme and syllable strategies.

In this unit, students also learn productive spelling rules, e.g., rules for adding suffixes, to assist in spelling words from dictation. These rules can be divided into six basic categories:

1. Vowel-consonant-e words (*made*, *these*, *bike*, *vote*, *cute*)
2. One-syllable words ending in *f*, *l*, *s*, z immediately after one short vowel (*cliff*, *smell*, *class*, *buzz*)
3. One-syllable words ending in /k/, /ch/, /j/ sounds immediately after one short vowel (*stick*, *black*; *fetch*, *notch*; *fudge*, *bridge*)
4. Adding suffixes to base words:
    a. One syllable words with one short vowel followed by one consonant and adding a suffix beginning with a vowel: Double final consonant (*bigger*, *swimming*, but *gladly* and *shorter*) (This rule differs slightly for multisyllabic base words.)
    b. Words ending in vowel-consonant-e drop the *e* when the suffix begins with a vowel (*blaming,* but *blameless*; *timed*, but *timely*)
    c. Words ending in *y* when preceded by a consonant change the *y* to *i* when adding a suffix [unless the suffix begins with *i*] (*try*, *tried*, but *trying*; *copy*, *copied*, but *copyist*)
5. Syllable division (See above)
6. Plural rules

Lesson Procedures

These lessons are designed to be presented in 30–45-minute sessions. Teachers first introduce students to the structural or conceptual focus of the limit. In each lesson students read and spell numerous words related to each new pattern. The final lesson in each unit should review and summarize the major points.

Each lesson entails a small number of steps carried out in a certain order. The lesson *opening* provides the purpose and goals for the session as well as introducing the new pattern or concept. In the *middle* section of the lesson, students become familiar with the decoding concepts and patterns. It is here that teachers may provide visual and auditory drills for frequently used patterns. For example, in order to familiarize students with consonant blends, teachers may (a) define blends, (b) have students read blend cards, (c) say blend sounds as students write the appropriate letters, (d) have students read a list of words with consonant blends on the board, (e) ask students to generate new words for specific blends and (f) dictate words containing blends for spelling. The lessons allow the students to think of each concept and strategy as a problem-solving activity.

Figure 2 illustrates possible middle activities for a lesson reviewing *oo/__/moon* and introducing *oo/__/book*.

The lesson *closes* as students reflect upon and summarize the major

Middle Activities for lesson reviewing oo /ōō/ moon and introducing oo /ŏŏ/ book.

1. Review symbol-sound correspondences.

   a. Visual drills

      Review with other phonograms   oo

   b. Auditory drills

      Teacher says sound, child responds with letter name and/or writes letter.

   c. Blending drills - Teacher flips chart or cards as students read logical letter sequences.

      m   oo   n

      Beginning sounds   Middle sounds   Ending sounds

2. Give students a group of oo words to read on a blackboard or wall chart.

moon	soon	fool	broom	stoop	stool	scoop
croon	loon	spool	spoon	boot	gloom	groove
cool	pool	food	boom	bloom	droop	smooth
hoop	goose	loose	hoot	shoot	boost	tooth

3. Have students spell a number of these words.

4. Have students copy, trace, and write oo paper while sounding the new sound oo /ŏŏ/ book.

5. Show students a new list of words on board or wall chart. Have students note similarities and differences in the two lists. (Location of vowel digraph is the same. i.e. in the middle; sound is different.) Have students read these words.

good	book	hood	stood	wood	cook	hook
shook	took	look	crook	brook	foot	wool
fishhook		woodpile		undertook		understood

6. Ask students to spell some of these words.

7. As a final review, ask students to write ōō and ŏŏ as column headings on new papers. Dictate words from either list. Students must determine in which column to place the word, and then spell the word.

Figure 2. Middle activities for letter-sound correspondence lesson.

points of the lesson. Lessons end with a review of the content, structure and process just covered. Teachers encourage students to reflect upon what they have learned, and to review the key ideas.

Follow-up exercises promote reinforcement for the patterns or concepts. For example, students may be asked to look for Greek words in their science texts, based on their understanding of the features inherent in these words, or to look for affixes in the evening newspaper.

Teachers working with morpheme patterns may want to use the following example of a complete lesson:

Unit IV: *Morpheme Patterns (Lesson on Latin Word Roots)*
Opening: "Today we're going to continue breaking words apart to make them easier to read and spell. We have discussed Anglo-Saxon word roots or base words earlier. Today we will talk about Latin root words. Who remembers what a root word is?"

Middle exercise 1:

Begin by writing *rupt* on the board. Ask students to generate a number of words with *rupt* as the root. Write these words on the board. See if students can get the meaning of *rupt* (to break, to burst) from the words they suggest. (Add additional suffixes.)

rupt

rupture	erupt	eruption
corrupt	abruptly	interruption
bankrupt	disruptive	irrupt

Middle exercise 2:

Write additional roots and words on the board. Point out that Latin roots usually follow regular letter-sound correspondence, and, therefore, are easily read and spelled. For each group of words, have students recognize the common parts (the roots). Have them note the placement of the root (the beginning if there is no prefix, the end if there is no suffix, the middle if there are affixes).

NOTE: Additional suffixes may be added to most of the following words:

port (to carry)	*form* (to shape)		*tract* (to pull)	
import	reform	inform	tractor	subtract
export	deform	informal	traction	protract
portable	transform	informative	attract	retract
transport	conform	information	attractive	distract
porter	formula	extract	contractual	
deport	formal	contract		
report	formality	tractable		
support				

Middle exercise 3: Spell a variety of words using the preceding roots. Have students identify the root in each dictated word before they write.

Middle exercise 4: If time allows, go through card pack with other common Latin roots. These will be taught on following days:

stru, struct	fer	pel, puls
dic, dict	tend, tens, tent	pend
flect, flex	cred	fact, fact
mit, miss	duc, duce, duct	vert, vers

Closing:

"What parts of words did we study today?"

Summarize and review the roots presented. Have students reflect on why it is useful to learn about Latin word roots.

Follow-up:

Have students read a passage in their social studies text and find words with Latin roots.

Have students write sentences using Latin word roots.

Lesson Assessment

While typical assessment generally includes worksheet, multiple-choice tasks, evaluation of student progress in this model incorporates discussion of student understanding of the pattern or concept presented. Ample opportunities are given for students to discuss and reflect on words and patterns. Students read aloud and spell words during the lesson and use their new strategies as they read and write beyond the decoding segment of the day.

In addition, students can be tested on the structural component at the end of each unit, as they identify the structures within words. For example, students circle the vowel digraphs or prefixes in a group of words provided by the teacher.

Teachers can initiate word games during free time, and they informally assess students' understanding of decoding concepts. Students may rhyme words with identical vowel and consonant patterns. They play "hangman" using words "beginning with a blend," or "ending with a consonant digraph." Students may form teams and look for words of Greek or Romance origin in their subject matter textbooks or find morphemes in their family newspapers and periodicals.

Both the formal and informal assessment provide teachers with information about student understanding and ability. Teachers use this information to reinforce and reteach difficult concepts.

Summary

By learning about word structure and word origins and by explicitly learning the vocabulary of decoding students (a) increase their word structure knowledge; (b) gain metacognitive skills by discussing, reflecting upon, and monitoring their decoding and spelling performance; (c) increase the strategies available for decoding and spelling; and (d) enhance their reading and spelling performance (Henry 1988). Especially gratifying is the fact that dyslexic children can learn more sophisticated concepts and patterns. These students, often with excellent intelligence and vocabularies, learn to understand the structure of the English spelling system. As they learn new decoding concepts, the language begins to make some sense. They learn that the relatively small number of Anglo-Saxon words that are irregular must be memorized and go on about that task. But, more importantly, they find that the large majority of words do fit into a coherent structure. Students begin to take on the task of learning Latin and Greek word parts with enthusiasm and understanding.

Teachers report qualitative changes in their students. Students begin to use terms from the "Decoding Instruction Register" more confidently. They use these terms to describe words, to discuss the content of their lessons, and to describe newly presented concepts. Teachers find that as

students have opportunities to read, spell, and talk about multisyllabic words they use more sophisticated words in their writing.

This approach has implications for adolescents and adults with reading disabilities as well. By concentrating on the syllable and morpheme patterns with older students, while also teaching the letter-sound correspondences, teachers can better teach to the students' levels of spoken language and intellect. We can introduce those beautifully regular Latin and Greek roots and add common prefixes and suffixes, thus avoiding what I call the "Fat Sam sat on the mat" level of reading and writing.

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