

Chapter Eleven

Integrating Beginning Word Study into Clinical Interventions

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Overview

The accumulated empirical evidence indicates that reading disabilities, over and above difficulties caused by inadequate reading experience and instruction, are caused by linguistic deficiencies in the area of phonological awareness—namely, phonological coding (for reviews, see Adams, 1990; Chall, 1996; Stanovich, 2000; Velutino et al., 1996). Phonological coding is the ability to code abstract representations of the sounds in spoken and written words into the form of phonemes (i.e., the individual components of the speech stream). An impressive line of research has proven the strong relationship between language deficits and reading problems (Bishop & Adams, 1990; Catts, 1993; Lewis & Freebairn, 1992; Magnusson & Naucler, 1993). In fact, Catts and colleagues (Catts, Fey, Tomblin, & Zhang, 2002) found that children with language impairment in kindergarten were at a high risk for diagnosed reading disabilities in second and fourth grades, with about 50% of kindergartners exhibiting significantly poor reading skills. This rate of prevalence is consistent with that reported in previous studies (Aram, Ekelman, & Nation, 1984; Catts, 1993; Menyuk, Chesnick, Liebergott, Korngold, D'Agostino, & Belanger, 1991). The Catts et al.

(2002) study also corroborated earlier assertions by Bishop and Adams (1990) that children with language impairment in earlier grades who had experienced language improvement were less likely to have reading problems in later grades than those with persistent language impairments.

Mounting evidence over the past two decades indicates that deficits in phonological coding can be eliminated in younger children through appropriate instruction (Ball & Blachman, 1988; Bradley & Bryant, 1983; Bus & van IJzendoorn, 1999; Byrne & Fielding-Barnsley, 1995; Vellutino et al., 1996). Many of these studies have shown such instruction to have sustained positive effects over time. For children with language impairment specifically, there is a burgeoning line of research investigating speech-language therapy that incorporates systematic attention to improving phonological awareness. For example, Gillon (2000) found that an intervention emphasizing phoneme awareness and letter-sound knowledge for children with spoken language impairment improved not only speech production but also literacy-related performance. Such evidence provides an important inroad into ensuring that children with language impairment receive systematic attention to those literacy skills that will reduce their risks for reading difficulties. This chapter provides an introduction to methods and foci used in beginning reading instruction, including description of an approach to instruction termed *word study*. Word study is a method of instruction used in many beginning reading programs that systematically improves children's orthographic, phonological, and alphabetic skills. Of importance, word study as a method can readily be incorporated into clinical interventions for children with language impairment to promote their skills in these areas as a supplement to the traditional domains of speech and language addressed by speech-language pathologists (SLPs). In fact, this practice is recommended by the American Speech-Language-Hearing Association (2002).

Beginning Reading: Targets of Instruction

Many policy documents (e.g., National Reading Panel, 2000) emphasize the importance of providing children with “balanced” reading programs. In this context, “balanced” refers to the need to

address both the code- and meaning-related aspects of reading development. Although beginning reading instruction necessarily includes a systematic focus on building children's reading comprehension skills, it also must provide children with the skills for a natural, comfortable transition from learning to read to reading to learn. In other words, they must be able to read words automatically and fluently so that they can focus their cognitive resources on comprehension.

The focus of this section is on the importance of ensuring that children who are learning to read receive instruction that effectively ensures their progress toward reading automatically and fluently—by emphasizing mastery of the alphabetic code.

Numerous correlational studies have found a strong relationship between early decoding ability and phonological awareness, and that poor phonological awareness often is what keeps children from becoming effective decoders (for review, see National Reading Panel, 2000). Of importance, evidence from over the past two decades also indicates that phonological awareness deficits in younger children can be eliminated through appropriate instruction (Ball & Blachman, 1988; Bradley & Bryant, 1983; Bus & van Ijzendoorn, 1999; Byrne & Fielding-Barnsley, 1995; Vellutino et al., 1996). Many of these studies have shown sustained positive effects over time using longitudinal research designs. All of these studies have included explicit instruction in phonological awareness or systematic phonics, or a combination of the two. It is thus logical to conclude that phonological awareness, alphabet knowledge, and explicit instruction in the consistent relationship between letters and sounds (i.e., phonics) are critical elements of beginning reading instruction, which is exactly the conclusion drawn by the National Reading Panel (2000) in its synthesis of effective beginning reading instruction.

A discussion of phonics (decoding) cannot exist without its sidekick, spelling (encoding). Whereas phonics instruction focuses on helping children to decode written language, spelling instruction focuses on helping children to encode written language; of importance, the two are highly inter-related during beginning reading development, and Ehri (2000) tagged phonics and spelling as “two sides of the same coin.” Ehri's (2000) review of correlational studies in which students of various ages (first grade through college) were asked to read and spell words found that correlations

between reading and spelling ranged from .68 to .86, suggesting that both skills draw on similar processes. In other studies, spelling measures have accounted for as much as 40% to 60% of the variance in oral reading performance (Zutell, 1992; Zutell & Rasinski, 1989). In a 2-year study that followed students from first through third grade, Ellis and Cataldo (1992) reported spelling to be the most consistent predictor of reading achievement. Not surprisingly, intervention studies exploring the value of spelling instruction have repeatedly found that spelling instruction improves not only spelling but also performance in oral reading, reading comprehension, and other reading-related measures (Berninger et al., 1998; Goulandris, 1992; Graham, Harris, & Chorzempa, 2002; McCandliss, Beck, Sandak, & Perfetti, 2003). These findings suggest that effective, balanced reading instruction should include a focus not only on decoding but also on encoding.

Phonics and spelling instruction, not unlike instruction in other academic areas, should be developmental in nature, especially for children at risk for reading difficulties. Thus, instruction responds to children's developmental levels and specific needs at a given time. This often is called "differentiated instruction," meaning that instruction is differentiated to respond to children's developmental status in reading. Juel and Minden-Cupp (2000) found that differentiated phonics instruction was especially beneficial for primary-age students with the lowest levels of literacy skill, and Foorman and Torgesen (2001) reported that differentiated instruction comprises one of the critical instructional elements in promoting literacy success for at-risk children.

In providing differentiated instruction in beginning reading, it is essential that professionals identify the child's developmental level so that instruction can be tailored to the child's needs. One approach to doing so is considering children's spelling development to identify "instructional levels." Analysis of students' spellings uses qualitative analysis of the error types contained in spelling, which can provide important insights into children's knowledge of orthography, phonology, and phonics (Morris, Blanton, Blanton, Nowacek, & Perney, 1995; Morris, Blanton, Blanton, & Perney, 1995; Morris, Nelson, & Perney, 1986). Even within a specific grade, children can vary tremendously in their spelling development (see Hayes, 2004), as shown by Schlagal (1982), who found a spread of at least three grade levels in spelling achievement in virtually every class in grades 1 through 6.

Developmental Reading and Spelling Stages: The Pivotal Factors of Word Study Instruction

“To teach well is to know what and whom you teach.”—*Author unknown*

Word study instruction is a systematic approach used in beginning reading programs to promote children’s decoding and encoding abilities—reading and spelling. For children who are having difficulty developing a firm base of orthographic, phonological, and phonics knowledge, such as children with a history of language difficulties, word study can be readily integrated into speech-language intervention to provide an added boost to reading instruction received in the classroom.

The general principle of word study, as suggested by its name, is to improve children’s orthographic, phonological, and phonics knowledge through their own systematic study and analysis of features of words, particularly the patterns of print and sound within words. For instance, word study can be used to help a child learn to attend to the initial sounds in words. A common word study technique is *sorting*, in which children sort words on the basis of a specific orthographic or phonological feature. As a technique, sorting requires children to carefully analyze features of words. For the child who is learning to attend to the initial sounds in words, an effective sorting activity is for the child to sort pictures of items according to whether they start with an /s/ sound or an /m/ sound.

Successful implementation of the word study approach requires professionals to become experts in developmental spelling theory. Knowledge of the developmental sequence of spelling acquisition helps guide professionals in their instructional decision-making, particularly identifying the level at which to provide instruction so that it matches a child’s developmental needs. Vygotsky theorized that educators must not only determine the developmental level (i.e., instructional level) of their students but also ascertain instructional goals that are appropriately challenging for their students (Dahl, Scharer, Lawson, & Grogan, 2001; Hedegaard, 1990). Snow, Burns, and Griffin (1998), in fact, argued that effective literacy teaching techniques include “adjusting the mode (grouping) and explicitness of instruction to meet the needs of individual students” (p. 196).

Learning to read is a process that spans many years of a child's academic life, and children go through distinct stages in the process of learning to read. The *emergent stage* is the first stage. Children in this stage are learning about the sound structure of the English language and developing a concept of the printed word and other aspects of print such as directionality. They also are learning about the nuances of the alphabet, including letter-sound correspondences. As children acquire a concept of the printed word and a working knowledge of the alphabetic code, children move into a stage called *beginning reading*; here, they solidify their knowledge of the sound structure of language and begin to collect a store of words they know by sight. Once children have a sizable number of words known by sight and are reading fluently with attention to the meaning of the text, they are in the *intermediate (proficient) stage* of reading.

This chapter focuses on emergent and beginning readers, who typically are preschool and primary grade children. The challenges for emergent and beginning readers differ from those for proficient readers. Proficient readers are working to make sense of the texts they are reading, whereas emergent readers are just striving to grasp the concept that spoken language corresponds to print and can be broken into phonemes that correspond to letters. Beginning readers, having established the connection between spoken language and print, are working to apply their developing letter-sound knowledge to recognize words. In this stage of development, readers tackle words by viewing the individual letters of words as "phonemic maps" that provide pronunciations of each corresponding letter (Ehri, 1997). Phonics and spelling instruction help children make the necessary connections between letters and sounds so that they can commit words to memory; consequently reading gradually becomes more automatic. Phonics instruction allows children to practice blending sounds into words as they read (decoding), whereas spelling instruction allows children to practice segmenting the sounds in words as they write (encoding).

Researchers have consistently demonstrated a developmental progression of spelling skills, which also appears to relate highly to children's developmental progression of decoding skills (Bear & Barone, 1989; Ganske, 1999; Invernizzi, 1992; Viise, 1994). The word study approach to phonics and spelling instruction is a systematic approach based on a scope and sequence of phonetic and spelling

features that parallel students' growing knowledge of English orthography. The word study approach to phonics instruction differs from traditional, systematic basal programs in that the content of word study is determined by predictable developmental differences based on developmental spelling theory and research (Bear, Invernizzi, Templeton, & Johnston, 2004; Chall, 1996; Dahl et al., 2001; Henderson, 1990). Within the word study approach, students are assessed to determine their instructional level (i.e., where they fit in the developmental sequence of orthographic development), and instruction is designed to mirror where children are along that developmental sequence.

There are five conceptual stages of orthographic knowledge (i.e., spelling development) that emerge in a developmental sequence (see Henderson, 1990). As children move through these stages, they learn about letter-sound relationships, spelling patterns, and morphemes, such as prefixes, suffixes, Greek roots, and Latin stems (Bear et al., 2004). This same developmental progression has been found in students with learning disabilities (Worthy & Invernizzi, 1989) and in students identified as dyslexic (Sawyer, Wade, & Kim, 1999). The five stages are *preliterate*, *letter name*, *within word pattern*, *syllables and affixes*, and *derivational relations*. The first two stages, which reflect spelling achievements in the emergent and beginning reading stages of development, are discussed here; readers desiring information on the latter stages may wish to consult *Words Their Way* by Bear et al. (2004) for a comprehensive discussion.

Preliterate spellers are in the emergent literacy stage of development, and they are not yet reading. Their spelling attempts do not represent any letter-sound correspondences. For example, a preliterate speller may spell the word *elephant* with scribbles or even a random string of letters or symbols. Beginning readers are in the letter name spelling stage, which follows the preliterate phase. The *letter name speller* relies on the names of letters to spell words. For example, when spelling the word *jet*, the letter name speller may write *gat*. The sound of the *j* in *jet* sounds like the name of the letter *g*; the short *e* sound is close to the name of the letter *a*; and the sound of *t* leads the letter name speller to the letter name *t*. These children typically progress along a continuum by which they master the following features in their spellings: initial, single letter sounds (e.g., apple, balloon, comb); short-vowel families (e.g., cat, cap, can); initial consonant blends and digraphs

(e.g., frog, ship); final consonant blends and digraphs (e.g., dish, belt); and short medial vowels including consonant blends and digraphs (e.g., mash, sled). Preconsonantal nasals, a particularly difficult ending blend (e.g., jump, sing), round out this stage. See Figure 11-1 for a more detailed explanation of this progression.

Establishing Word Study Instructional Levels

The system of word study instruction revolves around the instructional levels or stages and the specific orthographic features negotiated by student within those levels or stages. Identifying a child's instructional stage is the first step to providing effective word study instruction that is differentiated to a child's developmental stage. For instance, a first-grade student may be a letter name speller whose instruction is focused on the short-vowel families, whereas another student may be learning how to represent final blends in short-vowel words. These students are very different in terms of their orthographic development and require differentiated instruction that meets their needs. Qualitative spelling inventories such as the Developmental Spelling Analysis (Ganske, 2000) and the Primary Spelling Inventory (Bear et al., 2004) are important tools for identifying where a child is in terms of the general stage of spelling development (e.g., letter name speller) and where the child is within that stage (e.g., learning to represent short-vowel families). The aforementioned assessments are appropriate for children who have some knowledge of sound-letter correspondence and are within the letter name spelling stage (or beyond). For children without solidified letter-sound knowledge, some tools that examine the emerging orthographic skills of emergent spellers are available (e.g., the Phonological Awareness Literacy Screening: Kindergarten; Invernizzi et al., 2003). Regardless of the specific tool used, developmental spelling inventories focus not simply on calculating the number of words spelled correctly but rather on conducting a careful feature analysis to study children's orthographic, phonological, and phonics knowledge as displayed by their spelling.

Feature analysis is a critical tool for determining the instructional levels of students, so as to place students within the developmental continuum and then to provide word study instruction that

| Preliterate Spellers | |
|----------------------|---|
| Letter Names | A B C D E F G H I J K L M N O P Q R S T U V W X Y Z |
| Initial Sounds | s m a t f r i d o l g h u c b n k v e w j p y z |

| Letter Name Spellers | | |
|--|---|---|
| Features | Feature Examples | Sort Examples |
| II. Word Families Short a Short i Short o Short u Short e Review all families | -an -ad -ap -ag -it -in -ip -ig -og -ox -op -ot -un -ug -um -ut -ud -ed -et -en Mixed short a, i, o, u, e families | -at vs. -an; -at vs. -an vs. -ap; -ap vs. -ag -it vs. -in; -it vs. -in vs. -ig; -ig vs. -ig -og vs. -op; -og vs. -op vs. -ot; -op vs. -ot vs. -ox -un vs. -ug; -un vs. -ut vs. -ud -ed vs. -et; -ed vs. -et vs. -en -ap vs. -ip vs. -op; -ack vs. -ick vs. -ock; -et vs. -ut vs. -it |

continues

Figure 11–1. Progression of features for emergent and beginning readers. Please note that this chart was made and modified by many persons affiliated with the McGuffey Reading Center at the University of Virginia in Charlottesville, Virginia. *continues*

| Letter Name Spellers | | |
|---|--|---|
| Features | Feature Examples | Sort Examples |
| III. Digraphs | sh ch th | s vs. h vs. sh; c vs. h vs. ch; sh vs. ch vs. th |
| IV. Blends L blends S blends R blends Affricates | sl fl bl cl pl gl sm sp st sn sc sw sk fr gr br tr dr cr pr dr tr | s vs. l vs. sl; b vs. l vs. bl; sl vs. bl vs. fl; fl vs. cl vs. pl s vs. m vs. sm; s vs. t vs. st; sm vs. st vs. sw g vs. r vs. gr; t vs. r vs. tr; gr vs. tr vs. br; dr vs. cr vs. pr dr vs. j; tr vs. ch; dr vs. j vs. tr vs. ch |
| V. Final Blends and Digraphs | -ch -th -sh -st -ft -sk | -ch vs. -th vs. -sh -t vs. -st vs. -ft; -st vs. -ft vs. -sk |
| VI. Medial Short Vowels | a, i, o, u, e | short a vs. short o words short o vs. short u words short e vs. short i words short a vs. short e words Review medial short vowels |
| VII. Preconsonantal Nasals | -mp -nd -nk -ng | -m vs. -p vs. mp; -n vs. -d vs. -nd; -mp vs. -nd vs. -ng |

Figure 11-1. *continued*

will move them along that continuum. Consider the spelling sample for Penny presented in Figure 11-2. Penny is a kindergarten child whose spelling performance clearly shows her to be a preliterate speller and an emergent reader. She displays no letter-sound connections in her writing and, instead, uses mock-linear scribbles to represent the target words. The SLP who has collected this sample recognizes that Penny has very limited phonological awareness and alphabet knowledge and does not have a concept of word in print (i.e., the understanding that words are basic units of printed language that correspond with spoken units of meaning). For Penny, word study instruction needs to emphasize developing phonological awareness (e.g., rhyme and syllable awareness), with specific attention to attending to single consonants in words by sorting words on the basis of specific sounds contained in the words. For instance, Penny can sort cards with pictures using the initial sounds /t/ and /n/.

David, on the other hand, is a letter name speller and a beginning reader (see Figure 11-3). His spelling sample epitomizes the

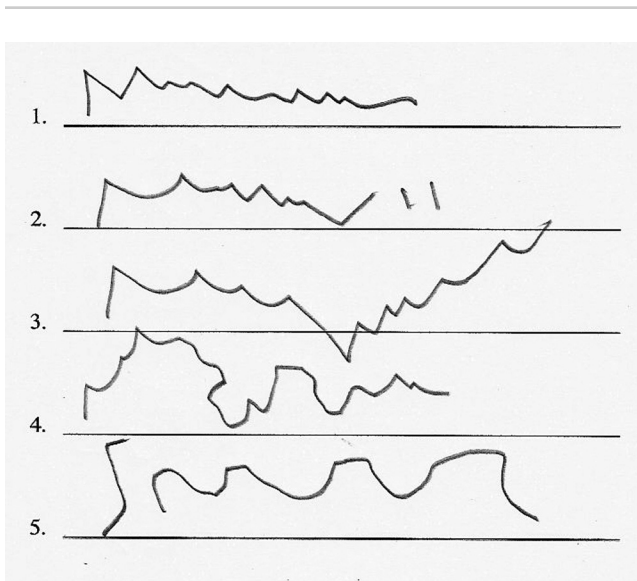


Figure 11-2. Penny's spelling sample: jam, rob, fun, sip, let.

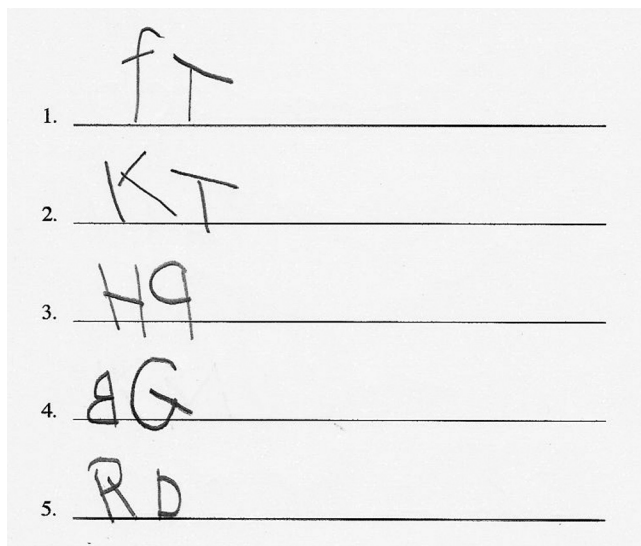


Figure 11-3. David's spelling sample: fit, cat, hop, bug, red.

early letter name speller in that he is making very linear, sound-by-sound representations of single-syllable, short-vowel words. As should be evident, the early letter name speller is not consistently able to segment each and every phoneme in single-syllable words and is therefore considered to rely only partially on phonemic cues. For example, David spelled *fit* as *ft*. Appropriate word study instruction for David will include attention to phoneme-level segmentation and blending activities so that he can develop skills in attending to all of the sounds and letters in words, as well as comparisons of short-vowel word families, such as -at versus -an versus -ag. Figure 11-4 shows a sorting activity in which David will analyze words sharing a short vowel but that come from different “word families.” Word families offer a stable pronunciation for the vowel, thus providing support for David as he moves to include medial vowels in his representations of single-syllable words. Once David has mastered these word families, he can move to analysis of other short-vowel patterns through a systematic sequence of instruction, as shown in Figure 11-5.




| | | |
|---|---|---|
| _at  cat | _an  can | _ag  tag |
| _at | _an | _ag |
| pat | man | bag |
| sat | fan | rag |
| bat | van | nag |
| fat | ran | wag |

Figure 11-4. Sorting activity for David: -at versus -an versus -ag words.

| Week | Sort Sample |
|------|---------------------|
| 1 | -at vs. -an vs. -ag |
| 2 | -ag vs. -ap |
| 3 | -an vs. -at vs. -ap |
| 4 | -in vs. -it |
| 5 | -in vs. -it vs. -ip |
| 6 | -ip vs. -in vs. -ig |
| 7 | -op vs. -ot |
| 8 | -op vs. -ot vs. -og |

Figure 11-5. Sample 8-week progression for analysis of short vowel patterns for David.

An additional example is that of Lydia, who is a second grader and a solid letter name speller, as shown in Figure 11-6. Consider Lydia's spelling of "bet," which she spelled *bat*, probably because the place of articulation for the short vowel *a* is close by that for the short vowel *e*. She also spelled "drip" *jrip* (with a reversed p),

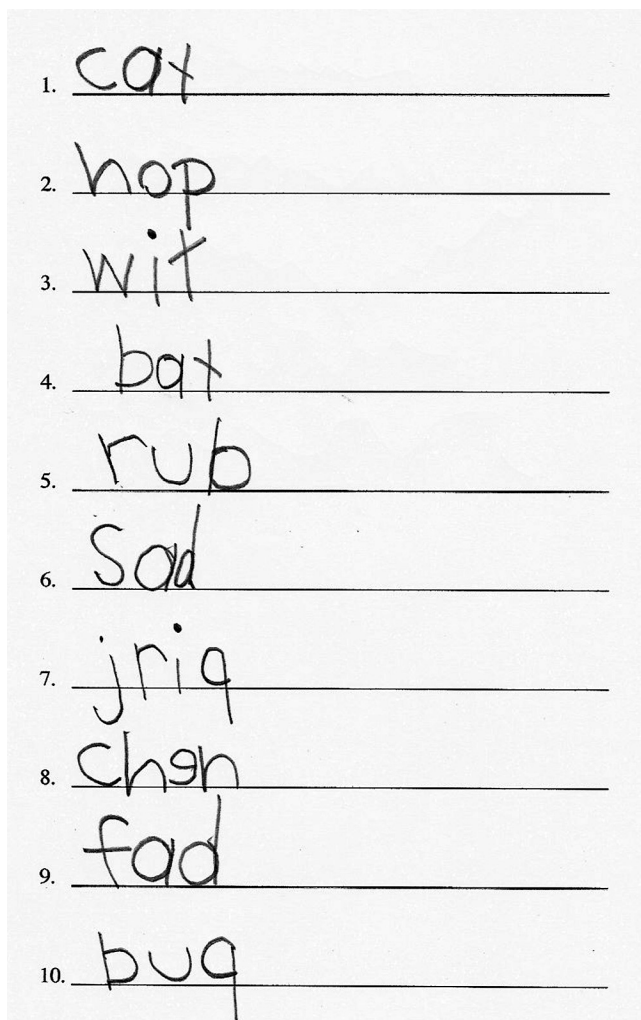


Figure 11-6. Lydia's spelling sample: cat, hop, went, bet, rub, sad, drip, chin, fed, bump.

in which she shows difficulty with representing the initial affricate in this word. Affricates often confuse letter name spellers. Lydia’s spelling of “bump,” with the exclusion of the m (also with a reversed p), indicates difficulty representing the preconsonantal nasal. These types of errors are instrumental for designing word study goals and activities for Lydia, which will include promoting her representation of affricate sounds, specifically her confusions with dr- blends. Figure 11-7 illustrates a sorting activity to help Lydia to differentiate dr- blends from words beginning with similar-sounding phonemes, and Figure 11-8 provides a sample sequence of orthographic and phonological comparisons to take Lydia through the letter name stage.




| | | |
|---|---|---|
| dr_  <u>drip</u> | d_  <u>dog</u> | j_  <u>jet</u> |
| dr_ | d_ | j_ |
| drop | dug | jug |
| drag | dig | jab |
| drug | did | jog |
| drum | dock | job |
| drat | deck | jack |

Figure 11-7. Sorting activity for Lydia: dr- versus d- versus j-words.

| Week | Sort Sample |
|------|---------------------------------|
| 1 | dr- vs. d- vs. j- |
| 2 | tr- vs. t- vs. ch- |
| 3 | short i vs. short e |
| 4 | short a vs. short e |
| 5 | short a vs. short e vs. short i |
| 6 | -m vs. -p vs. -mp |
| 7 | -n vs. -g vs. -ng |
| 8 | -sh vs. -st vs. -nt vs. -nd |

Figure 11–8. Sample 8-week progression of orthographic and phonological comparisons to take Lydia through the letter name stage.

Word Study Instruction

Word study instruction is not an “off-the-shelf” program featuring a series of scripted routines; rather, it involves sophisticated decision making by the professional to identify children’s instructional spelling levels and to provide word study opportunities that are suited to the children’s developmental needs at a specific point in time. In this way, word study instruction is similar to other clinical activities familiar to the SLP, such as designing effective interventions for addressing disorders of expressive phonology, in which careful phonological analysis is followed by systematic instruction that is tailored to a child’s phonological development and current patterns of errors. This section maps out the explicit instructional routines that are used in word study instruction, to include a detailed day-by-day description of a week of instruction.

Word Sorting as an Instructional Fulcrum

Word study is viewed as a conceptual process that requires children to recognize and analyze the similarities and differences among words (Zutell, 1992). This idea is not unlike the “associative nets”

proposed by Kintsch, whereby a concept's complete meaning is acquired by exploring its relations to other components (i.e., nodes) of the associative net (Kintsch, 1974, 1994). Word study draws heavily on sorting, or categorizing, words on the basis of similarities and differences. Categorization is a fundamental cognitive activity that leads to forming the concepts that make up our knowledge base (Gillet & Kita, 1980). Categorization allows us to create order in the stimuli that we receive by considering new stimuli in relation to things that are already familiar and making generalizations about the characteristics of all members of a certain category (Bruner, Goodnow, & Austin, 1966). Anglin (1977) purports that categorization is a "ubiquitous cognitive act" that is involved in almost all linguistic acts.

Word study also seeks to "mimic basic cognitive learning processes" by guiding students to compare and contrast features of words through the instructional activity of sorting (Bear et al., 2004, p. 2). In sorting, children must examine words to learn the regularities of written and spoken English and make categorical judgments about words, such as that the *-at* phonogram is a shared feature of such words as *pat*, *mat*, and *chat*.

Explicit sorting requires students to explore the relationships (i.e., similarities and differences) among words, and professionals must guide them in that process. Specifically, word sorting requires the professional to determine categories of investigation (e.g., the ending phonograms *-at* and *-an*) and key words to exemplify these categories (e.g., cat; sat; bat; can; tan; fan). Chall and Popp (1996) contend that a "problem-solving atmosphere" during phonics instruction is more effective and more motivating for students. Word sorting creates this type of atmosphere by providing hands-on opportunities for students to make cognitive connections about the similarities and differences among the targeted features. Bear et al. (2004) noted the applicability of the ancient proverb "I hear and I forget, I see and I remember, I do and I understand" (p. 62). In part, these problem-solving opportunities provided by active sorting contribute to the positive effects of word sorting compared with more traditional methods of spelling instruction (Hall, Cunningham, & Cunningham, 1995; Joseph, 2000).

Sorting is thus the central element of a typical weekly routine for the study of targeted orthographic or phonics features using preselected words that exemplify them. When students are engaged

in these sorting activities, the professional provides explicit directions and guidance to focus students' attention on the targeted features. For example, when sorting words with initial digraphs (e.g., ship, chop, that), the professional discusses the sounds of each digraph, as well as their corresponding letter patterns (e.g., "The /sh/ in ship is spelled with the letters s-h") and their positions in the words (e.g., "The /sh/ in ship is at the beginning of the word").

In organizing a week of word study instruction, the typical starting point is a teacher-led introduction of the orthographic features to be studied that week. This introduction may be an analogy-based activity comparing the two phonograms *-at* and *-an* in which children categorize sets of words written on individual cards that exemplify the targeted phonograms. During this time, instruction includes explicit teaching about the sounds and patterns of the targeted features, as well as the features' positions in the words. For student reference, the teacher can use a word card displaying the feature, a key word emphasizing the feature, and a picture clue. For example, when introducing a word card for the phonogram *-at* showing *cat* as the key word, the teacher can provide the following explanation:

"When you see the letters a-t, you know that these two letters together say /æt/ as in *cat*. So, when you see the word *cat*, you can take what you know—*c* and *at*—and put them together to make *cat*. You can hear the /æt/ at the end of the word *cat*. You can see a-t at the end of the word *cat*, too."

The teacher then models sorting a few words while thinking aloud. The remaining words can be sorted as a group while the teacher provides any necessary support.

Children then sort their own words with guidance by the teacher. For instance, they may sort *mat*, *sat*, *rat*, *bat*, *man*, *pan*, *fan*, and *van* under the two phonograms *-at* and *-an*, thereby providing hands-on practice with reading, sorting, and analyzing their own sets of words. Along with sorting the word cards, children can record their word sorts on paper to practice writing these words, as well as to provide additional practice reading them as they check their work for accuracy.

Phoneme Segmenting and Blending: The Perfect Complement to Sorting

Phoneme segmenting and blending activities are an important part of word study routines. As children investigate the similarities and differences among words at the orthographic level, they also examine and manipulate these words at the level of the phoneme. Explicit instruction involving segmentation and blending of phonemes is widely accepted as effective in early reading development (Adams, 1990; Chall, 1996; Ehri & Nunes, 2002; Juel & Minden-Cupp, 2000). In the word study approach, letter tiles often are used for these segmenting and blending activities so that the children are continually reviewing letters and their corresponding sounds. Segmenting and blending activities also can include explicit talk about each sound, and any individual letters or letter patterns can be highlighted to emphasize larger spelling units. For example, while segmenting and blending the word *ship*, the professional may talk about each sound in the word—/sh/, /i/, /p/—and the larger spelling units within the word—*sh* and *ip*. These tiles can be individually placed in boxes (i.e., Elkonin boxes) to further emphasize the phonemes, and multiple tiles can be placed within one box to emphasize the larger spelling units. Placing *sh*, *i*, *p* in separate boxes will emphasize the phonemes, while placing *sh* in one box and *ip* in another box will emphasize the phonogram or the -ip spelling unit.

Analogous Connections Among Words: An Activity for the Long Haul

Word study also can help children learn to make analogies between words on the basis of orthographic and phonological features—for instance, that two words are analogous in their rime unit (shack, back). Instruction using analogies requires professionals to emphasize larger spelling units that children can draw on in making analogies among words (e.g., c-at; sh-ack; h-and). Intervention studies have reinforced the assertion that beginning readers can use analogies when systematically helped to do so (Bruck & Treiman, 1992; Greaney, Tunmer, & Chapman, 1997; Santa & Hoiem, 1999). In analogy-based instruction, children are taught key words, or clue

words, for targeted phonics features. These words can be used as exemplars (key words) during sorting instruction. Students use the key words to decode and spell by comparing unknown words and the known key words, and the professional can provide an explicit explanation of the process by verbalizing, “If I know *can*, then I know *fan*, *man*, and *pan*.” This practice obviously involves using explicit talk about how words are alike, how they are different, and how children can use what they know about one word to help them read and spell other words.

Analogy-based instruction, such as that just described, is adapted from the Benchmark Word Identification Program developed by Gaskins and her colleagues (Gaskins, Ehri, Cress, O’Hara, & Donnelly, 1997; Gaskins, Gaskins, & Gaskins, 1991). This approach involves teaching key words to emphasize common phonograms (e.g., *h-im*) through explicit instruction that follows a teacher modeling and guided practice format. Lovett and her colleagues’ (1994) intervention studies have demonstrated substantial gains for students using an adaptation of the Benchmark program.

Application to Reading and Writing: Ensuring That Instruction “Sticks”

A consistent weekly routine with daily planned activities must include opportunities for application of word study to reading and writing tasks (National Reading Panel, 2000; Pressley, 2002; Snow, Burns, & Griffin, 1998). Bear et al. (2004) operationalize this requirement through activities such as word hunts, dictated sentences, and word study games in which the skill’s application is made explicit. In a word hunt, students search through previously read texts for words that contain the same spelling features they have just sorted and written. Word hunts help children make connections between spelling words and reading words. Students hunt in familiar texts to collect exemplars of the week’s features, recording found words in their notebooks. Children hunt in “easy” books they have already read in order to eliminate the competing needs for decoding and reading to glean meaning.

Children also are encouraged to apply learned orthographic features in their writing. To initiate students’ application of certain features, teachers can dictate sentences that include preselected

words representing current and past features of study. This practice does not, of course, take the place of writing instruction. It is instead a quick check of application to a contextual writing task, and a way to encourage students in making such an application. For example, David's study of short *a* families can be complemented with the dictated sentence "I had a tag in my hat."

A Sample Word Study Routine: A Bird's Eye View of a 5-Day Plan

A sample weekly word study instructional routine for beginning readers involves these key components: sorting words, manipulating words, and connecting words to authentic reading and writing. This weekly routine takes approximately 30 minutes to complete each day. These routines are guided by a specific sequence of explicit instruction to ensure carefully planned, systematic lessons; specifically, each lesson should involve the following sequence (Duffy, 2003; Winograd & Hare, 1988):

1. Review previously learned features
2. Explicitly present new content using declarative, procedural, and conditional knowledge through explanation and modeling
3. Support student practice
4. Provide feedback on performance
5. Provide student independent practice

Day One

The first day of the week begins with an introduction of the features to be studied using a set of key words. If the targeted features are -it and -in, for instance, the key words may be *sit* for -it and *pin* for -in. The children first categorize pictures of words containing -it and -in patterns; then they categorize the written words using a set of cards developed for this purpose, such as *fit*, *bit*, *pit*, *kit*, *bin*, *tin*, *fin*, *win*. These words are studied by the children each day during the entire week. After children have sorted their cards into two categories (-it words, -in words), they must review and justify each decision. Last, a brief writing activity using children's individual notebooks is completed to focus children on analogies among

words. Specifically, children are asked to complete this phrase: “If I know _____ [key word from the day], then I know _____.” This activity is included to further emphasize the similarities among words, scaffolding the children in their discovery that by manipulating the onset and holding the ending rime constant, they can produce new words. “If I know . . .” is revisited later in the week and is described in more detail in the Day Four section.

Day Two

The students begin the day sorting again those words from the previous day. A manipulation activity follows. Students are given individual sets of letter tiles (e.g., tiles on cardstock or magnetic tiles) that they manipulate with guidance from the teacher. The manipulation task involves changing letters and sounds in words (e.g., *sit* to *fit*, *fit* to *bit*, *bit* to *bin*) using the tiles. These activities always include explicit talk by the teacher about the part of the words to be changed and what parts should be kept constant. After manipulating words, the students record in their notebooks the words they have manipulated. As a final activity, the teacher dictates a sentence to the children to write in their notebooks that includes words that follow the current features, as well as features of past study.

Day Three

The students begin the day reviewing the individual word sorts from day one, followed by a manipulation activity similar to the letter tile manipulation activity described in Day Two’s routine. After manipulating words, the students (with teacher direction or support) hunt in familiar texts to collect exemplars of the week’s features, furthering the conceptual connection to *real* reading tasks. For instance, students may look through books to find words containing the rime units -it and -in, which they record in their notebooks. The lesson ends with a teacher-dictated sentence as described in Day Two’s routine.

Day Four

The students begin the day by reviewing their individual word sorts. This is followed by an analogy-based activity that focuses chil-

dren's attention on "chunks" that are similar among words—namely, rime units. The key words for the week are used as a guide (e.g., sit for -it and pin for -in). The children have individual booklets with a standard introduction on each page: "If I know ____ [in this case *sit*], then I know ____." A list of words that can be read and spelled on the basis of their knowledge of the word *sit* is generated. This practice involves explicit talk by the teacher about how the words are alike, how they are different, and how the children can use what they know about one word to help them read and spell other words. The lesson is concluded with a writing sort, during which children are dictated a list of words and must write them under one of two headings (e.g., -it words, -in words). The students must write the words in their appropriate categories and attempt to spell the words correctly. After the children have written their words, they can look back through their notebooks at previous lists of these words to check their own work.

Day Five

The students begin the day with their individual word sorts. A "spell check" activity follows, during which children are asked to write a series of words studied during the week as well as words that haven't been studied but follow the same featured patterns. The spell check activity ends with a dictated sentence to check the transfer of knowledge in the context of a sentence. Previously studied features are included in the dictated sentence for reinforcement. On Fridays after the spell check activity, students can play games to review both previously and currently studied features.

Summary

As the sequence of instruction discussed in the previous section shows, word study involves engaging children in a series of systematic activities in which they are guided to carefully study words for specific orthographic, phonological, and phonics features. The specific features of words studied are carefully determined through analysis of where a child is on the developmental continuum of spelling and decoding abilities, which are highly interrelated.

Of importance, the principles and approaches of word study instruction can be readily integrated into speech-language interventions, provided that the professional develops a strong understanding of how to conduct developmental spelling analysis to design instructional activities that are responsive to children's needs. SLPs can, for instance, utilize the sequence of activities described in the five-day weekly plan in the previous section, embedding these into their clinical sessions with children. Alternatively, SLPs also can serve as important collaborators in the general education environment by working with small groups of pupils in differentiated instruction that involves word study.

Regardless of the method of service delivery, word study instruction offers an effective approach to ensuring that children with language impairment have systematic opportunities to develop and refine their orthographic, phonological, and phonics abilities. Word study instruction can have an important place within a more comprehensive, well-balanced literacy "diet" that also includes attention to writing, reading comprehension, vocabulary, and reading fluency (Pressley, 2002). Ensuring the quality of this literacy diet for children with language impairment specifically and all children generally is essential to reducing the prevalence of reading difficulties among schoolchildren.

References

- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- American Speech-Language-Hearing Association. (2002). Knowledge and skills needed by speech-language pathologists with respect to reading and writing in children and adolescents. *ASHA 2002 Desk Reference*, 3.
- Anglin, J. M. (1977). *Word, object, and conceptual development*. New York: W. W. Norton.
- Aram, D. M., Ekelman, B. L., & Nation, J. E. (1984). Preschoolers with language disorders: 10 years later. *Journal of Speech and Hearing Research*, 27, 232-244.
- Ball, E. W., & Blachman, B. A. (1988). Phoneme segmentation training: Effect on reading readiness. *Annals of Dyslexia*, 38, 208-224.
- Bear, D., & Barone, D. (1989). Using children's spellings to group for word study and directed reading in the primary classroom. *Reading Psychology*, 10, 275-292.

- Bear, D. R., Invernizzi, M., Templeton, S., & Johnston, F. (2004). *Words their way: Word study for phonics, vocabulary, and spelling instruction* (3rd ed.). Upper Saddle River, NJ: Prentice-Hall.
- Berninger, V. W., Vaughan, K., Abbott, R. D., Brooks, A., Abbott, S. P., Rogan, L., et al. (1998). Early intervention for spelling problems: Teaching functional spelling units of varying size with a multiple-connections framework. *Journal of Educational Psychology, 90*, 587-605.
- Bishop, D. V. M., & Adams, C. (1990). A prospective study of the relationship between specific language impairment, phonological disorders and reading retardation. *Journal of Child Psychology and Psychiatry, 31*, 1027-1050.
- Bradley, L., & Bryant, P. E. (1983). Categorizing sounds and learning to read: A causal connection. *Nature, 301*, 419-421.
- Bruck, M., & Treiman, R. (1992). Learning to pronounce words: The limitations of analogies. *Reading Research Quarterly, 27*, 374-387.
- Bruner, J. S., Goodnow, J. J., & Austin, G. A. (1966). *A study of thinking*. New York: John Wiley.
- Bus, A. G., & van IJzendoorn, M. H. (1999). Phonological awareness and early reading: A metaanalysis of experimental training studies. *Journal of Educational Psychology, 91*, 403-414.
- Byrne, B., & Fielding-Barnsley, R. (1995). Evaluation of a program to teach phonemic awareness to young children: A 2- and 3-year follow-up and a new preschool trial. *Journal of Educational Psychology, 87*, 488-503.
- Catts, H. W. (1993). The relationship between speech-language impairments and reading disabilities. *Journal of Speech and Hearing Research, 36*, 948-958.
- Catts, H. W., Fey, M. E., Tomblin, J. B., & Zhang, X. (2002). A longitudinal investigation of reading outcomes in children with language impairments. *Journal of Speech, Language, and Hearing Research, 45*, 1142-1157.
- Chall, J. S. (1996). *Learning to read: The great debate* (3rd ed.). New York: McGraw-Hill.
- Chall, J. S., & Popp, H. M. (1996). *Teaching and assessing phonics: A guide for teachers*. Cambridge, MA: Educators Publishing Service.
- Dahl, K. L., Scharer, P. L., Lawson, L. L., & Grogan, P. R. (2001). *Rethinking phonics: Making the best teaching decisions*. Portsmouth, NH: Heinemann.
- Duffy, G. G. (2003). *Explaining reading: A resource for teaching concepts, skills, and strategies*. New York: Guilford Press.
- Ehri, L. C. (1997). Sight word learning in normal readers and dyslexics. In B. Blachman (Ed.), *Foundations of reading acquisition and dyslexia: Implications for early intervention* (pp. 163-187). Mahwah, NJ: Lawrence Erlbaum Associates.
- Ehri, L. C. (2000). Learning to read and learning to spell: Two sides of a coin. *Topics in Language Disorders, 20*, 19-36.

- Ehri, L. C., & Nunes, S. R. (2002). The role of phonemic awareness in learning to read. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (3rd ed., pp. 110-139). Newark, DE: International Reading Association.
- Ellis, N., & Cataldo, S. (1992). Spelling is integral to learning to read. In C. M. Sterling & C. Robson (Eds.), *Psychology, spelling, and education* (pp. 122-142). Clevedon, UK: Multilingual Matters Ltd.
- Foorman, B. R., & Torgesen, J. (2001). Critical elements of classroom and small-group instruction promote reading success in all children. *Learning Disabilities Research & Practice, 16*, 203-212.
- Ganske, K. (1999). The developmental spelling analysis: A measure of orthographic knowledge. *Educational Assessment, 6*, 41-70.
- Ganske, K. (2000). *Word journeys: Assessment-guided phonics, spelling, and vocabulary instruction*. New York: Guilford Press.
- Gaskins, I. W., Ehri, L. C., Cress, C., O'Hara, C., & Donnelly, K. (1997). Procedures for word learning: Making discoveries about words. *The Reading Teacher, 50*, 312-327.
- Gaskins, R. W., Gaskins, J. C., & Gaskins, I. W. (1991). A decoding program for poor readers: And the rest of the class, too! *Language Arts, 68*, 213-225.
- Gillet, J. W., & Kita, M. J. (1980). Words, kids, and categories. In E. H. Henderson & J. W. Beers (Eds.), *Development and cognitive aspects of learning to read: A reflection of word knowledge* (pp. 120-126). Newark, DE: International Reading Association.
- Gillon, G. T. (2000). The efficacy of phonological awareness intervention for children with spoken language impairment. *Language, Speech, and Hearing Services in Schools, 31*, 126-141.
- Goulandris, N. K. (1992). Alphabetic spelling: Predicting eventual literacy attainment. In C. M. Sterling & C. Robson (Eds.), *Psychology, spelling, and education* (pp. 143-158). Clevedon, UK: Multilingual Matters Ltd.
- Graham, S., Harris, K. R., & Chorzempa, B. F. (2002). Contribution of spelling instruction to the spelling, writing, and reading of poor spellers. *Journal of Educational Psychology, 94*, 669-686.
- Greaney, K., Tunmer, W., & Chapman, J. (1997). Effects of rime-based orthographic analogy training on the word recognition skills of children with reading disability. *Journal of Educational Psychology, 89*, 645-651.
- Hall, D. P., Cunningham, P. M., & Cunningham, J. W. (1995). Multilevel spelling instruction in third grade classrooms. In K. A. Hinchman, D. L. Leu, & C. Kinzer (Eds.), *Perspectives on literacy research and practice* (pp. 384-389). Chicago: National Reading Conference.
- Hayes, L. (2004). *A comparison of two systematic approaches to phonics and spelling instruction in beginning reading: A basal phonics program and word study*. Unpublished doctoral dissertation, University of Virginia, Charlottesville, VA.

- Hedegaard, M. (1990). The zone of proximal development as basis for instruction. In L. C. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of sociobistorical psychology* (pp. 349-371). Cambridge, UK: Cambridge University Press.
- Henderson, E. H. (1990). *Teaching spelling* (2nd ed.). Boston: Houghton Mifflin.
- Invernizzi, M. (1992). The vowel and what follows: A phonological frame of orthographic analysis. In S. Templeton & D. Beers (Eds.), *Development of orthographic knowledge and the foundations of literacy: A memorial Festschrift for Edmund H. Henderson* (pp. 106-136). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Invernizzi, M., Swank, L., Juel, C., & Meier, J. (2003). *Phonological awareness literacy screening (PALS-K)*. Charlottesville, VA: University of Virginia Press.
- Joseph, L. M. (2000). Developing first graders' phonemic awareness, word identification and spelling: A comparison of two contemporary phonic instructional approaches. *Reading Research and Instruction, 39*, 160-169.
- Juel, C., & Minden-Cupp, C. (2000). Learning to read words: Linguistic units and instructional strategies. *Reading Research Quarterly, 35*, 458-492.
- Kintsch, W. (1974). *The representation of meaning in memory*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kintsch, W. (1994). The role of knowledge in discourse comprehension: A construction integration model. In R. B. Ruddell, M. R. Ruddell, & H. Singer (Eds.), *Theoretical models and processes in reading* (4th ed., pp. 951-995). Newark, DE: International Reading Association.
- Lewis, B.A., & Freebairn, L. (1992). Residual effects of preschool phonology disorders in grade school, adolescence, and adulthood. *Journal of Speech and Hearing Research, 35*, 819-831.
- Lovett, M. W., Borden, S. L., DeLuca, T., Lacerenza, L., Benson, N. J., & Brackston, D. (1994). Treating the core deficits of developmental dyslexia: Evidence of transfer of learning after phonologically- and strategy-based reading training programs. *Developmental Psychology, 30*, 805-822.
- McCandliss, B., Beck, I., Sandak, R., & Perfetti, C. (2003). Focusing attention on decoding for children with poor reading skills: Design and preliminary tests of the word building intervention. *Scientific Studies of Reading, 7*, 75-103.
- Magnusson, E., & Naucler, K. (1993). The development of linguistic awareness in language-disordered children. *First Language, 13*, 93-111.
- Menyuk, P., Chesnick, M., Liebergott, J. W., Korngold, B., D'Agostino, R., & Belanger, A. (1991). Predicting reading problems in at-risk children. *Journal of Speech and Hearing Research, 34*, 893-903.

- Morris, D., Nelson, L., & Perney, J. (1986). Exploring the concept of "spelling instruction level" through the analysis of error-types. *Elementary School Journal*, 87, 181-2000.
- Morris, D., Blanton, L., Blanton, W. E., Nowacek, J., & Perney, J. (1995). Teaching low achieving spellers at their "instructional level." *Elementary School Journal*, 96, 163-177.
- Morris, D., Blanton, L., Blanton, W. E., & Perney, J. (1995). Spelling instruction and achievement in six classrooms. *Elementary School Journal*, 92, 145-162.
- National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of scientific research literature on reading and its implications for reading instruction*. Rockville, MD: National Institute of Child Health and Human Development.
- Pressley, M. (2002). *Reading instruction that works: The case for balanced teaching* (2nd ed.). New York: Guilford Press.
- Santa, C., & Hoen, T. (1999). An assessment of Early Steps: A program for early intervention of reading problems. *Reading Research Quarterly*, 27, 54-79.
- Sawyer, D. J., Wade, S., & Kim, J. K. (1999). Spelling errors as a window on variations in phonological deficits among students with dyslexia. *Annals of Dyslexia*, 49, 137-159.
- Schlagal, R. (1982). A qualitative inventory of word knowledge: A developmental study of spelling grades one through six (Doctoral dissertation, University of Virginia, 1982). *Dissertation Abstracts International*, 47(03), 915.
- Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Stanovich, K. E. (2000). *Progress in understanding reading*. New York: Guilford Press.
- Vellutino, F. R., Scanlon, D. M., Sipay, E., Small, S., Pratt, A., Chen, R., & Denckla, M. (1996). Cognitive profiles of difficult-to-remediate and readily remediated poor readers: Early intervention as a vehicle for distinguishing between cognitive and experiential deficits as basic causes of specific reading disability. *Journal of Educational Psychology*, 88, 601-638.
- Viise, N. (1994). *Feature word spelling list: A diagnosis of progressing word knowledge through an assessment of spelling errors*. Unpublished doctoral dissertation, University of Virginia, Charlottesville, VA.
- Winograd, P. N., & Hare, V. C. (1988). Direct instruction of reading comprehension strategies: The nature of teacher explanation. In C. E. Weinstein, E. T. Goetz, & P. A. Alexander (Eds.), *Learning and study strategies: Assessment, instruction, and evaluation* (pp. 121-139). New York: Academic Press.

- Worthy, M. J., & Invernizzi, M. (1989). Spelling errors of normal and disabled students on achievement levels one through four: Instructional implications. *Bulletin of the Orton Society, 40*, 138-149.
- Zutell, J. (1992). An integrated view of word knowledge: Correlational studies of the relationships among spelling, reading, and conceptual development. In S. Templeton & D. Bear (Eds.), *Development of orthographic knowledge and the foundations of literacy: A memorial festschrift for Edmund H. Henderson* (pp. 213-230). Newark, DE: International Reading Association.
- Zutell, J., & Rasinski, T. (1989). Reading and spelling connections in third and fifth grade students. *Reading Psychology, 10*, 137-155.

