Fluency

The Link between Decoding and Comprehension for Struggling Readers

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Fluency is receiving substantial attention currently from both researchers and practitioners. In part, this attention was stimulated over a decade ago by a Report of the National Reading Panel (2000), which identified fluency as one of only five critical components of reading: phonemic awareness, phonics, vocabulary, fluency and comprehension. Despite the increased focus on fluency, for struggling readers, fluency as a measure of rate and accuracy has definitely received greater attention. However, its reciprocal relationship to comprehension is frequently ignored as a focus for remedial instruction.

DEFINING READING FLUENCY

Fluency has sometimes been viewed as essentially an oral reading phenomenon (Rasinski & Hoffman, 2003). However, because most readers spend a relatively small amount of time engaged in oral reading compared with silent reading, a definition of fluency needs to encompass more than oral reading. The International Reading Association's The Literacy Dictionary: The Vocabulary of Reading and Writing defines fluency as "freedom from word identification problems that might hinder comprehension" (Harris & Hodges, 1995, p. 85). This definition expands our understanding of reading fluency to include comprehension. Samuels (2002), a pioneer in research and theory in reading fluency, cites this expanded definition as a major force in elevating the importance of fluency in the field of reading. The National Assessment of Educational Progress established that there is a significant and positive relationship between oral reading fluency and reading comprehension (Pinnell et al., 1995). However, this relationship is fairly complex. Alt and Samuels (2011) suggest that the field has misunderstood the definition of fluency, interpreting it to mean the simultaneous application of reading speed and comprehension. Strecker, Roser, and Martinez (1998), in their review of fluency research, note: "The issue of whether fluency is an outgrowth or a contributor to comprehension is unresolved. There is empirical evidence to support both positions" (p. 300). However they conclude: "Fluency has been shown to have a 'reciprocal relationship' with comprehension, with each fostering the other" (p. 306).

A comprehensive definition, then, would relate the centrality of fluency to reading comprehension and its established dimensions. Previously, we proposed the following synthesis of definitions:

Reading fluency refers to efficient, effective word recognition skills that permit a reader to construct the meaning of text. Fluency is manifested in accurate, rapid, expressive oral reading and is applied during, and makes possible, silent reading comprehension. (Pikulski & Chard, 2003, p. 510)

We believe that the issue of a definition is not trivial but rather is central to making important decisions about the teaching and assessment of fluency for struggling readers. For example, Alt and Samuels (2011) have suggested that the misunderstanding of the relationship between fluency and comprehension has led to invalid measures of fluency that are actually just measures of speed (Alt & Samuels, 2011). Rather than a surface view of reading fluency that might lead to practices of telling students to read faster, our definition suggests a deep construct view of fluency. A deep construct view considers fluency broadly as part of a developmental process of building oral language and decoding skills that form a bridge to reading comprehension for readers, resulting in a reciprocal, causal relationship with reading comprehension. More specifically, we contend that this deep construct view considers four dimensions of fluency: oral reading accuracy, oral reading rate, quality of oral reading, and reading comprehension. It becomes necessary to think about fluency as part of a child's earliest experiences with print and with the phonology that becomes associated with that print. In this view, efficient decoding is consistently related to comprehension. In the next section, we describe several theories related to reading fluency and their contribution to our understanding of how fluency develops.
HISTORICAL DEVELOPMENT
OF THE CONSTRUCT OF READING FLUENCY

An early discussion of the construct of reading fluency is found in Edmund Huey's (1908/1968) classic publication, however, most discussions of fluency trace their modern theoretical foundations to the 1974 seminal article by LaBerge and Samuels. LaBerge and Samuels argued that human beings can attend to only one thing at a time. However, we are able to do more than one thing at a time if we alternate our attention between two or more activities or if one of the activities is so well learned that it can be performed automatically. Reading success fully is a complex interaction of language, sensory perception, memory, and motivation. To illustrate the role of fluency, it helps to characterize this multifaceted process as including at least two activities: (1) word identification or decoding and (2) comprehension, or the construction of the meaning of text. In order for reading to proceed effectively, the reader cannot focus attention on both word identification and comprehension. Understanding an author's message involves making inferences, responding critically, and so on, and it always requires attention. The nonfluent reader can alternate attention between the two processes; however, this makes reading a laborious, often punishing process. If attention is drained by decoding words, little or no capacity is available for the attention-demanding process of comprehending. Therefore, automaticity of decoding—a critical component of fluency—is essential for high levels of reading achievement.

Perfetti (1985) applied the LaBerge and Samuels argument to an information-processing approach to understanding the importance of efficient lower level processes in fluent, connected-text reading. His "verbal efficiency theory" highlights the importance of lower level lexical skills in reading and explains the impact of processing information at multiple levels of reading comprehension. He suggests that lower level processes (e.g., word identification) must reach a minimum performance level before higher level processes can be performed simultaneously during reading. When lower level processes are performed inefficiently, higher order processes will attempt to compensate. Breznitz's (2006) research supports the verbal efficiency theory by demonstrating that slow processing speed can become habitual and may result in slower comprehension. When a reader is forced to read more quickly, his or her overall reading performance may benefit. Perfetti's theory assumes that resource demands can be reduced through learning and practice, and efficiency may be enhanced through careful allocation of attention resources.

In contrast, Logan's (1988) memory-based theory of fluency—the instance theory of automatization—suggests that automaticity and fluency are based on memory retrieval. Three key assumptions of Logan's memory-based theory include (1) obligatory encoding, (2) obligatory retrieval, and (3) instance representation (Logan, 1997). "Obligatory encoding" refers to focusing attention on a stimulus (e.g., a word) and storing details of that stimulus in memory. "Obligatory retrieval" suggests that merely attending to a stimulus is sufficient to retrieve previous exposures or similar stimuli from memory. "Instance representation" refers to the coding and storage of each memory trace of experiences with a stimulus in memory. Each memory trace is coded and stored separately regardless of prior experience with the stimulus. Logan (1988) contends that information recall is automatic when it relies on retrieval of stored instances from memory. "Stored instances" refer to the theoretical memory traces laid down in the brain each time a task is executed. As the number of trials on a task increases, the strength of the number of memory traces or instances also increases.

In his further refinement of the theory, Logan (1997) suggests that automaticity develops as a consequence of the "power law," which states that the reaction time to a stimulus decreases as a result of practice and repetition. The level of automaticity developed is dependent on the amount of practice, the level of consistency in the task environment, and the number of relevant instances of the task recorded in memory. As the reader's knowledge base expands and becomes accurate, performance becomes reliant on memory retrieval rather than problem solving (Logan, 1997). Based on Logan's theory, as students read words, they lay down traces for each word. If the word is read frequently enough, the cumulative practice with that word results in an increased likelihood that the word will be recognized upon further exposures and that the speed with which it will be recognized will increase. Although we are attracted to the obvious notion that frequent practice with words will speed subsequent access to those words, we believe Logan's theory alone does little to help guide fluency instruction for struggling readers.

Stanovich (1986) also contributed to the contemporary focus on reading fluency. He demonstrated a clear relationship between fluency and the amount of reading in which a reader engages. Readers who achieve some fluency are likely to be readers who read more extensively than those who lack fluency, because the latter find reading difficult. Stanovich points out that as a result of reading more extensively, readers grow in all the skills that contribute to fluency and in fluency itself. Nonfluent readers who avoid reading fall further and further behind.

As we mentioned earlier, the report of the National Reading Panel (2000) significantly elevated the level of attention to fluency. The Panel's review largely reflected the position that "fluency develops from reading practice" (p. 3-1). Therefore, they devoted much of their review to analyzing the research support that exists for two major approaches to providing students with reading practice: "First, procedures that emphasize repeated
oral reading practice or guided repeated oral reading practice; and second, all formal efforts to increase the amounts of independent or recreational reading that students engage in” (p. 3-5). Basically, the panel concluded that there is substantial evidence to support the use of the repeated reading procedures. However, they raised questions about the evidence supporting independent Wide Reading for promoting fluency: “There seems little reason to reject the idea that lots of silent reading would provide students with valuable practice that would enhance fluency and, ultimately, comprehension... it could be that if you read more, you will become a better reader; however, it also seems possible that better readers simply choose to read more” (p. 3-21). In essence, they concluded that although there is very strong correlational support for independent reading contributing to fluency, there is no convincing experimental research to show that increasing independent reading will increase fluency or reading achievement.

The prior discussion of fluency and related research is certainly not a comprehensive review. Many important research findings are omitted. For more comprehensive discussions of fluency, readers are encouraged to consult reviews such as those by Chard, Ketterlin-Geller, Baker, Doabler, and Apichatabutra (2009), the National Reading Panel (2000), Rasinski, Reutzel, Chard, and Lian-Thompson (2011), Reutzel (1996), Strecker et al. (1998), and the entire summer 1991 (Volume 30, no. 3) issue of the journal Theory into Practice.

Although each of these reviews is clearly instructive, the position we take here is one that addresses the need of systematic, long-term, explicit fluency instruction along with careful monitoring and assessment for struggling readers. Rather than focusing solely on how to improve fluency when it is not developing as expected, it would seem helpful to examine the elements of early literacy that contribute to fluency. For this purpose, we turn to yet another theory that attempts to explain the relation of word-reading development to reading fluency.

**EHRI’S STAGES OF READING DEVELOPMENT AND FLUENCY**

Ehri (1995, 1998, 2005) has developed a carefully researched, elegant theory of the stages through which readers systematically progress in order to achieve fluency. Her theory is in line with a “deep” developmental construct of fluency. We review her theory because it brings coherence to much of the research on fluency and it offers a framework for instruction designed to promote and improve fluency. Ehri distinguished five stages of reading development.

Readers at the prealphabetic stage have no appreciation of the alphabetic principle—the idea that in alphabetic languages like English there is a systematic relationship between the limited number of sounds and the graphic forms (letters) of the language. At the prealphabetic stage, children attempt to translate the unfamiliar visual forms of print into familiar oral language through visual clues in the print. Children might remember the word *monkey* by associating the descending shape of the last letter with a monkey's tail. Obviously this is not a productive approach and quickly leads to confusion since *my*, *poor*, and many other words would also be read as *monkey*. It would also not be productive in an alphabetic language (e.g., English, Spanish) to pursue an instructional approach that emphasizes word shape rather than a more generalizable approach to word recognition.

At the partial alphabetic stage, readers have learned that letters and sounds are related. However, they are not able to deal with the full complexity of the sounds in words and are unable to make complete use of the letter-sound relationships. Therefore, children focus on the most salient parts of a word and consequently use initial and, later, final letters as the clues to a printed word's pronunciation. If readers at this stage learn that the letter sequence *g-e-t* is *get*, they may focus just on the *g* and the sound it represents to identify the word. However, using this strategy of focusing on the first letter, the letter sequences *g-i-e*, *g-o*, and *g-o-r-i-l-l-a* might also be identified as *get*. Although children at this stage of development will make errors in identifying words, they can make progress toward becoming fluent because they have developed the insight that the letters of a word are clues to the sounds of the word.

As children become more familiar with letters and sounds, they move into the fully alphabetic stage. Now, even though they may never have seen the word *bug* in print before, if they know the sounds commonly associated with the letters *b-u-g*, they can think about the sounds for each of the letters and blend them together to arrive at the pronunciation of the word. As a result of encountering the printed word *bug* several times, as few as four according to a widely cited study (Reitsma, 1983), children come to accurately and instantly identify the word *bug* without attending to the individual letters, sounds, or letter–sound associations. Ehri (1998) describes skilled reading in the following way: “Most of the words are known by sight. Sight reading is a fast-acting process. The term sight indicates that sight of the word activates that word in memory including information about its spelling, pronunciation, typical role in sentences, and meaning” (pp. 11–12). This instant, accurate, and automatic access to all these dimensions of a printed word is the needed fluency that will allow readers to focus their attention on comprehension rather than on decoding. It is important to note that Ehri's theory and research incorporates Logan's power law but goes further to indicate that it is the careful processing of print in the fully alphabetic stage that leads to this rapid, instant recogni-
tion. Partial alphabetic readers store incomplete representations of words and, therefore, confuse similar words such as were, where, wire, and wore. However, once the word form is fully processed, with repeated encounters of the word, it is recognized instantly.

Readers who recognize whole words instantly have reached the consolidated alphabetic stage. They also develop another valuable, attention-saving decoding skill. In addition to storing words as units, repeated encounters with words allow a reader to store letter patterns across different words. A multiletter unit -ent will be stored as a unit as a result of reading the words went, sent, and bent. Upon encountering the word bent for the first time, a consolidated alphabetic reader would need to connect only two units, d and -ent, rather than the four units that the fully alphabetic reader would need to combine. Although this approach to reading a word is faster than blending the individual phonemes, it is not as fast and efficient as sight recognition of the word. Readers who have reached the consolidated stage of reading development are in a good position to progress toward increasingly efficient fluency; however, in addition to these advanced word identification skills, they also need to increase their language vocabulary development in order to reach advanced levels of fluent reading.

The final automatic stage is characterized by instant recognition of words and the ability to apply advanced decoding strategies with competence and automaticity. Readers in the automatic stage unconsciously apply multiple strategies to decode and confirm unfamiliar words, resulting in accurate, fluent reading (Ehri & McCormick, 1998). This stage is characteristic of mature readers.

The previous research focuses singularly on the readers' development. However, fluency and fluency difficulties are influenced not only by learner factors but by other factors as well. In the following section, we review these other factors that contribute to fluency difficulties and discuss how to use this information when working to improve fluency for struggling readers.

**FACTORS CONTRIBUTING TO FLUENCY DIFFICULTIES FOR STRUGGLING READERS**

To best understand an instructional program based on a deep construct of fluency for struggling readers, it is helpful to understand the etiology of individual differences in reading fluency. Torgesen, Rashotte, and Alexander (2001) identified the following five factors that impact a child's ability to read fluently:

1. The proportion of words in text that are recognized as orthographic.
2. Variations in the speed with which sight words are processed.
3. Speed of processes that are used to identify novel words.
4. Use of context to increase word identification.
5. Speed with which word meanings are identified.

We next describe each factor within the context of our definition of fluency, highlighting the reciprocal relationship between fluency and comprehension.

The ability to read words as orthographic chunks or units increases speed of word recognition. This speed in word recognition enables readers to focus on constructing meaning from text. Torgesen, Rashotte, et al. (2001) found that the ability to identify words by sight is the variable most strongly related to connected text reading rate in students with and without reading disabilities.

Individuals vary in the speed with which sight words are processed based on the number and quality of exposures to the word (Ehri, 1997; Logan, 1988) or on differences in processing speed (Breznitz, 2006; Wolf, Bowers, & Biddle, 2000). If words are not effectively assimilated into a child's sight word repertoire, speed of word identification will be reduced as the child attempts to decode the word. Bower and Wolf (cited in Levy, 2001) hypothesize that slow processing speed is related to slow letter processing. Difficulties with word identification, peripheral processing, and letter processing result in inhibited processing of larger orthographic units and dysfluent reading. Breznitz (2006) notes that “reading requires a high degree of synchronization in terms of speed and location of the incoming information” and that individuals with dyslexia reflect a less than optimal synchronization (p. 126). These findings support a focus on a deeper construct of fluency that points to providing instruction that encompasses a broader range of reading skills and behaviors to support reading comprehension.

Speed of processing novel words is reduced when words are not recognized as orthographic chunks (i.e., spelling patterns) or morphemes. Reading novel words requires conscious analysis, including phonetic decoding, recognition by analogy to known words, and guessing from the context or meaning of the passage (Torgesen, Rashotte, et al., 2001). If processing at the subskill level is not automatic and requires conscious analysis, reading comprehension will be compromised. Additionally, it appears problematic to allow readers to focus only on the subskill level because it may result in habitually slow reading (Breznitz, 2006).

Evidence indicates that while fluent readers do not rely on passage context for word identification, struggling readers and beginning readers do (Bennett, Pollatsek, & Scarpaci, cited in Torgesen, Rashotte, et al., 2001; Pring & Snowling, cited in Torgesen, Rashotte, et al., 2001). Although the role of context for beginning and poor readers in reading fluency is unclear, Torgesen, Rashotte, et al. (2001) suggest that combining the use of vocabu-
lary and background knowledge with passage context during reading may be a contributing factor in accurate, fluent word recognition. Struggling readers with limited vocabulary and background knowledge may be less able to construct meaning from a passage, resulting in slow, effortful reading. This assertion is supported by the theories of fluency development proposed by Ehri (1997), LaBerge and Samuels (1974), and Perfetti (1985) and further supports the adoption of a deeper construct of fluency.

Torgesen, Rashotte, et al. (2001) posit that the ability to rapidly identify the meaning of words while reading connected text has the potential to affect oral reading fluency. If students are able to accurately decode and identify the meaning of a word while reading connected text, speed can be maintained and comprehension can occur. If students are unable to recognize the meaning of a word rapidly and must actively reflect on word meanings while reading, both fluency and comprehension will decline. There is evidence that differences in the ability to recognize the meaning of words (vocabulary growth) result in differences in developing sight word vocabularies in favor of students who understand the meaning of words (Cunningham & Stanovich, 1998; Torgesen, Alexander, et al., 2001).

Each of the five factors that Torgesen, Rashotte, et al. (2001) identified as contributing to fluency difficulties for struggling readers provide additional support for a deeper construct of fluency. It is evident from an analysis of these factors that the development of fluency for struggling readers should encompass instruction in multiple skills, including phonemic awareness, decoding, vocabulary, oral language, and connected text reading. Instruction across multiple skills has the potential to positively impact both independent text-reading fluency and comprehension and should be considered when planning and providing instruction to struggling readers.

AN INSTRUCTIONAL PROGRAM FOR STRUGGLING READERS BASED ON A DEEP CONSTRUCT OF FLUENCY

Our perception is that until recently some, though certainly not all, educators took a rather simplistic approach to developing fluency that is summed up in the phrase: “Read, read, read.” The expectation was that if students read more, they would achieve fluency. However, research and theory suggest that at least some students will need expert instruction and teacher guidance in order to progress efficiently through the stages of reading development. We propose an eight-step program for developing fluency. Some of the steps, such as building the graphophonic foundation for fluency or high-frequency vocabulary, are usually accomplished in a relatively short period of time (e.g., often 1–2 years), while others, such as building oral language skills, are unending. Our goal in this chapter is to outline the rationale and the breadth of instruction needed for developing a deep construct of fluency with struggling readers. We give some references that offer suggestions for instructional strategies and materials, but space limitations preclude treating each of these areas in depth. The eight-step program for struggling readers should include explicit and systematic instruction that:

1. Builds the graphophonic foundations for fluency, including phonological awareness, letter familiarity, and phonic.
2. Builds and extends vocabulary and oral language skills.
3. Provides expert instruction and practice in the recognition of high-frequency vocabulary.
4. Teaches common word parts and spelling patterns.
5. Teaches, models, and provides practice in the application of a decoding strategy.
6. Uses appropriate texts to coach strategic behaviors and to build reading speed.
7. Uses repeated reading procedures as an intervention approach for struggling readers.
8. Monitors fluency development through appropriate assessment procedures.

BUILDING THE GRAPHOPHONIC FOUNDATIONS FOR FLUENCY

Ehri lists three prerequisite “graphophonic” capabilities as foundations for fluency: (1) letter familiarity, (2) phonemic awareness, and (3) knowledge of how graphemes typically represent phonemes in words.

Strickland and Schickendanz (2009) offer practical, research-based approaches to developing graphophonic skills, including letter familiarity, in emergent readers. Instruction in the area of phonological awareness has been addressed widely (e.g., Adams, Foorman, Lundberg, & Beeler, 1998; Blachman, Ball, Black, & Tangel, 2000; O’Connor, Notari-Syverson, & Vadas, 2007).

The importance of the three graphophonic factors is fully documented in numerous research reports (e.g., Adams, 1990; National Reading Panel, 2000). In order to move from the pre-alphabetic stage to the partial and fully alphabetic stages, students need to grasp the alphabetic principle and to apply efficiently information about the relationship between the letters and sounds (phonics) to recognize words. This clearly requires a high level of familiarity with letter forms as well as the ability to segment and blend the smallest units of spoken language—phonemes.

Building these foundations for struggling readers requires systematic progression from simpler to more complex tasks. For example, for phone-
mic awareness, instruction should progress on a continuum from simple tasks such as rhyming to more complex tasks such as blending and segmenting. Alphabetic principle instruction should begin with simple skills such as letter–sound identification and progress to more advanced skills such as reading multisyllabic words and more complex sentences. Phonemic awareness and alphabetic principle instruction should occur in concert. Activities to build the graphophonic foundations for fluency that can be implemented alongside a commercially produced core reading program include poetry reading that focuses on target sounds and words, matching pictures to word types, and manipulating letter tiles to spell words using known letter–sounds.

**ORAL LANGUAGE FOUNDATIONS FOR FLUENCY**

In addition to the graphophonic skills, Ehri’s (1995, 1998, 2005) theory requires a foundation in language skills so that students are familiar with the meanings of words and phrases as well as with their syntactical or grammatical function. These language skills provide a gateway for fluent reading whereby students read with appropriate speed, accuracy, and prosody, with each contributing to and an outcome of comprehension (Kuhn, 2011).

We know that the relationship between reading comprehension and vocabulary knowledge is strong and unequivocal (Kame'enui & Baumann, 2012; Stanovich, 1986). However, developing the oral language and vocabulary skills of children is one of the greatest challenges facing us as educators, particularly for those children who are learning English as a second language or who spend their preschool years in language-restricted environments. Many excellent resources exist for meeting this challenge. Recent examples include texts by Beck, McKeown, and Kucan (2002) and Blachowicz and Fisher (2009) as well as Nagy’s (1988) highly regarded International Reading Association publication.

Ehri (1995, 1998, 2005) shows that progress in reading beyond the beginning stages is dependent on oral language development, pointing out that reading words, particularly reading them fluently, is dependent on familiarity with them in their oral form. If the syntactic and meaning aspects of the word are to be activated, they must be part of what the reader knows through oral language development. In order for the word recognition process as proposed in Ehri’s theory to be complete, it must connect with meaning that has been developed as another aspect of language development. Consider the following words: zigzags and onychophagia. Mature readers have no trouble rapidly decoding the first word, even though it is one of the least frequent words in printed English. However, it takes mature readers much longer to arrive at a pronunciation of the second word because it not only appears infrequently in print but is also very infrequently used in speech and, therefore, is not likely to be a word in their mental lexicon. Unless a printed word can connect with both the phonological memory for the word and the syntactical and meaning aspects of the word, it cannot be fluently decoded or read. It seems unfortunate that many surface discussions of fluency fail to make the point that fluency is dependent on readers’ vocabulary as well as decoding skills.

To facilitate oral language and vocabulary growth for struggling readers, explicit and systematic instruction is required. Instructional approaches might include preteaching unfamiliar high-utility vocabulary and vocabulary essential to the meaning of a passage using a picture, synonym, or concise definition prior to read-alouds. Instruction can occur in whole class or small groups. Vocabulary instruction in small groups should be heterogeneous to enable students with more limited vocabularies to dialogue with those with rich vocabularies. Opportunities for additional practice and review of taught words can be provided using strategies such as word walls, where high-frequency vocabulary is posted and practiced; semantic mapping; use of questioning to promote deep processing; and relating new vocabulary to meaningful experience.

Not only do oral language and vocabulary growth enable the reading of passages with appropriate speed and accuracy for all readers, but readers’ oral language and vocabulary growth may also be related to their reading prosody. Rasinski et al. (2011) define prosody as “an area of phonology that focuses on the rhythmical and tonal features of speech that are layered upon individual phonological segments and include stress, pitch and duration” (p. 292). In lay terms, reading with prosody refers to reading aloud in a manner that replicates spoken language. Reading with attention to stress, pitch, and duration may play a direct role in the ability to read fluently and to comprehend passage meaning. Research has revealed strong correlations between informal ratings of prosody and silent reading comprehension in elementary and secondary school students (Daane, Campbell, Grigg, Goodman, & Oranje, 2005; Pinnell et al., 1995). Kuhn (2011) proposes an interactive relationship between prosody and comprehension whereby each contributes to and is an outcome of children’s understanding of the text. However, research has yet to ascertain the relationship between prosody and overall reading ability and, if this relationship does exist, the extent to which prosody directly impacts reading fluency and overall reading achievement (Rasinski et al., 2011).

**TEACHING HIGH-FREQUENCY VOCABULARY**

High-frequency words are those words that appear over and over again in our language, words such as the, of, and, at, and to. Instant recognition of high-frequency words plays an important role in developing fluency for
struggling readers (Torgesen & Hudson, 2006). In order to effectively teach high-frequency words to struggling readers, instruction should address both a broad range of high-frequency words that individuals can recognize on sight and the efficiency with which these words are recognized (Torgesen, Rashotte, et al., 2001; Cramer & Rosenfield, 2008).

One approach to building fluent recognition of high-frequency vocabulary, exceedingly popular with primary grade teachers, is the use of word walls (Cunningham, 2000). A second approach is to prepare a 5 x 5 grid in which students practice high-frequency words to the level of fluency by placing one new word and four review words randomly in each row. Students are provided an untimed practice, and then do a timed recall of the words, working towards a desired criterion rate (e.g., 1 word per second). Cunningham also offers a variety of other methods for teaching high-frequency words, as do Bear, Invernizzi, Templeton, and Johnston (1996).

 Ehri’s (1995, 1998, 2003) theory and research also offer important, practical teaching suggestions. High-frequency words have often been seen as a serious challenge because many of them do not lend themselves to straightforward application of decoding skills; they are, in the jargon of reading instruction, phonically irregular—words such as the, of, was, and have. Teaching high-frequency words can be difficult. This difficulty may very well be a contributor to the periodic abandonment of phonics approaches and the rise of whole-word approaches to teaching beginning reading skills, with accompanying emphasis on drill using flash cards to force children to read the words as a whole. Ehri’s work suggests that they also contain many letter–sound regularities and that these regularities are the best mnemonics for developing accurate, instant recognition. For example, while the word have does not follow the generalization about the effect of a final e on a preceding vowel sound, the b, t, and e all behave as they should, and the d does represent a sound that it often represents. Ehri suggests that we should point out the regular elements of “irregular” words in order to help children gain instant recognition of them. This is a practice rarely mentioned by “experts” or used by teachers, but it might play a very important role in avoiding difficulty with such words and thus promoting the development of fluency.

RECOGNIZING WORD PARTS AND SPELLING PATTERNS

Word parts and spelling patterns are combinations of letters such as at, ell, ick, op that are found as units in many words that appear in beginning reading texts. Like Ehri (1997, 1998, 2005), Samuels (1999, 2002) maintains that the size of the unit that is recognized during reading varies between beginning and experienced readers. Beginning readers rely on cues at the single letter–sound level and integrate the use of word parts, spelling patterns, and word reading as they become more capable. Proficient readers are able to identify word parts, spelling patterns, and whole words as units automatically. Differences in strategy use between beginning and proficient readers suggest a differential reliance on word parts and spelling patterns, which depends on the individual stage of reading development.

Consistent with this view, Menon and Hiebert (2011) suggest that struggling readers experience difficulty developing proficiency identifying single letter–sounds (phonemes), and that instruction in larger grain-size units, such as word parts and spelling patterns, appears to hold additional benefit to working at the individual phoneme level. Furthermore, exposure to these larger grain sizes in connected texts would provide students additional opportunities to develop automaticity with word parts and spelling patterns while reading connected text. This view is supported by Kuhn (2011) in her observation that isolated decoding instruction and word work fail to generalize to the reading of connected text.

Here again, Cunningham (2000) and Bear et al. (1996) are among the many resources that offer practical teaching suggestions, including a list of the most common word parts found in beginning reading materials. Lovett et al. (2000) provide additional validated instructional approaches to teaching word parts.

Introducing students to multiple-letter units clearly moves students from the fully alphabetic to the consolidated alphabetic stage. However, Ehri’s (1997, 1998, 2005) research and theory offer an important instructional generalization: Students should first be introduced to and made cognizant of the individual letters and sounds that constitute the rime (a fully alphabetic approach) in order to better recall and identify the unit that they constitute. In addition, Torgesen, Wagner, Rashotte, Alexander, and Conway (1997) offer further caution. They assert that isolated instruction in word parts and spelling patterns alone is not sufficient to develop reading fluency for struggling readers. Word parts and spelling patterns will only enable children to reach satisfactory levels of oral reading fluency if they are routinely used and practiced in reading connected text and if the amount of connected text reading is sufficient to maintain growth.

TEACHING A DECODING STRATEGY

There are several major ways in which words can be recognized or identified in print: instantly as units; through recognition of and blending of phonemic elements; through the context in which they appear, including language/sentence context and picture clues; and by checking the phonetic re-spellings in a dictionary or glossary. Ehri’s theory (1997, 1998, 2005) is
clear: The best way to recognize words is through instant recognition that drains no attention. All other approaches require attention. However, when a word is not instantly recognized, it is useful for readers to be strategic. Struggling readers frequently experience difficulty in being strategic during reading.

In kindergarten and the beginning of first grade, emphasis is on moving young readers from the partial to the fully alphabetic stages of reading, with particularly careful attention to the graphophonic characteristics of the word. By mid-first grade, the goal is to move students increasingly into the consolidated alphabetic stage. The italicized portion of the strategy is recommended as young readers and struggling readers become familiar with word parts.

1. Look at the letters from left to right.
2. As you look at the letters, think about the sounds for the letters.
3. Blend the sounds together and look for word parts you know to read the word.
4. Ask yourself: Is this a word I know? Does it make sense in what I am reading?
5. If it doesn’t make sense, try other strategies (e.g., pronouncing the word another way, reading on).

Readers who are at the partial and fully alphabetic stages will need to look carefully at the word they are trying to identify and think about the sounds the letters are likely to represent and then use the skill of phoneme blending to try to arrive at the correct decoding or pronunciation of the word. Because some words are not completely phonically regular, students should then be encouraged to ask themselves whether their use of phonics results in the identification of a word that makes sense—that it is a word they have heard before and that it fits the context of what they are reading. As children begin to move from the fully alphabetic to the consolidated alphabetic stage of development, in addition to using phonic elements, they should also be encouraged to look for word parts (chunks) and spelling patterns that they know, such as phonograms. The order of phonics and word parts followed by use of context appears to be by far the best order.

Use of context as the primary approach to identifying words has serious limitations. First, if the context is highly predictive of a word, it is likely that students will not pay attention to the graphic information of the word. Careful processing of the printed form is what eventually enables a reader to recognize that word instantly. This is a major limitation of the predictable texts that use very heavy, artificial context to allow word identification. Second, context rarely leads to the correct identification of a specific word. Ehri’s review of research suggests that the words in a text that carry the most meaning can be correctly identified by context only about 10% of the time. However, context and the other approaches to decoding words do play an important role in decoding—that of confirming the identification of words. As Ehri puts it:

As each sight word is fixated, its meaning and pronunciation are triggered in memory quickly and automatically. However, the other word reading processes do not lie dormant; their contribution is not to identify words in text but to confirm the identity already determined. Knowledge of the graphophonic system confirms that the word’s pronunciation fits the spelling on the page. Knowledge of syntax confirms that the word fits into the structure of the sentence. Word knowledge and text memory confirm that the word’s meaning is consistent with the text’s meaning up to that point. (1998, p. 11; emphasis added)

**USING APPROPRIATE TEXTS TO PROMOTE FLUENCY**

In order to progress in their fluency, students need to engage in the practice and application of their growing word identification skills to appropriate texts. Appropriate texts are particularly critical for students who have difficulty with word identification skills. Guided reading has once again emerged as a useful way to match students and texts. Resources such as those based on the work of Fountas and Pinnell (1996) offer guidance in selecting texts and providing appropriate instruction with those texts.

Menon and Hiebert (2011) suggest that text selection plays a significant role in remediation fluency difficulties, specifically the consideration of text difficulty and orthographic features of texts for students with learning disabilities. In the remediation of fluency difficulties, instructional texts in which a child reads accurately appear to produce the greatest outcomes, rather than texts that produce frustration. Furthermore, Menon and Hiebert assert that students with reading difficulties attributed to a phonological deficit may develop word attack skills most effectively by reading highly decodable texts, while students with a rate deficit may benefit more from an approach designed to address automaticity and fluency. Students identified with both phonological and rate deficits may benefit from reading texts that embed both approaches. Hiebert and Fischer (2002) proposes that texts be designed and selected using the text elements by task (TEXT) model, whereby struggling readers read passages in which the cognitive load is reduced, that contain more repetitions of fewer words, more linguistic patterns such as frequency within the English language, and consistent vowel patterns. Instructional materials currently used in American classrooms are not constructed in a systematic way in their repetition of core
words or linguistic elements to support struggling readers. These findings suggest that the features of the texts being used to promote fluency should be carefully considered.

**USING REPEATED READING PROCEDURES**

As noted earlier in this chapter, the 2000 Report of the National Reading Panel was unequivocal in its support of repeated reading procedures. The references describe a range of procedures in sufficient detail to allow teachers to use them with students who need extra support in developing fluency. These procedures include repeated reading (Samuels, 1979), neurological impress (Heckelman, 1969), radio reading (Greene, 1979), paired reading (Topping, 1987), and “a variety of similar techniques” (p. 3-1). A review of these approaches suggests substantial differences in the procedures used and the amount of teacher guidance offered (Chard, Vaughn, & Tyler, 2002; Kuhn & Stahl, 2000). However, all appear to have merit. Features of effective procedures for struggling readers include (1) brief daily practice, (2) repeated oral reading of passages, (3) overlap of shared words across passages, (4) consistency in text context, (5) controlled text difficulty, (6) provision of corrective feedback, (7) teacher-modeled text reading, (8) audiotaped modeled reading, (9) repeated reading with a partner, (10) cross-age tutoring with a partner, and (11) specified performance criteria levels of fluency (Chard et al., 2002; Kuhn & Stahl, 2000; National Reading Panel, 2000).

Although the efficacy of repeated reading in developing reading fluency for children with learning disabilities is well documented (Chard et al., 2002; Kuhn & Stahl, 2003; Yang, 2006), there has been some question as to whether the evidence base used in support of its merits is robust in its representation of repeated reading as a suitable intervention for students at risk for and experiencing learning disabilities (Chard et al., 2009; Menon & Hiebert, 2011). Menon and Hiebert (2011) suggest an alternative hypothesis that “repeated reading increases the total amount of text read and that increases to print exposure [may] alone contribute to fluency development” (p. 63). This is supported by the findings of Kuhn and others (Kuhn & Stahl, 2004; Kuhn et al., 2006; Kuhn, 2011), who suggest that wide reading was as effective as repeated reading in increasing reading fluency and more effective in increasing reading comprehension where little or no attention is paid to the linguistic content of texts. Contemporary research suggests that a range of instructional approaches may contribute to increases in reading accuracy, speed, comprehension, and prosody (Kuhn, 2011; Rasinski et al., 2011).

Four principles for supporting reading fluency in students with reading disabilities have demonstrated efficacy with all students (Rasinski, 2003; Kuhn, 2011): (1) modeling fluent reading; (2) provision of practice in a range of text types, including narrative, expository, poetry, and speeches; (3) provision of support during reading; and (4) appropriate phrasing.

Recent research suggests that strategies such as repeated reading, wide reading (Kuhn, 2009), and partner reading incorporating a comprehension component (Kuhn, 2011) are effective for increasing oral reading fluency.

**ASSESSMENT OF FLUENCY FOR STRUGGLING READERS**

As noted at the beginning of this chapter, fluency has been referred to as the “neglected aspect” of reading. The assessment of fluency, in particular, appears to have received very limited attention. There are few research studies that have investigated how fluency should be assessed or what criteria should be applied to determine whether or not fluency has been achieved. Readers are encouraged to review Deno (1983), Fuchs, Fuchs, Hamlett, Walz, and German (1993), Hashbrouck and Tindal (1992), and Shinn, Good, Tilly, Knutson, and Collins (1992) for examples of work done in the area of fluency assessment.

The National Reading Panel (2000) concludes: “A number of informal procedures can be used in the classroom to assess fluency: informal reading inventories, miscue analysis, pausing indices, and reading speed calculations. All these assessment procedures require oral reading of text, and all can provide an adequate index of fluency” (p. 8-9). Although few experimental studies have been conducted using these informal procedures, it may very well have been that the panel’s recognizing the very practical need for classroom assessment led them to endorse procedures that may not have the strong research support they more typically require in other parts of the report.

Alt and Samuels (2001) contrast definitions and suggest that the field has misunderstood the definition of fluency and that it means the simultaneous application of reading speed and comprehension. They argue that this has led to invalid measures of fluency that are actually only measures of speed (e.g., curriculum-based measurement [CBM] and Diagnostic Indicators of Basic Early Literacy Skills [DIBELS]).

Because misuse of the tool [CBM] has led to the misperception that the development of efficient word recognition skills leads to improved comprehension (Calkhong & Pontowski, 1981), CBM has been widely used around the country to determine if a student is a fluent reader. In fact, McGrinchey and Hixon (2004) assessed the correlation between CBM and standardized reading scores and found supporting evidence for concurrent validity. However,
Cramer and Rosenfield (2008) found no correlations between reading speed and reading fluency. What’s more, Pressley, Hilden, and Shankland (2005) not only found no correlation, but found reading speed to be a poor predictor of reading fluency. (Alt & Samuels, 2011, p. 178)

To meet calls for assessment of fluency in concert with assessment of comprehension and prosody, there are many published informal inventories that can be practically used to periodically assess the four dimensions of fluency that are necessary for a full, deep, developmental construct of fluency: oral reading accuracy, oral reading rate, quality of oral reading, and reading comprehension. Teachers who want to assess selective aspects of fluency can use guidelines that have been suggested for assessing oral reading rate and accuracy (e.g., Hasbrouck & Tindal, 1992; Rasinski, 2003). Likewise, procedures have been established for assessing the quality of oral reading using standardized rubrics that go beyond rate and accuracy, such as that based upon NAEP data (Pinnell et al., 1995).

A more comprehensive review of the research related to fluency assessment is beyond the scope of this chapter. However, we recommend that teachers take measures of fluency beginning in the middle of first grade. At second grade and beyond, assessments should occur at least at the beginning, middle, and end of a school year to gauge progress in this important area and to check periodically throughout the year any students who are making doubtful progress.

CONCLUSIONS

Although the construct of fluency may have been neglected in the past, it is receiving much deserved attention presently. A very strong research and theoretical base indicates that while fluency in and of itself is not sufficient to ensure high levels of reading achievement, fluency is absolutely necessary for that achievement because fluency depends upon and typically reflects comprehension. If a reader has not developed fluency, the process of decoding words drains his or her focus, and insufficient attention is available for constructing the meaning of texts.

Fluency builds on a foundation of oral language skills, phonemic awareness, familiarity with letter forms, and efficient decoding skills. Ehri’s description of the stages of word recognition explains how readers come to recognize words by sight through careful processing of print.

Substantial research has also been conducted on how best to develop fluency for students who do not yet have it. Although there is a dearth of experimental research studies on developing fluency through increasing the amount of independent reading, there is substantial correlational evidence showing a clear relationship between the amount students read, their reading fluency, and their reading comprehension. However, students who are struggling with reading are not in a position to engage in Wide Reading, and they may need more guidance and support in order to develop fluency. Research shows that a variety of procedures based on repeated readings can help struggling readers to improve their fluency.

While more research is needed on the issues of adequate rates of fluency at various grade levels and for judging the quality of oral reading, there is agreement that the comprehensive assessment of fluency must include measures of oral reading accuracy, rate, and quality. There is also growing agreement that these dimensions of fluency must be assessed within the context of reading comprehension. Fluency with accompanying high levels of reading comprehension is of ultimate advantage to readers. By defining fluency as a deep construct, we seek to articulate carefully the features of reading development and their role in the reciprocal relationship between fluency and comprehension. Moreover, a deeper construct of fluency provides a clearer focus for systematic intervention, remediation, and assessment for struggling readers.

REFERENCES


