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Reading fluency assessment and instruction: What, why, and how?

Research has demonstrated the importance of fluency in the development of reading proficiency, and a variety of effective methods for the assessment and instruction of it have been developed.

Reading fluency is gaining new recognition as an essential element of every reading program, especially for students who struggle in reading. Reading fluency is one of the defining characteristics of good readers, and a lack of fluency is a common characteristic of poor readers. Differences in reading fluency not only distinguish good readers from poor, but a lack of reading fluency is also a reliable predictor of reading comprehension problems (Stanovich, 1991). Once struggling readers learn sound–symbol relationships through intervention and become accurate decoders, their lack of fluency emerges as the next hurdle they face on their way to reading proficiency (Torgesen et al., 2001; Torgesen, Rashotte, Alexander, Alexander, & MacPhee, 2003). This lack of fluent reading is a problem for poor readers because they tend to read in a labored, disconnected fashion with a focus on decoding at the word level that makes comprehension of the text difficult, if not impossible.

The speed with which text is translated into spoken language has been identified as a major component of reading proficiency (Adams, 1990; Allington, 1983; Fuchs, Fuchs, Hosp, & Jenkins, 2001; Hasbrouk & Tindal, 1992; Samuels, Schermer, & Reinking, 1992). Many struggling readers may not gain reading fluency incidentally or automatically. In contrast to skilled readers, they often need direct instruction in how to read fluently and sufficient opportunities for intense, fluency-focused practice incorporated into their reading program (Allinder, Dunse, Brunken, & Obermiller-Krolikowski, 2001). The National Research Council (Snow, Burns, & Griffin, 1998) recommended that reading fluency be regularly assessed in the classroom and effective instruction be provided when dysfluent reading is detected. Despite the importance of reading fluency and the need for direct teaching (National Institute of Child Health and Human Development [NICHD], 2000), it is often neglected in reading instructional programs (Allington, 1983; Kame'enui & Simmons, 2001). Teachers who are concerned about meeting the needs of all students in their classrooms should consider whether they know who their dysfluent readers are and what types of instruction they plan to provide for those readers.

What is reading fluency and why is it important?

Fluent reading comprises three key elements: *accurate* reading of connected text at a conversational *rate* with appropriate *prosody* or expression (Hudson, Mercer, & Lane, 2000). A fluent reader can maintain this performance for long periods of time, can retain the skill after long periods of no practice, and can generalize across texts. A fluent reader is also not easily distracted and reads in an effortless, flowing manner.

The most compelling reason to focus instructional efforts on students becoming fluent readers

is the strong correlation between reading fluency and reading comprehension (Allington, 1983; Johns, 1993; Samuels, 1988; Schreiber, 1980). Each aspect of fluency has a clear connection to text comprehension. Without accurate word reading, the reader will have no access to the author's intended meaning, and inaccurate word reading can lead to misinterpretations of the text. Poor automaticity in word reading or slow, laborious movement through the text taxes the reader's capacity to construct an ongoing interpretation of the text. Poor prosody can lead to confusion through inappropriate or meaningless groupings of words or through inappropriate applications of expression.

Automaticity and working memory

LaBerge and Samuels (1974) suggested that there is a limited capacity of attention and working memory in cognitive processing and that learning one aspect of reading (word identification) to a criterion of automaticity frees the processing space for higher order thinking (comprehension). Attentional capacity is limited, so more resources are available for comprehension if word identification processes occur relatively effortlessly. Because comprehension requires higher order processes that cannot become automatic, word identification must become the automatic process. The only other option (and the one most commonly attempted by beginning readers) is to switch attention rapidly back and forth from identifying words on the page to constructing meaning, thus limiting the ability to do either one well.

Quick and effortless word identification is important because when one can read words automatically, one's limited cognitive resources can be used for comprehension (e.g., NICHD, 2000), and many times the differences in comprehension between good and poor readers can be attributed to differences in the level of automatic decoding (Perfetti & Hogaboam, 1975; Torgesen, 1986). Fawcett and Nicholson (1994) hypothesized that the difficulties experienced by students with dyslexia are due to an underlying deficit in automaticity (i.e., processing speed deficits). Fluent readers are better at seeing a word in a single eye fixation and do not need as many refixations or regressions. The placement and overlap of the eye fixations of fluent readers are more efficient than those of less skilled readers. Faster readers also make shorter fixations, longer jumps between fixations, and fewer regressions than slow readers (NICHD, 2000).

Link between reading accuracy and reading proficiency

Word-reading accuracy refers to the ability to recognize or decode words correctly. Strong understanding of the alphabetic principle, the ability to blend sounds together (Ehri & McCormick, 1998), and knowledge of a large bank of high-frequency words are required for word-reading accuracy. Poor word-reading accuracy has obvious negative influences on reading comprehension and fluency. A reader who reads words incorrectly is unlikely to understand the author's intended message, and inaccurate word reading can lead to misinterpretations of the text. In the 2002 Oral Reading Fluency Study, conducted as part of the National Assessment of Educational Progress (NAEP), researchers found that when children made errors that changed the meaning of the text, there was a more direct relationship to reading comprehension than the errors that did not result in a change of meaning (National Assessment Governing Board, 2002). They also noted that errors that do not affect meaning are rare.

When words cannot be read accurately from memory as sight words, they must be analyzed. Thus it is important to teach word-identification strategies, such as decoding and use of analogy (Ehri, 2002), to figure out unknown words. Decoding is a sequentially executed process where the reader blends sounds to form words from their parts. This can take place by blending individual phonemes (beginning decoding) or phonograms (a more advanced form of decoding; Ehri, 2002). In order to accurately decode words, readers need to be able to accurately (a) identify the sounds represented by the letters or letter combinations, (b) blend phonemes, (c) read phonograms (common patterns across words), and (d) use both letter–sound and meaning cues to determine exactly the pronunciation and meaning of the word that is in the text (e.g., knowing how to correctly pronounce *bow* in two different sentences: The dog had a *bow* tied around her neck. The *bow* of the ship was tall). Instruction in all of these subprocesses is necessary for the first part of reading fluency: accurate word identification.

> Because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both should be regularly assessed in the classroom, permitting timely and effective instructional response when difficulty or delay is apparent. (NICHD, 2000, p. 7)

Link between reading rate and reading proficiency

Reading rate comprises both word-level automaticity and the speed and fluidity with which a reader moves through connected text. Automaticity is quick and effortless identification of words in or out of context (Ehri & McCormick, 1998; Kuhn & Stahl, 2000). The automaticity with which a reader can decode or recognize words is almost as important as word-reading accuracy. It is not enough to get the word right if a great deal of cognitive effort is required to do so; automaticity frees up cognitive resources that can be devoted to text comprehension (LaBerge & Samuels, 1974).

Most educators quantify rate in terms of reading speed—either the number of words read correctly per minute or the length of time it takes for a reader to complete a passage. Poor readers are often characterized by slow, laborious reading of connected text. Many fluency interventions focus on increasing reading rate, because slow reading can result in weakened comprehension (Mastropieri, Leinart, & Scruggs, 1999). Students who read slowly often fail to complete their work, lose interest in school, and seldom read for pleasure (Moats, 2001).

There is strong correlational evidence that increased reading rate is related to higher levels of comprehension in average and poor readers (Breznitz, 1987; Deno, Marston, Shinn, & Tindal, 1983; Dowhower, 1987; Perfetti & Hogaboam, 1975; Rasinski, 1989, 1990; Tenenbaum & Wolking, 1989), as well as in students with reading disabilities (Breznitz, 1991; Chard, Vaughn, & Tyler, 2002; Fuchs, Fuchs, & Maxwell, 1988). Fuchs et al. (2001) proposed that "oral reading fluency [i.e., rate and accuracy] represents a complicated, multifaceted performance" (p. 239) that captures a variety of processes related to reading: using sound–symbol relationships to translate text to sound, accessing word meanings, making connections between words and sentences, relating textual meaning to prior knowledge, and making inferences. Oral reading rate is also related to teacher judgments of proficiency; is correlated with criterion-referenced tests in basal curricula; and differentiates between students in special, compensatory, and general education programs (Deno et al., 1983). Thus, oral reading rate is considered an important measure of reading proficiency and a tool for progress monitoring, just as a thermometer can be used to measure the current temperature and ongoing changes (Deno, Mirkin, & Chiang, 1982; Fuchs & Fuchs, 1992; Fuchs et al., 1988; Hasbrouk & Tindal, 1992; Shinn, Good, Knutson, & Tilly, 1992).

Link between prosody and reading proficiency

Prosody is a linguistic term to describe the rhythmic and tonal aspects of speech: the "music" of oral language. Prosodic features are variations in pitch (intonation), stress patterns (syllable prominence), and duration (length of time) that contribute to expressive reading of a text (Allington, 1983; Dowhower, 1991; Schreiber, 1980, 1991). These elements signal question, surprise, exclamation, and other meanings beyond the semantics of the words being spoken. When these features are present and appropriate in oral reading, the reader is reading prosodically, or "with expression." A fundamental task of fluent reading is to supply the prosodic features in a text, although they are not graphically represented (Schreiber, 1980). Schreiber suggested that fluent readers use the other cues (i.e., morphemic, syntactic, semantic, and pragmatic) present in text to organize the text into meaningful phrases and read with correct prosody (i.e., reading that sounds like speaking). Struggling readers are often characterized as reading in a monotone without expression or with inappropriate phrasing. Because prosody and reading comprehension seem to have a reciprocal relationship, prosody is an important area of focus for fluency instruction.

Prosodic reading provides evidence that the reader understands what is being read (Kuhn & Stahl, 2000). Despite this connection, little research has been conducted exploring the relationship between prosody and reading comprehension, and what little research has been done has found an unclear relationship. While studying repeated readings, Dowhower (1987) found that as the students'

reading rate, accuracy, and comprehension increased, so did their prosodic reading on practiced and unpracticed passages, but she could not determine which caused the other. Pinnell et al. (1995) rated a representative sample of fourth graders according to a prosody scale. They found that higher levels of prosody were associated with higher scores on the main NAEP reading proficiency scale and concluded that decisions about the causal relationships are unclear. It is unclear whether prosody is a cause or result of comprehension (Kuhn & Stahl, 2000) or if the relationship is reciprocal; however, it is clear that the amount of correct expression indicates to a trained ear how much the reader comprehended the text.

Assessing reading fluency

Teachers need to listen to students read aloud to make judgments about their progress in reading fluency (Zutell & Rasinski, 1991). Systematic observation helps assess student progress and determine instructional needs. Teachers observing students' oral reading fluency should consider each critical aspect of fluent reading: word-reading accuracy, rate, and prosody. Table 1 provides a summary of assessments for oral reading fluency, including standardized assessments and assessments for monitoring student progress.

Assessing accuracy

Measurement of students' word-reading accuracy can take numerous forms. Simply listening to oral reading and counting the number of errors per 100 words can provide invaluable information for the selection of appropriate text for various instructional purposes for an individual or group of students. A running record and miscue analysis (Clay, 1984, 1993) provides more detailed information about the student's accuracy. Through careful examination of error patterns, a teacher can determine which strategies the student is using and which strategies the student is failing to use. For example, observation of a student's attempts to figure out an unknown word might yield evidence of phonemic blending, guessing based on context, or a combination of decoding and contextual analysis. These observations can provide information about areas in need of further instruction to improve word-reading accuracy.

Assessing rate

Contextual reading rather than reading words in a list (Jenkins, Fuchs, van den Broek, Espin, & Deno, 2003) and oral reading rather than silent reading (Fuchs, Fuchs, Eaton, & Hamlet, 2000 cited in Fuchs et al., 2001) were both found to be the best measures of reading rate. Measuring reading rate should encompass consideration of both word-reading automaticity and reading speed in connected text. Assessment of automaticity can include tests of sight-word knowledge or tests of decoding rate. Tests of decoding rate often consist of rapid decoding of nonwords. Measurement of nonword reading rate ensures that the construct being assessed is the student's ability to automatically decode words using sound–symbol knowledge.

Measurement of reading speed is most typically accomplished through timed readings. Timings of a student's reading of connected text allows a teacher to observe the number of words read correctly and the number of errors made in a given time period. Data from timed readings are usually recorded on a timing chart (see Figure 1 for an example).

Timed readings (Samuels, 1979) can be used to measure and increase word-reading accuracy and passage-reading rate. Timed readings are conducted using books or passages the student has read before that are at an independent reading level (i.e., books the student can read with 95% accuracy or above). To conduct timed readings, follow these steps:

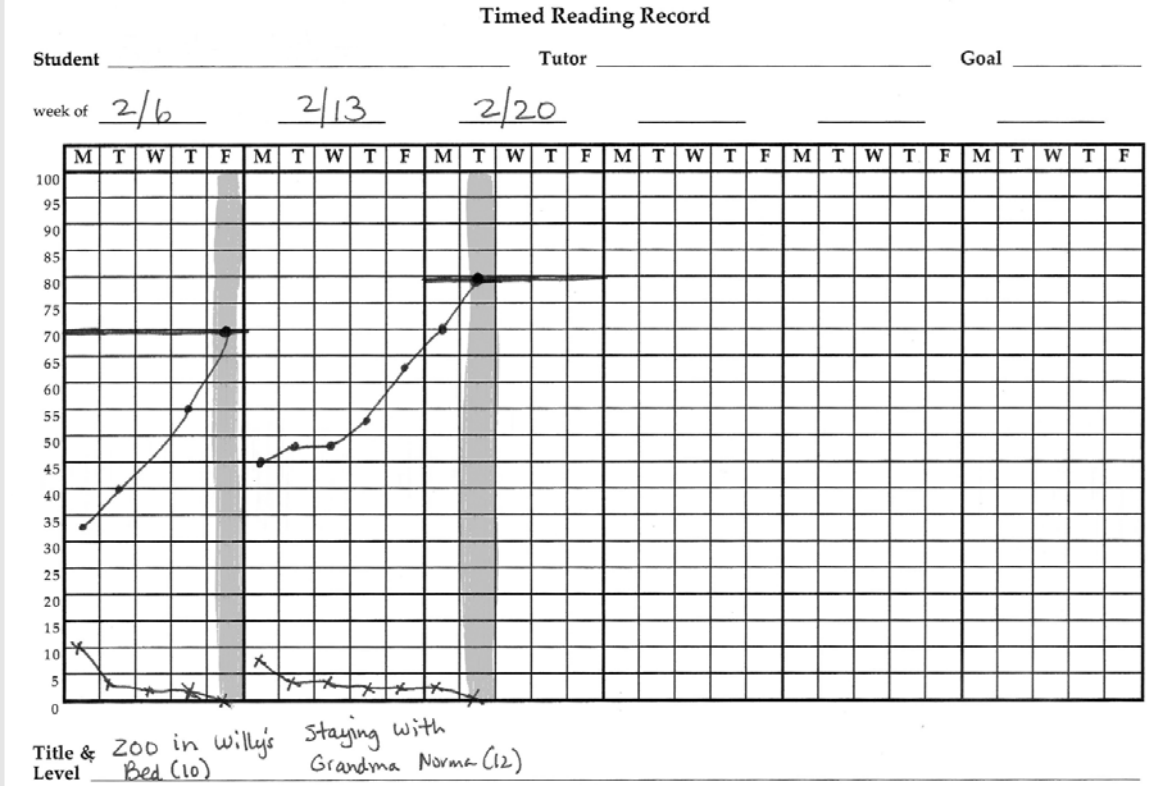
1. Record a baseline rate on a new passage by having the student read the passage without knowing that he or she is being timed. The number of words read correctly for that minute are recorded as the baseline.
2. Note the errors as the student reads. After the reading, discuss any errors and work on them by rereading the parts that were difficult or by doing word-study activities.
3. Set a goal for the next reading by asking the student to read five or six more words, or maybe another line. The goal should be a reasonable one that can be attained within the next few attempts. If the student made three or more errors in the first attempt, the goal may be to decrease the errors and keep the correct word per minute (CWPM) the same.
4. Record the goal on the graph with a highlighter.
5. Time the student again for one minute and record the CWPM and errors.
6. Discuss the errors; set another goal and repeat the process.

TABLE 1
Reading fluency assessments

Assessment	Publisher	Description
AIMSweb Standard Reading Assessment Passages (RAPs)	Edformation	AIMSweb RAPs provide teachers with passages for quick but accurate formative assessment of students' oral reading fluency. These assessments are a Curriculum Based Measurement (CBM) system that is intended to assist teachers in making instructional decisions and monitoring student progress. RAPs have been field-tested and validated. The AIMSweb system includes a Web-based software management system for data collection and reporting.
Dynamic Indicators of Basic Early Literacy Skills (DIBELS)	University of Oregon and Sopris West	DIBELS contains a subtest of Oral Reading Fluency and Retell Fluency for students in the first through third grades. The Oral Reading Fluency is standardized and individually administered. Students read a passage aloud for one minute. The number of correct words per minute is determined to provide the oral reading fluency rate. The Retell Fluency is a measure of comprehension that accompanies the Oral Reading Fluency assessment.
Gray Oral Reading Test, Fourth Edition (GORT-4)	PRO-ED	The GORT-4 is a norm-referenced measure of oral reading performance. Skills assessed include rate, accuracy, fluency (rate and accuracy combined), comprehension, and overall reading ability (rate, accuracy, and comprehension combined).
National Assessment of Educational Progress (NAEP) Fluency Scale	National Center for Education Statistics (NCES)	The NAEP Fluency Scale provides a descriptive guide for oral reading performance based on the student's "naturalness" of reading. The student's performance is rated on a four-point scale, with emphasis placed on phrasing of words, adherence to syntax, and expressiveness (Pinnell et al., 1995). Accuracy and rate are measured and determined by calculating the correct words read per minute.
Reading Fluency Monitor by Read Naturally	Read Naturally	The Reading Fluency Monitor is an assessment instrument that allows teachers to monitor student progress. Fall, winter, and spring administrations are recommended. Grade-level passages are available for grades 1–8, as well as a software program for reporting and record keeping.

7. Timings should be done at least three times per week in order to build consistency.
8. When the student levels off and is no longer increasing the CWPM, it is time to select a new passage.
9. Select a new passage and begin the process again by taking a baseline reading.
10. Once students become familiar with the procedures involved in timed readings, they can record their own progress on the timing chart, record an audiotape of their own oral reading and chart their progress, or work in pairs to listen and record the reading rate and accuracy of their peers.

FIGURE 1
Timing chart



Assessing prosody

A student's reading prosody can be measured only through observation of an oral reading of a connected text. During the reading of a passage, a teacher can listen to the student's inflection, expression, and phrase boundaries. The following is a simple checklist of oral reading prosody observation:

1. Student placed vocal emphasis on appropriate words.
2. Student's voice tone rose and fell at appropriate points in the text.
3. Student's inflection reflected the punctuation in the text (e.g., voice tone rose near the end of a question).
4. In narrative text with dialogue, student used appropriate vocal tone to represent characters' mental states, such as excitement, sadness, fear, or confidence.
5. Student used punctuation to pause appropriately at phrase boundaries.
6. Student used prepositional phrases to pause appropriately at phrase boundaries.
7. Student used subject–verb divisions to pause appropriately at phrase boundaries.
8. Student used conjunctions to pause appropriately at phrase boundaries.

A more quantifiable scale that provides a score that can be used to compare a student against him or herself across time or between students in a class or school can be found in Zutell and Rasinski (1991). Prosody in oral reading should signal reading comprehension of the reader and enhance listening comprehension of the listener. That is, prosodic readers understand what they read and make it easier for others as well.

Evidence-based instructional methods to develop fluency

Fluency instruction is not a reading program itself, but it is part of a comprehensive reading program that emphasizes both research-based practices and reading for meaning. As teachers consider integrating fluency instruction into that program, questions often arise. Once they know who the students in their classrooms with fluency problems are, what should they do? There are several research-based general recommendations for how to provide reading instruction to build fluency with struggling readers. Research with average, struggling, and learning-disabled students indicates that teachers should take the following steps:

- Model fluent oral reading (Blevins, 2001; Rasinski, 2003) using teacher read-alouds and as part of repeated reading interventions (Chard et al., 2002).
- Provide direct instruction and feedback to teach decoding of unknown words, correct expression and phrasing, the return-sweep eye movement, and strategies that fluent readers use (NICHD, 2000; Snow et al., 1998).
- Provide oral support and modeling for readers (Rasinski, 2003) using assisted reading, choral reading, paired reading, audiotapes, and computer programs.
- Provide students with plenty of materials at their independent reading level to read on their own (Allington, 2000).
- Offer many opportunities for practice using repeated readings of progressively more difficult text (Chard et al., 2002; Meyer & Felton, 1999; Rasinski, 2003; Samuels, 1979).
- Encourage prosody development through cueing phrase boundaries (Rasinski, 2003; Schreiber, 1980).

Instructional methods primarily focused on rate and accuracy

Repeated readings

The repeated readings technique (Samuels, 1979) has many different approaches that vary in levels of support and emphasis on building speed. Repeated readings emphasizes practice as a way of working on all of the areas of reading fluency—accuracy, rate, and prosody—and is one of the most-studied methods for increasing reading fluency (Kuhn & Stahl, 2000; Meyer & Felton, 1999; NICHD, 2000).

Timed repeated readings. Samuels (1979) was the first to describe the repeated readings method that is used so often today. It consists of (a) selecting a short passage at the student's instructional level, (b) setting a rate criterion, and (c) having the student read and reread the passage over time until the rate criterion is reached. The oral reading rate is determined by timing the student for one minute and then counting how many correct words were read. Charting of the rate is recommended as a means of record keeping and of maintaining motivation with the student (Figure 1). Timed repeated readings are the basis for several methods available to develop reading fluency. These methods, which focus on increasing rate and accuracy, typically measure the number of words correctly read in one minute and involve the student in charting data. For example, Great Leaps Reading uses phonics timings to increase decoding automaticity, sight-phrase timings to increase recognition of high-frequency words, and story timings to increase the rate of reading connected text. (See Table 2 for more information.) In a study with middle school students, Great Leaps was found to have significant positive effects on reading achievement (Mercer, Campbell, Miller, Mercer, & Lane, 2000). Other timed reading programs include Jamestown Timed Readings Plus, which includes both narrative and related expository passages, and QuickReads, which focuses on nonfiction text (Table 2).

Repeated readings with recorded models. Using audiotaped text to support repeated readings is an efficient method because it provides the student with a fluent model without requiring individual teacher assistance. In a comparison of assisted (audiotape) and unassisted repeated readings, Dowhower (1987) found that both resulted in significantly higher word reading accuracy, comprehension, fluency, and prosody. The assisted condition seemed to affect prosody more than the unassisted. There are several methods of repeated readings with recorded models.

Most recorded books found in classroom listening centers are designed for listening rather than for reading along. They are read too fast for struggling readers to keep up, and the addition of music

TABLE 2
Instructional resources for developing reading fluency

Program/resource	Publisher	Description
Carbo Recorded Books	National Reading Styles Institute	Carbo Recorded Books are audiotaped literature for children and adolescents. These materials provide a resource for audio-assisted repeated reading.
Great Leaps Reading	Diarmuid, Inc.	Great Leaps is a tutorial program for students with reading problems. Programs are available for students in Grades K–12 and adults. In the K–2 edition, fluency practice is provided for sound awareness, letter recognition, phonics, sight words and phrases, and stories. The editions for beyond grade 2 are divided into phonics, sight phrases, and reading fluency
Jamestown Timed Readings Plus	Jamestown Education, Glencoe/McGraw-Hill	Jamestown Timed Readings Plus is a program designed to help secondary struggling readers increase their reading rate and fluency with 400-word nonfiction passages followed by related fiction passages and comprehension questions.
Phonics Phones	Crystal Springs Books	Whisper phones or Phonic Phones are pieces of PVC pipe elbows connected to form a telephone shape. This shape amplifies the sound of the student's voice, which focuses the student's attention on reading and allows the student to evaluate prosody and rate.
QuickReads	Modern Curriculum Press	QuickReads is a reading fluency program for students in grades 2–4. The lesson requires approximately 15 minutes and includes short nonfiction passages. The program has been field-tested and has shown positive effects on students' reading fluency and comprehension.
Read-Along Radio Dramas	Balance Publishing Company	This program includes a recording of a radio play with full cast and sound effects, a word-for-word read-along script and annotated script of the original story, and a variety of student activities.
Read Naturally	Read Naturally	Read Naturally is an individually paced program for improving students' reading fluency. A software version is available that guides students through lessons and tracks individual progress. An audio version is also available on CD or cassette tape with accompanying passage blackline masters.
Soliloquy Reading Assistant	Soliloquy Learning	Soliloquy Reading Assistant is a software program designed to increase students' opportunities for oral reading practice. The computer guides the reader by highlighting the words to be read and changing the color as they are read correctly. If a student hesitates on a word too long, Soliloquy supplies the challenging word. The computer also prompts the student to reread a sentence if it was read with poor fluency and includes a progress-monitoring feature that the student or teacher can use.

or other sound effects can be distracting. Therefore, although a listening center may be useful for developing skills such as listening comprehension, vocabulary, or sense of story, it is unlikely to improve reading fluency, especially for struggling students. Marie Carbo developed a method of recording books that makes it possible for a developing reader to read along with the recording. Carbo Recorded Books are recorded at a much slower pace than listening center books, yet they maintain the expression and inflection necessary for understanding (see Table 2). Using this method, Carbo (1981, 1992) reported reading gains among struggling readers. Thus, adding a read-along center to a classroom reading program can promote reading fluency.

Read Naturally (Table 2) is a repeated reading method that includes both audiotaped and computer models. Read Naturally combines supported oral reading and independent repeated reading. The student begins with a one-minute "cold" reading to the teacher or computer. Then, the student practices reading the same passage three or four times while listening to a recorded fluent model. The student then continues independent practice without the recording. Finally, the student reads to the teacher or computer again. In the computer version, the student can receive feedback during the independent reading by clicking on difficult words and noting where they stopped during each timed reading. Hasbrouk, Ihnot, and Rogers (1999) found encouraging improvements in reading fluency from Read Naturally with both beginning readers and struggling older readers.

Soliloquy Reading Assistant (Table 2) is a software program designed to increase students' opportunities for oral reading practice. Soliloquy employs speech recognition software to record what a student reads and to measure progress over time and offers a variety of text genres, including fiction, poetry, biographies, and folktales. Although Soliloquy was developed on a solid research base, as of this writing, no studies of its effectiveness have been published.

Common instructional questions related to developing reading rate

What type of text should I use? We recommend practicing with text at an independent level (95–100% accuracy). We also suggest using relatively short passages, texts from a variety of genres, and text that is motivating to the individual student. The accuracy, speed, and expressiveness of poor readers are more affected by text difficulty than average readers (Young & Bowers, 1995), and making proper text selection is much more critical when working with struggling readers. The number of shared words facilitates transfer from practiced text to unpracticed text (Dowhower, 1987; Rashotte & Torgesen, 1985). Rashotte and Torgesen found that passages that shared many of the same words led to transfer of training from repeated readings to another passage.

How do I know when to move my student to a new passage? A question many teachers ask is "How fast should they have their students read?" Another is "How much progress should they expect?" These questions do not have definitive answers and depend on the student's age, the type of text the student is reading, and the purpose for which he or she is reading. However, Howell and Lorson-Howell (1990) suggested that fluency aims be determined by sampling the performances of successful students working in the target setting. Using similar reasoning, reading rates were established in "norming" studies designed to determine how varying fluency rates related to levels of reading achievement among large samples of students (Good, Simmons, & Kame'enui, 2001; Hasbrouk & Tindal, 1992; School Board of Alachua County, 1997). Recommendations from these studies should serve as a general guide for determining students' goals for oral reading rate (Table 3).

Fuchs, Fuchs, Hamlett, Walz, and Germann (1993) suggested that an essential step in assessing reading fluency was to establish how much weekly growth a teacher should expect. A standard for weekly improvement helps teachers decide whether a student's rate of progress is sufficient or whether an adjustment in teaching strategies is needed. Using data from their norming study, Fuchs et al. (1993) suggested that on average, the following are reasonable expectations for improvement among average, poor, and disabled readers:

- First grade: 2–3 words per week increase in CWPM

TABLE 3
Recommended reading fluency rates in connected text

Grade		Correct words per minute
First grade	Winter	39
	Spring	40-60
Second grade	Fall	53
	Winter	72-78
	Spring	82-94
Third grade	Fall	79
	Winter	84-93
	Spring	100-114
Fourth grade	Fall	90-99
	Winter	98-112
	Spring	105-118
Fifth grade	Fall	105
	Winter	110-118
	Spring	118-128

Note. Adapted from Good, Simmons, & Kame'enui (2001); Hasbrouk & Tindal (1992); and the School Board of Alachua County (1997).

- Second grade: 2.5–3.5 words per week increase in CWPM
- Third grade: 1–3 words per week increase in CWPM
- Fourth grade: .85–1.5 words per week increase in CWPM

Is isolated word reading practice a good idea? Single-word training, either in a list or on flashcards, appears to be valuable for helping struggling readers develop reading fluency. Several researchers (e.g., Levy, Abello, & Lysynchuk, 1997; Tan & Nicholson, 1997; van den Bosch, van Bon, & Schreuder, 1995) have found that with poor readers, practice reading words in isolation led to improved reading fluency in context; the practice of the words generalized to textual reading.

Instructional methods focused on prosody

In addition to reading with recorded books, several methods have been designed with the specific goal of improving prosody. These methods emphasize how a student's reading sounds—its inflection, expression, and phrasing.

Repeated reading practice for performance

Readers Theatre. Readers Theatre is a popular method of reading practice that can be a powerful way to increase prosody. For Readers Theatre, the teacher creates scripts from selections of children's literature that are rich in dialogue. The teacher begins by reading aloud the story on which the script is based and leads a discussion of the characters' emotions and how they might sound at different points in the story. Students then practice reading the entire script before the teacher assigns roles. Rehearsing and performing the play for peers provides an authentic purpose for rereading the text multiple times. Readers Theatre can help students develop accuracy, rate, and prosody.

Radio reading. Radio reading is a variation of Readers Theatre for older students that adds sound effects to make the performance sound like an old-time radio show. Groups of students can create recorded versions of their "radio shows" that can become listening center readings for their classmates. Students can even generate questions to pose to listeners at the end of the recording. Radio reading reinforces the importance of prosody, because so much information from the story must be communicated through vocal variation. National Public Radio has an old-time radio show called Theatre of the Mind. From these radio shows, an instructional program called Read-Along Radio Dramas was developed. This program includes a recording of a radio play with full cast and sound effects, a word-for-word read-along script, an annotated script of the original story, and a variety of student activities (see Table 2).

Reader as fluent model

Self-recordings. Hearing one's own voice on audiotape can be an eye-opening experience. For struggling readers, having the opportunity to record, listen, and rerecord can be a powerful method for increasing reading fluency. This approach promotes independent judgment and goal setting, along with ownership of the process.

Amplification. Whisper phones or phonic phones are a low-tech method of amplifying one's own voice. Whisper phones are pieces of PVC pipe elbows connected to form a telephone shape. This shape amplifies the sound of the student's voice, but only to the student. The whisper phone also masks other extraneous noises for the distractible reader. Whisper phones can be modified by twisting one end to form an *S* shape. With this modification, the whisper phone can be used for quiet partner reading. One student reads into the mouthpiece of the phone while the other student listens in the other end.

Calling the reader's attention to phrase boundaries

Appropriate placement of pauses around phrase boundaries can contribute substantially to meaning. For example, Rasinski (2003) used the following example of a sentence that can convey meaning or appear as a nonsensical string of words: The young man the jungle gym. Most readers pause after *man*, which results in nonsense. By pausing after *young*, the reader can construct meaning from those words.

The concept of phrase boundaries can be taught by cueing pauses in text with slashes. Single slashes represent shorter pauses, and double slashes indicate longer pauses. Table 4 illustrates a passage cued for phrase boundaries.

Assisted reading methods

There are several effective methods for improving prosody through assisted reading with fluent models. For example, echo reading is a technique in which the teacher reads a phrase or sentence and the student reads the same material just behind him or her. In unison reading, the teacher and student read together, and in assisted cloze reading, the teacher reads the text and stops occasionally for the student to read the next word in the text.

Explicit teaching of intonation

Blevins (2001) suggested a variety of ways to teach appropriate intonation. For example, students can be taught to recite the alphabet as a conversation, using punctuation to cue inflection (e.g., ABCD? EFG! HI? JKL. MN? OPQ. RST! UVWX. YZ!). By reciting the same sentence using different punctuation (e.g., Dogs bark? Dogs bark! Dogs bark.), students learn the importance of punctuation to meaning. A similar activity, in which the student places stress on different words in the same sentence (e.g., *I* am tired. I *am* tired. I am *tired*.), emphasizes the importance of inflection.

TABLE 4
Example of phrase boundaries

My favorite season / of the year / is summer.//
I am so glad / we don't have school / in the summer.//
I would rather / spend my time / swimming, / playing, / and reading.//

An essential skill

Research has clearly demonstrated the significance of fluency in the development of reading proficiency, and a variety of effective methods for assessment and instruction of reading fluency have been developed. Opportunities to develop all three areas of reading fluency are important for all readers, but teachers of struggling readers in particular must recognize the importance of incorporating explicit fluency-based instruction into their reading programs. Reading fluency has long been acknowledged as an essential skill that proficient readers need to have, and now is the time to focus attention on all areas to be developed—accuracy, rate, and prosody—for truly effective, comprehensive reading instruction for all children.

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References

Adams, M.J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.

Allinder, R.M., Dunse, L., Brunken, C.D., & Obermiller-Krolikowski, H.J. (2001). Improving fluency in at-risk readers and students with learning disabilities. *Remedial and Special Education*, *22*(1), 48–54.

Allington, R.L. (1983). Fluency: The neglected reading goal. *The Reading Teacher*, *36*, 556–561.

Allington, R.L. (2000). *What really matters for struggling readers: Designing research-based programs*. Boston: Longman.

Blevins, W. (2001). *Building fluency: Lessons and strategies for reading success*. Scranton, PA: Scholastic.

Breznitz, Z. (1987). Increasing first graders' reading accuracy and comprehension by accelerating their reading rates. *Journal of Educational Psychology*, *79*, 236–242.

Breznitz, Z., (1991). The beneficial effect of accelerating reading rate on dyslexic readers' reading comprehension. In M. Snowling & M. Thomson (Eds.), *Dyslexia: Integrating theory and practice* (pp. 235–243). London: Whurr.

Carbo, M. (1981). Making books talk to children. *The Reading Teacher*, *35*, 186–189.

Carbo, M. (1992). Eliminating the need for dumbed-down textbooks. *Educational Horizons*, *70*, 189–193.

Chard, D.J., Vaughn, S., & Tyler, B.J. (2002). A synthesis of research on effective interventions for building reading fluency with elementary students with learning disabilities. *Journal of Learning Disabilities*, *35*, 386–406.

Clay, M.M. (1984). *Observing the young reader*. Auckland, New Zealand: Heinemann.

Clay, M.M. (1993). *Reading Recovery: A guidebook for teachers in training*. Portsmouth, NH: Heinemann.

Deno, S.L., Marston, D., Shinn, M.R., & Tindal, G. (1983). Oral reading fluency: A simple datum for scaling reading disability. *Topics in Learning and Learning Disabilities*, *2*(4), 53–59.

Deno, S.L., Mirkin, P.K., & Chiang, B. (1982). Identifying valid measures of reading. *Exceptional Children*, *49*, 36–45.

Dowhower, S.L. (1987). Effects of repeated reading on second-grade transitional readers' fluency and comprehension. *Reading Research Quarterly*, *22*, 389–406.

Dowhower, S.L. (1991). Speaking of prosody: Fluency's unattended bedfellow. *Theory Into Practice*, *30*, 165–175.

Ehri, L.C. (2002). Phases of acquisition in learning to read words and implications for teaching. In R. Stainthorp & P. Tomlinson (Eds.), *Learning and teaching reading* (pp. 7–28). London: British Journal of Educational Psychology Monograph Series II.

Ehri, L.C., & McCormick, S. (1998). Phases of word learning: Implications for instruction with delayed and disabled readers. *Reading and Writing Quarterly: Overcoming Learning Difficulties*, *14*(2), 135–164.

Fawcett, A.J., & Nicolson, R.I. (1994). Naming speed in children with dyslexia. *Journal of Learning Disabilities*, *27*, 641–646.

Fuchs, L.S., & Fuchs, D. (1992). Identifying a measure for monitoring student reading progress. *School Psychology Review*, *21*(1), 45–58.

Fuchs, L.S., Fuchs, D., Eaton, S., & Hamlet, C.L. (2000). [Relations between reading fluency and reading comprehension as a function of silent versus oral reading mode]. Unpublished raw data.

Fuchs, L.S., Fuchs, D., Hamlett, C.L., Walz, L., & Germann, G. (1993). Formative evaluation of academic progress: How much growth can we expect? *School Psychology Review*, *22*(1), 27–48.

Fuchs, L.S., Fuchs, D., Hosp, M.D., & Jenkins, J. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading*, *5*, 239–259.

Fuchs, L.S., Fuchs, D., & Maxwell, L. (1988). The validity of informal reading comprehension measures. *Remedial and Special Education*, *9*(2), 20–28.

Good, R.H., Simmons, D.C., Kame'enui, E.J. (2001). The importance and decision-making utility of a continuum of fluency-based indicators of foundational reading skills for third-grade high-stakes outcomes. *Scientific Studies of Reading*, *5*, 257–288.

Hasbrouk, J.E., Ihnot, C., & Rogers, G.H. (1999). "Read Naturally": A strategy to increase oral reading fluency. *Reading Research and Instruction*, *39*(1), 27–38.

Hasbrouk, J.E., & Tindal, G. (1992). Curriculum-based oral reading fluency norms for students in grades 2 through 5. *TEACHING Exceptional Children*, *24*(3), 41–44.

Howell, K.W., & Lorson-Howell, K.A. (1990). What's the hurry? Fluency in the classroom. *TEACHING Exceptional Children*, *22*(3), 20–23.

Hudson, R.F., Mercer, C.D., & Lane, H.B. (2000). *Exploring reading fluency: A paradigmatic overview*. Unpublished manuscript, University of Florida, Gainesville.

Jenkins, J.R., Fuchs, L.S., van den Broek, P., Espin, C., & Deno, S.L. (2003). Accuracy and fluency in list and context reading of skilled and RD groups: Absolute and relative performance levels. *Learning Disabilities: Research & Practice*, *18*, 237–245.

Johns, J.L. (1993). *Informal reading inventories*. DeKalb, IL: Communitech.

Kame'enui, E.J., & Simmons, D.C. (2001). Introduction to this special issue: The DNA of reading fluency. *Scientific Studies of Reading*, *5*, 203–210.

Kuhn, M.R., & Stahl, S.A. (2000). *Fluency: A review of developmental and remedial practices*. Ann Arbor, MI: Center for the Improvement of Early Reading Achievement.

LaBerge, D., & Samuels, S.J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychologist*, *6*, 293–323.

Levy, B.A., Abello, B., & Lysynchuk, L. (1997). Transfer from word training to reading in context: Gains in reading fluency and comprehension. *Learning Disabilities Quarterly*, *20*, 173–188.

Mastropieri, M.A., Leinart, A., & Scruggs, T.E. (1999). Strategies to increase reading fluency. *Intervention in School and Clinic*, *34*, 278–283, 292.

Mercer, C.D., Campbell, K.U., Miller, M.D., Mercer, K.D., & Lane, H.B. (2000). Effects of a reading fluency intervention for middle schoolers with specific learning disabilities. *Learning Disabilities Research & Practice*, *15*, 179–189.

Meyer, M.A., & Felton, R.H. (1999). Repeated reading to enhance fluency: Old approaches and new directions. *Annals of Dyslexia*, *49*, 283–306.

Moats, L.C. (2001). When older students can't read. *Educational Leadership*, *58*(6), 36–40.

National Assessment Governing Board. (2002). Reading Framework for the 2003 National Assessment of Educational Progress. Retrieved July 9, 2004, from http://www.nagb.org/pubs/reading_framework/toc.html.

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.

Perfetti, C.A., & Hogaboam, T. (1975). Relationship between single word decoding and reading comprehension skill. *Journal of Educational Psychology*, *67*, 461–469.

Pinnell, G.S., Pikulski, J.J., Wixson, K.K., Campbell, J.R., Gough, P.B., & Beatty, A.S. (1995). *Listening to children read aloud*. Washington, DC: U.S. Department of Education, National Center for Educational Statistics.

Rashotte, C.A., & Torgesen, J.K. (1985). Repeated reading and reading fluency in learning disabled children. *Reading Research Quarterly*, *20*, 180–188. doi:10.1598/RRQ.20.2.4

Rasinski, T.V. (1989). Fluency for everyone: Incorporating fluency instruction in the classroom. *The Reading Teacher*, *42*, 690–693.

Rasinski, T.V. (1990). Investigating measures of reading fluency. *Educational Research Quarterly*, *14*(3), 37–44.

Rasinski, T.V. (2003). *The fluent reader: Oral reading strategies for building word recognition, fluency, and comprehension*. New York: Scholastic.

Samuels, S.J. (1979). The method of repeated readings. *The Reading Teacher*, *32*, 403–408.

Samuels, S.J. (1988). Decoding and automaticity: Helping poor readers become automatic at word recognition. *The Reading Teacher*, *41*, 756–760.

Samuels, S.J., Schermer, N., & Reinking, D. (1992). Reading fluency: Techniques for making decoding automatic. In S.J. Samuels & A.E. Farstrup (Eds.), *What research has to say about reading instruction* (2nd ed., pp. 124–144). Newark, DE: International Reading Association.

School Board of Alachua County. (1997). *Curriculum-based assessment in Alachua County, Florida: Vital signs of student progress*. Gainesville, FL: Author.

Schreiber, P.A. (1980). On the acquisition of reading fluency. *Journal of Reading Behavior*, *7*, 177–186.

Schreiber, P.A. (1991). Understanding prosody's role in reading acquisition. *Theory Into Practice*, *30*, 158–164.

Shinn, M.R., Good, R.H., Knutson, N., & Tilly, W.D. (1992). Curriculum-based measurement of oral reading fluency: A confirmatory analysis of its relation to reading. *School Psychology Review*, *21*, 459–479.

Snow, C., Burns, S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.

Stanovich, K.E. (1991). Word recognition: Changing perspectives. In R. Barr, M.L. Kamil, P. Mosenthal, & P.D. Pearson (Eds.), *Handbook of reading research* (Vol. 2, pp. 418–452). New York: Longman.

Tan, A., & Nicholson, T. (1997). Flashcards revisited: Training poor readers to read words faster improves their comprehension of text. *Journal of Educational Psychology*, *89*, 276–288.

Tenenbaum, H.A., & Wolking, W.D. (1989). Effects of oral reading rate on intraverbal responding. *The Analysis of Verbal Behavior*, *7*, 83–89.

Torgesen, J.K. (1986). Computers and cognition in reading: A focus on decoding fluency. *Exceptional Children*, *53*, 157–162.

Torgesen, J.K., Alexander, A.W., Wagner, R.K., Rashotte, C.A., Voeller, K., Conway, T., & Rose, E. (2001). Intensive remedial instruction for children with severe reading disabilities: Immediate and long-term outcomes from two instructional approaches. *Journal of Learning Disabilities*, *34*, 33–58.

Torgesen, J.K., Rashotte, C., Alexander, A., Alexander, J., & MacPhee, K. (2003). Progress towards understanding the instructional conditions necessary for remediating reading difficulties in older children. In B. Foorman (Ed.), *Preventing and remediating reading difficulties: Bringing science to scale* (pp. 275–298). Baltimore: York Press.

van den Bosch, K., van Bon, W., & Schreuder, P.R. (1995). Poor readers' decoding skills: Effects of training with limited exposure duration. *Reading Research Quarterly*, *30*, 110–125.

Young, A., & Bowers, P.G. (1995). Individual difference and text difficulty determinants of reading fluency and expressiveness. *Journal of Experimental Child Psychology*, *60*, 428–454.

Zutell, J., & Rasinski, T.V. (1991). Training teachers to attend to their students' reading fluency. *Theory Into Practice*, *30*, 211–217.