Assessing Reading Fluency

Timothy V. Rasinski, Ph.D.



PREL
Pacific Resources for Education and Learning

Assessing Reading Fluency is intended to assist practitioners in monitoring students' fluency development. Assessments are discussed in terms of three components of fluency:

- Accuracy, or accurate decoding of words in text;
- Automaticity, or decoding words with minimal use of attentional resources; and
- Prosody, or the appropriate use of phrasing and expression to convey meaning.

Assessing Reading Fluency is written by Dr. Timothy V. Rasinski (Ph.D., Ohio State University), a professor of education in the Department of Teaching, Leadership, and Curriculum Studies at Kent State University. He has published over 100 articles and 10 books on various aspects of reading education, including *The Fluent Reader: Oral Reading Strategies for Building Word Recognition, Fluency, and Comprehension*. Dr. Rasinski recently served on the Board of Directors of the International Reading Association and is an editor for the *Journal of Literacy Research*.

The Regional Educational Laboratory at Pacific Resources for Education and Learning would like to express sincere thanks to the following reviewers:

Dr. David J. Chard, University of Oregon
Dr. Melanie R. Kuhn, Rutgers University
Dr. Wayne M. Linek, Texas A&M University – Commerce

Cover photo by Jennifer Padua

Assessing Reading Fluency is published by Pacific Resources for Education and Learning, Honolulu, Hawai'i. Additional copies may be downloaded at www.prel.org/programs/rel/rel.asp.

Copyright © 2004 by Timothy V. Rasinski

This product was funded by the U.S. Department of Education (U.S. ED) under the Regional Educational Laboratory program, award number ED01CO0014. The content does not necessarily reflect the views of the U.S. ED or any other agency of the U.S. government.

Assessing Reading Fluency

Kimberly and Thomas's fourth grade teacher, Mr. Lee, can't quite pin down what is going on with these students. Both are good at reading words; they are able to decode all the words they encounter and seem to have a pretty good understanding of them as well. Moreover, they appear to be of average to above average intelligence and are knowledgeable about the world around them. But, Mr. Lee also knows that both Kimberly and Thomas do not comprehend what they read. When he asks them questions about what they read, they usually respond "I don't know," "I don't remember," or give an incorrect or incomplete answer. Interestingly, when Mr. Lee reads to the class, both children seem to have a good understanding of what is read.

Mr. Lee refers Kimberly and Thomas to the school reading specialist, Mrs. Pearce, for further testing. Mrs. Pearce works with Kimberly and Thomas separately. She asks each of them to read aloud for her, after which she asks them to retell what they read. Mrs. Pearce confirms Mr. Lee's observations about accuracy in decoding and poor comprehension. She also notes something else that may be the cause of their reading comprehension problems: both read without appropriate phrasing or interest. Thomas reads in a slow and labored word-by-word manner. His reading rate is 56 words correct per minute. Kimberly buzzes through the passage; she reads the words, but pays little attention to sentence juncture or other punctuation. Her reading rate is 178 words correct per minute. Mrs. Pearce thinks she has found the source of Kimberly and Thomas's difficulty in reading – reading fluency.

For years teachers thought that if students could learn to decode words accurately, they would be successful in reading printed text. While it is true that accuracy in decoding is important for fluency, it is not the entire story. Readers not only need to decode the words accurately; they also need to decode them effortlessly or automatically. The ability to read with appropriate phrasing and expression (interpretation) is also important for fluency. In essence, reading fluency refers to accurate and automatic decoding of the words in the text, along with expressive interpretation of the text, to achieve optimal comprehension. Fluency is important in reading, then, because it affects how well readers understand what they read.

Defining Reading Fluency

A good analogy for understanding reading fluency comes from public speaking. Fluent public speakers embed in their voices those same elements that are associated with reading fluency – accuracy in speech, appropriate speed, and phrasing and expression. The speaker's use of these aspects of fluency facilitates the listener's comprehension. Speaking in appropriate phrases, emphasizing certain words, raising and lowering volume, and varying intonation help the listener understand what the speaker is trying to communicate.

Contrast a fluent speaker with one who is less fluent, who is anxious about speaking in public and renders a presentation in a slow, word-by-word monotone. This less fluent speaker makes it considerably more difficult for listeners to comprehend the presentation. They have fewer verbal cues to use and will have to listen more closely and intensely to make sense of the speech. Indeed, listeners may find themselves drifting away from the presentation altogether if the effort required to understand is too great. This analogy seems to apply fairly well to reading. Reading fluency certainly affects reading comprehension.

Scientifically-based research reviews (Chard, Vaughn, & Tyler, 2002; Kuhn & Stahl, 2000; National Institute of Child Health and Human Development, 2000) have established that reading fluency is a critical component of learning to read and that an effective reading program needs to include instruction in fluency. The National Assessment of

Educational Progress (NAEP), for example, found that nearly half of American fourth graders had not achieved a minimal level of fluency in their reading, which was associated with significant difficulties in comprehension while reading silently (Pinnell et al., 1995).

It may be helpful to think of reading fluency as a bridge between the two major components of reading – word decoding and comprehension. At one end of this bridge, fluency connects to accuracy and automaticity in decoding. At the other end, fluency connects to comprehension though prosody, or expressive interpretation. These components of reading fluency are reflected in two major theories or explanations.

Accuracy and Automaticity in Reading

Fluent readers decode words accurately and automatically, without (or with minimal) use of their limited attention or conscious cognitive resources. The theory that supports this aspect of fluency begins with the notion that readers have limited attentional resources. If they have to use a large portion of those resources for word decoding, those resources will not be available for use in comprehension. The theory of automaticity in reading suggests that proficient word decoding occurs when readers move beyond conscious, accurate decoding to automatic, accurate decoding (LaBerge & Samuels, 1974; Samuels, 2002; Stanovich, 1991). At the automatic level, readers are able to decode words with minimal attention to the activity of decoding. Most adult readers are at this level of processing. They do not have to examine closely or sound out most of the words they encounter; they simply recognize the words instantly and accurately on sight. This type of processing frees the reader's conscious attention to comprehend or construct meaning from the text.

Prosody in Reading

While it is good for readers to have the additional cognitive capacity that comes from automaticity in word decoding, they also need to actively use that capacity to make sense of the text. Readers can employ their attention for comprehension or for other tasks. All readers have had the experience of accurately and automatically decoding

words while thinking about something else and, as a result, not comprehended the passage.

This is the point where fluency connects directly to comprehension. The prosody component of reading fluency stresses the appropriate use of phrasing and expression (Dowhower, 1987, 1991; Schreiber, 1980, 1987, 1991; Schreiber & Read, 1980). When readers embed appropriate volume, tone, emphasis, phrasing, and other elements in oral expression, they are giving evidence of actively interpreting or constructing meaning from the passage. Just as fluent musicians interpret or construct meaning from a musical score through phrasing, emphasis, and variations in tone and volume, fluent readers use cognitive resources to construct meaning through expressive interpretation of the text.

In a sense, then, reading fluency is multidimensional – one dimension stresses the importance of accuracy in word decoding, a second dimension focuses on quick and automatic recognition of words in connected text, and a third dimension stresses expressive and meaningful interpretation of text. These dimensions are related to one another – accurate and automatic reading creates the conditions for expressive reading. All three are important for effective comprehension and overall good reading. All must be taught, and all must be monitored.

Osborn and Lehr (2003) provide an excellent summary of ways in which reading fluency can be taught and nurtured in classrooms. Methods for assessing a student's level of achievement at any given moment and for determining growth over time are part of any good instructional program. This paper explores how reading fluency can be assessed in valid and efficient ways.

Fluency Assessments

The ability to measure students' level of achievement in fluency and monitor their progress is key to successful fluency teaching. Teachers need to be able to gauge the effectiveness of their instruction in fluency; to do this, they need ways to assess student fluency

validly and efficiently. The next section of this paper explores methods for assessing reading fluency. The inclusion of assessment approaches in this booklet was guided by two important criteria.

First, fluency assessments must have some degree of reliability and validity. Users of the assessments must be assured that the results they obtain are reliable – that the results will provide consistent measures of fluency and will not vary because of imperfections in the assessment itself. Users must also be assured that the assessments are valid – that they actually measure reading fluency. The assessments themselves should resemble the ways in which reading fluency is defined. In this booklet, fluency is defined in terms of three key components: accuracy in reading, automaticity in reading, and prosody (or expression) in reading. Moreover, since fluency is a contributor to overall reading proficiency, the fluency assessments presented here should correlate with other, more general measures of reading proficiency.

Second, the assessments must be efficient in administration, scoring, and interpretation. Assessments should be as quick and easy to use as possible. If they are not, teachers may not find time to use them or may use them in ways that are inconsistent with their intent. Moreover, time given to assessment is usually time taken away from instruction. Thus, quick and easy assessments will allow teachers to gauge students' progress and maximize teaching time so that academic progress can be made.

Since current views suggest that reading fluency consists of three distinct components, this booklet aligns its approach to assessment with these components:

- Decoding accuracy – the ability of readers to decode words accurately in text.
- Automaticity – the ability of readers to decode words in text with minimal use of attentional resources.
- Prosody – the ability of readers to appropriately use phrasing and expression.

Assessing Accuracy and Automaticity

Fluency has a decoding accuracy component – the ability of readers to decode text accurately. Fluency also has a decoding automaticity component – the ability of readers to decode words in text with minimal use of attentional resources. These two aspects of fluency are reflected in readers' level of accuracy in decoding words and their speed of reading, automaticity, as measured by the reading rate.

The importance of accuracy in reading has a rich history. Informal reading inventories (IRIs), in use for decades, have used decoding word accuracy as one of their key benchmarks for marking reading achievement (Johnson, Kress, & Pikulski, 1987; Pikulski, 1990). Accuracy is determined by the percentage of words a reader can read correctly; it has been shown to be a valid measure of reading proficiency (Fuchs, Fuchs, & Deno, 1982). The levels of accuracy in reading (see Table 1), adapted from an examination of several IRIs, reflect various levels of word decoding accuracy.

Table 1
Levels of Performance for Word Decoding Accuracy

Independent Level:	97-100%
Instructional Level:	90-96%
Frustration Level:	< 90%

Readers who score in the 97-100% range (independent level) are able to read the assessment text or other text of similar difficulty without assistance. Readers who score within the 90-96% range (instructional level) are able to read the assessment text or other text of similar difficulty with some assistance, usually provided by a teacher or parent. Those readers who score below 90% in word accuracy (frustration level) find the assessment text or other texts of similar difficulty too challenging to read, even with assistance.

For example, Theresa is a new fifth grader in Mrs. Hall's classroom. Mrs. Hall administers an abbreviated version of an IRI in which Theresa is asked to read orally a 245-word, fifth-grade passage.

Theresa makes 13 errors while reading, which gives her an accuracy rate of 94.7%. Thus, Theresa can read fifth grade material at an instructional level (able to read with instructional support).

Although IRIs incorporate accuracy into their determination of readers' overall achievement level, they have one distinct disadvantage. They require the reader to read multiple word lists and passages orally and to be checked on comprehension for each passage. While this process leads to an in-depth assessment, it is also very time-consuming, especially if the inventory is administered to a struggling reader. Administration of a complete IRI can take one to two hours. Most teachers, pressed for instructional time, are not willing to invest this amount of time for more than a few students. Using IRIs to assess decoding accuracy of an entire classroom is not a viable option for most teachers.

Reading rate provides a way of determining students' level of automaticity. The assumption is that fast reading is a reflection of automaticity in word recognition. Recognizing the need for a reading assessment that was valid and time efficient, Stanley Deno (1985) of the University of Minnesota developed an approach referred to as Curriculum-Based Measurement (CBM) in reading. Because this approach is clearly focused on reading fluency, it has also been called an Oral Reading Fluency (ORF) assessment.

The CBM/ORF approach to assessment (see Figure 1 for administration procedures), like the IRI, requires the reader to read grade-level text orally. However, the CBM/ORF only takes 60 seconds. During this period, the teacher or person administering the test marks the reader's uncorrected errors and then counts the total number of words read correctly (words read correctly per minute, or WCPM). Because the assessment is so quick, it can be repeated at one sitting on different passages. If multiple assessments are given, comparing the median (middle) score against performance norms is recommended (see Table 2).

Figure 1
Procedures for Measuring Accuracy and Rate in CBM/ORF

1. Find a passage(s) of approximately 250 words written at the student's grade placement. Submit the passage to a text readability formula to estimate its grade appropriateness.

2. Ask the student to read the passage for one minute and tape-record the reading. Emphasize that the text should be read aloud in a normal way, and not faster than normal.

3. Mark any uncorrected errors made by the student. Errors include mispronunciations, substitutions, reversals, omissions, or words pronounced by the examiner after a wait of 2-3 seconds without an attempt or response from the student. Mark the point in the text the student has come to after one minute of reading.

4. Repeat steps 1 and 2 with two different passages (optional). If you choose to repeat the process, use the median or middle score for analysis.

5. Determine accuracy by dividing the number of words read correctly per minute (WCPM) by the total number of words read (WCPM + any uncorrected errors). This number will be a percentage. Compare the student's performance against the target norms in Table 1.

6. Determine the rate by calculating the total number of WCPM and comparing the student's performance against the target norms in Table 2.

Returning to the previous example, Theresa was found to read at an instructional level for accuracy. During the first 60 seconds of Theresa's reading, Mrs. Hall counted 66 words that Theresa read correctly, or 66 WCPM. Comparing Theresa's performance against established norms, Mrs. Hall determined that although Theresa reads with a good degree of accuracy, her overall rate or level of automaticity is significantly lower than it should be. As a result Mrs. Hall develops an instructional plan to help Theresa develop greater fluency (automaticity) in her reading.

An understanding of reading rate norms is necessary for using the CBM/ORF results accurately. Target reading rate norms based on several empirical data sources are presented in Table 2. These norms suggest that reading rates tend to increase through the middle grades; however, the rate of acceleration diminishes after sixth grade. This suggests that although the automaticity component of reading fluency is a focus in the elementary grades, it should be nurtured and assessed even beyond these grades.

Table 2
Oral Reading Fluency (ORF) Target Rate Norms

Grade	Fall (WCPM)	Winter (WCPM)	Spring (WCPM)
1		10-30	30-60
2	30-60	50-80	70-100
3	50-90	70-100	80-110
4	70-110	80-120	100-140
5	80-120	100-140	110-150
6	100-140	110-150	120-160
7	110-150	120-160	130-170
8	120-160	130-170	140-180

Source: Adapted from "AIMSweb: Charting the Path to Literacy," 2003, Edformation, Inc. Available at www.aimsweb.com/norms/reading_fluency.htm. Data are also adapted from "Curriculum-Based Oral Reading Fluency Norms for Students in Grades 2 Through 5," by J. E. Hasbrouck and G. Tindal, 1992, *Teaching Exceptional Children, 24*, pp. 41-44.

Readers who perform at or near these target norms should be considered as progressing adequately in automaticity. Readers who are significantly and consistently below (or above) the norm span for their grade level and time of year may be at risk in their reading fluency development. We generally think of disfluent readers as reading in a very slow and disjointed manner; disfluency, however, can come from readers who read too fast and fail to pay attention to intra- and inter-sentential boundaries or the meaning of the text.

The CBM/ORF fluency assessment has been validated through a number of studies including Deno, Mirkin, and Chiang (1982) and Marston (1989). One study found a correlation of .91 between students' performance on a CBM/ORF and their performance on a standardized test of reading comprehension (Fuchs, Fuchs, & Maxwell, 1988). In my own work I have found strong correlations between CBM/ORF measurements and students' performance on standardized tests of reading achievement for students at primary, intermediate, middle, and even secondary school levels.

I have adapted the CBM/ORF fluency assessment to include measurements of reading accuracy as well as reading rate (automaticity). The adaptation adds no time to the administration of the assessment and only one more calculation; by measuring accuracy, teachers can determine more precisely the source of reading fluency difficulties. For example, a reader with high accuracy but low rate scores may show comprehension difficulties similar to a reader with a high rate but excessive decoding errors. Although both readers have comprehension difficulties, the source of their comprehension difficulties is quite different – for one reader, the source is a lack of sufficient automaticity, while for the other, it is a lack of sufficient decoding accuracy. The most effective instruction would be significantly different for each student. The norms reflected in Tables 1 and 2, then, are useful in determining readers' level of proficiency in accuracy and reading rate (automaticity). The procedures for assessing readers in these areas are outlined in Figure 1.

For example, James is a third grade student who was administered a CBM/ORF assessment within the first few weeks of school. He read 3 third-grade passages for 60 seconds each. The teacher determined the average number of words read correctly per minute and the average number of errors made during the 60-second reading segments. James read with an average accuracy level of 98% and an average reading rate of 38 WCPM. Although James's level of decoding accuracy is good, his reading rate is a concern; he is able to decode words but not at an automatic level. He has to work hard to sound out and unlock the words he encounters in grade-level text. The teacher records these scores and determines a course of action that includes a good deal of repeated and assisted readings (Kuhn &

Stahl, 2000; Rasinski, 2003), but only a limited amount of instruction in decoding words.

A CBM/ORF assessment that includes both accuracy and rate allows teachers to get a quick but valid snapshot of their students' reading performance. Because the assessment is so quick, teachers assess an entire class in a couple of hours, doing so several times throughout the year in order to determine students' ongoing progress in reading. A grid such as the one in Figure 2 allows teachers to record students' fluency scores across a school year.

Figure 2
Classroom Fluency Chart

Teacher: _____ **Year:** _____

Student Name	Fall Accuracy	Winter Accuracy	Spring Accuracy	Fall Rate	Winter Rate	Spring Rate

The CBM/ORF assessment of accuracy and rate allows teachers to diagnose students' fluency at the beginning of the school year or whenever new students arrive in the classroom. Teachers can refer students whose performance is well below the target norms to the school reading specialist for more testing to determine the nature and source of the problem.

Using the CBM/ORF assessment across the school year allows the teacher to check student progress. It permits fairly immediate identification of students who may not be making adequate progress and who may require additional, more intensive, or more targeted

instruction, as well as more vigilant monitoring of progress to assess the effectiveness of the instruction.

For example, Emilia begins the school year in Mrs. Rice's class at a normal achievement level, but demonstrates in a January follow-up assessment that little progress has been made through the first four months of school. This lack of progress indicates to Mrs. Rice that new instructional methods may be necessary. She also considers calling a conference with Emilia's parents and referring her to the school reading specialist. Tyson also began the year within targeted norms, and has demonstrated adequate progress in subsequent assessments. Mrs. Rice (and Tyson's parents) can be fairly well assured that Tyson is making appropriate growth in reading during the year.

Multiple assessments over time thus afford teachers a degree of accountability and precision for their teaching. For example, Mr. Wu may have considered the year a failure for Kelly, a fifth grade student who ends the school year reading with an accuracy level of 88% and a reading rate of 110 WCPM. However, if Mr. Wu had assessed Kelly in September and determined and documented that she began the year with an accuracy level of 82% and a reading rate of 66 WCPM, the year would most likely be an unqualified success for Kelly.

Students who are significantly behind in reading fluency in the intermediate grades and beyond often require additional intensive and prolonged interventional instruction. Developing proficiency in reading is a cumulative task – it snowballs from the early grades on. The Matthew Effect (Stanovich, 1986) describes the situation in which proficient readers become more proficient and less proficient readers fall further behind their normally developing peers. This lack of fluency is the result of severely restricted exposure to print in previous grades and results in restricted exposure to print in subsequent years. Students are delayed in developing a sufficient bank of words that are recognized and understood at sight. For them, the road to improved fluency and overall proficiency in reading requires a considerable investment of extra instructional energy and time. For this reason alone, reading fluency instruction and monitoring should be made an integral and significant part of the reading curriculum from the earliest grades.

CBM/ORF reading assessments that include accuracy and rate provide teachers with a workable and valid approach to documenting student performance and progress in reading. Although only a snapshot of a student's reading, the assessments nonetheless align well with other, more comprehensive measures. Moreover, they can guide teachers' instruction to meet students' specific needs. Students who perform poorly on the assessments can be identified for more thorough and comprehensive reading assessment.

A Note of Caution

There are limitations to these assessments, and caution has been raised by researchers such as Deno, Mirkin, and Chiang (1982). Although reading rate appears to be a good measure of the decoding automaticity component of reading fluency and of reading achievement in general, it does not mean that students should receive overt and intensive instruction and practice in becoming fast readers.

Reading rate appears to reflect students' ongoing development of automaticity in their decoding, which can be developed through practiced and assisted readings (see Kuhn & Stahl, 2000; Osborn & Lehr, 2003). If teachers provide the kind of instruction in fluency that works, then fluency, comprehension, and rate will improve. If teachers choose instead to focus primarily on developing students' reading rate at the expense of reading with expression, meaning, and comprehension, students may read fast but with insufficient comprehension. Their goal may be to get from one point in the text to another as fast as possible, without understanding the nuances of meaning in the text. This would be a grave misinterpretation of the research related to reading fluency development and a disservice to the students.

Similarly, teachers need to be cautious in using reading rate to assess English language learners (ELLs). Many ELLs can be deceptively fast and accurate in their reading, yet demonstrate little understanding of the text. Teachers cannot assume that such students are progressing well in reading based solely on their reading rate. Other issues such as vocabulary and language proficiency may impede the students' growth in reading and require instructional intervention.

Assessing Prosodic Reading

The third component of fluency, prosodic or expressive reading, is more directly related to comprehension. Fluency is often described by the extent to which appropriate expression and phrasing can be heard in a person's voice when reading aloud. Fluent readers embed prosodic or melodic features of spoken language – stress, pitch variations, intonation, rate, phrasing, and pausing – in their voices (Dowhower, 1987, 1991; Schreiber, 1980, 1987, 1991; Schreiber & Read, 1980). This embedding of prosody shows that the reader is trying to make sense of or comprehend the text. Expressive reading happens once a degree of automaticity is established, and expression is one way in which a reader constructs meaning while reading.

Practice and assisted reading, methods used to develop both expressive reading and automaticity, are also effective in developing expressive reading. In addition, two other instructional activities help develop students' ability to read in an expressive manner: modeling and coaching or formative feedback.

Modeling plays a significant role in expressive reading. Readers learn how to interpret text orally by listening to others read to them in an expressive and meaningful way. This is one reason why it is important for teachers and parents to read to children. Hearing someone read aloud increases students' vocabulary, comprehension, and motivation for reading, and it also provides a model of how a passage may be interpreted orally (Rasinski, 2003). This modeling can be further enhanced if teachers talk about the nature of their own oral reading with students and explain how it helps them understand what was read.

Coaching or formative feedback can also play a large role in developing expressive and meaningful reading. Students need opportunities to try out their voices on different passages – to read passages in different ways to express the obvious as well as the more subtle meanings intended by the author. This is best developed through practice and receiving coaching or feedback from others, especially the student's classroom teacher or other reading coach. By experimenting with different ways of reading text to communicate different meanings, students begin to recognize the subtle nuances of language that

are embedded in texts and intended for readers to recognize, understand, and express through intonation, pause, voice, and emphasis.

This coaching role is analogous to a teacher-student conference during a writing workshop, in which a student's writing efforts are shared and examined. During the conference the teacher notes positive aspects of the student's composition as well as areas that may need revision for clarity or style. The teacher will share or model ways in which the student may express meaning in writing. Similarly, a teacher who acts as a coach during oral reading encourages and applauds reading that expresses meaning at a variety of levels, notes areas for further work, and models ways in which the student may try reading the passage. Regular opportunities for coaching will lead the student to higher levels of fluent and expressive reading as well as comprehension. Moreover, students' oral reading will have an impact on their silent reading (Pinnell et al., 1995). Most readers hear an internal voice while reading silently; the internal voice is developed through opportunities for reading orally and silently.

Assessing students' oral interpretive reading is a key to developing their prosodic or expressive reading competencies. Interpretation of text is more complex because it is more subjective than accuracy levels and reading rates. Nevertheless, methods have been developed to help teachers measure the extent to which students provide a fluent interpretation while reading.

Since expression or interpretation of text is difficult to quantify, researchers have turned to qualitative rubrics or rating scales to guide the assessment process and assign a grade or level. The rubrics range from well-phrased, expressive reading at one end to word-by-word, monotonic reading at the other.

The rubrics are quite simple to use. A student reads a grade-level passage and a teacher or other rater listens to the student reading or to a recording of the reading. The listening period can be short; teachers are able to make reliable and valid measurements in 60 seconds or less. At the end of the listening period, the teacher consults the rubric and assigns a score that most closely aligns with the student's reading. In using a rubric, teachers and other raters need to

share a well-established sense of what constitutes appropriate phrasing and expressiveness in reading for their assigned grade level.

Several fluency rubrics have been developed and found to work well in assessing fluency and overall reading proficiency. In one study, Rasinski (1985) adapted a six-point fluency rubric devised by Allington (1983; Allington & Brown, 1979). Using the rubric, raters listened to and rated recordings of third and fifth grade students reading. Raters did not have a copy of the passage that students read, and to make the task as efficient as possible, raters were asked to listen to a reading for no more than 30 seconds. This instrument was highly reliable (test-retest reliability = .90) and was strongly associated with the students' performance on a standardized test of reading proficiency.

In a more recent large-scale study of fourth graders' oral reading fluency, a group of researchers headed by Pinnell (1995) rated fourth graders' oral reading using a four-point rubric (see Figure 3). In this study, students whose oral reading was assigned a score of one or two were not considered fluent; they had yet to achieve even a minimally acceptable level of fluency. The researchers found that ratings of students' oral reading performance were strongly associated with their performance on the silent reading comprehension test that was part of the National Assessment of Educational Progress. These studies suggest that rating students for the level of expressive or prosodic reading is a reliable and valid way for assessing the prosodic reading component of fluency and for assessing overall reading performance.

The use of such rubrics can assist teachers in coaching students to higher levels of interpretive reading. Rubrics can also help students develop a greater internalized (metacognitive) awareness of their ability to interpret text orally and to guide their development in oral interpretive reading.

Figure 3
Oral Reading Fluency Scale

4. Reads primarily in larger, meaningful phrase groups. Although some regressions, repetitions, and deviations from the text may be present, these do not appear to detract from the overall structure of the story. Preservation of the author's syntax is consistent. Some or most of the story is read with expressive interpretation. Reads at an appropriate rate.

3. Reads primarily in three- and four-word phrase groups. Some smaller groupings may be present. However, the majority of phrasing seems appropriate and preserves the syntax of the author. Little or no expressive interpretation is present. Reader attempts to read expressively and some of the story is read with expression. Generally reads at an appropriate rate.

2. Reads primarily in two-word phrase groups with some three- and four-word groupings. Some word-by-word reading may be present. Word groupings may seem awkward and unrelated to the larger context of the sentence or passage. A small portion of the text is read with expressive interpretation. Reads significant sections of the text excessively slowly or fast.

1. Reads primarily word-by-word. Occasional two- or three-word phrases may occur – but these are infrequent and/or they do not preserve meaningful syntax. Lacks expressive interpretation. Reads text excessively slowly.

   A score of 1 should also be given to a student who reads with excessive speed, ignoring punctuation and other phrase boundaries, and reads with little or no expression.

Source: Adapted from *Listening to Children Read Aloud: Oral Fluency*, by G. S. Pinnell, J. J. Pikulski, K. K. Wixson, J. R. Campbell, P. B. Gough, & A. S. Beatty, 1995, Washington, DC: U.S. Department of Education, National Center for Education Statistics. Available at http://nces.ed.gov/pubs95/web/95762.asp

The adapted NAEP rubric (Figure 3), can easily be employed by teachers to assess students. Some teachers, however, desire a rubric that is more precise in what it measures. To this end, multidimensional fluency rubrics have been developed and used for instructional and evaluative purposes. Figure 4 presents an adaptation of a multidimensional fluency rubric developed by Zutell and Rasinski (1991). Use of such a rubric assumes that teachers rating students' reading have a good sense of grade-appropriate expression, volume, phrasing, smoothness, and pace in reading.

While the rubric presented in Figure 3 is ideal for quick assessments and checking on progress over time, the multidimensional scale in Figure 4 has other advantages. Although it requires a closer and somewhat lengthier observation of a student's reading, it can provide formative information to guide instruction as well as summative information. Teachers who note particular difficulty in one dimension of the rubric can aim their instructional efforts at that area. For example, if teachers observe difficulty in phrasing, they can develop and implement activities for students to determine phrase boundaries in passages; practice reading high-frequency words embedded in noun, verb, and prepositional phrases; and read texts in which phrase boundaries are highlighted.

Similarly, students can learn to use the scale to evaluate and develop awareness of their own reading fluency, as well as to improve specific areas that are low. In one classroom, students are so familiar with the rubric that it has become part of the classroom vocabulary. After a student reads, other students provide feedback along the dimensions cited in the rubric. The teacher reports that students are much more sensitive to what it takes to interpret a text expressively and with meaning.

Although fluency rubrics may not be as precise as assessments of decoding accuracy and reading rate, they do provide valid measurements of the third component of reading fluency – prosodic reading. In the hands of knowledgeable teachers, rubrics provide valid and reliable information on students' development and progress in interpretive reading. They also provide teachers with tools for informing their own instruction and students with a method for guiding their

Figure 4
Multidimensional Fluency Scale

Use the following scales to rate reader fluency on the dimensions of expression and volume, phrasing, smoothness, and pace. Scores range from 4 to 16. Generally, scores below 8 indicate that fluency may be a concern. Scores of 8 or above indicate that the student is making good progress in fluency.

Dimension	1	2	3	4
A. Expression and Volume	Reads with little expression or enthusiasm in voice. Reads words as if simply to get them out. Little sense of trying to make text sound like natural language. Tends to read in a quiet voice.	Some expression. Begins to use voice to make text sound like natural language in some areas of the text, but not others. Focus remains largely on saying the words. Still reads in a quiet voice.	Sounds like natural language throughout the better part of the passage. Occasionally slips into expressionless reading. Voice volume is generally appropriate throughout the text.	Reads with good expression and enthusiasm throughout the text. Sounds like natural language. The reader is able to vary expression and volume to match his/her interpretation of the passage.
B. Phrasing	Monotonic with little sense of phrase boundaries, frequent word-by-word reading.	Frequent two- and three-word phrases giving the impression of choppy reading; improper stress and intonation that fail to mark ends of sentences and clauses.	Mixture of run-ons, mid-sentence pauses for breath, and possibly some choppiness; reasonable stress/intonation.	Generally well phrased, mostly in clause and sentence units, with adequate attention to expression.
C. Smoothness	Frequent extended pauses, hesitations, false starts, sound-outs, repetitions, and/or multiple attempts.	Several "rough spots" in text where extended pauses, hesitations, etc., are more frequent and disruptive.	Occasional breaks in smoothness caused by difficulties with specific words and/or structures.	Generally smooth reading with some breaks, but word and structure difficulties are resolved quickly, usually through self-correction.
D. Pace (during sections of minimal disruption)	Slow and laborious.	Moderately slow.	Uneven mixture of fast and slow reading.	Consistently conversational.

Source: Adapted from "Training Teachers to Attend to Their Students' Oral Reading Fluency," by J. Zutell and T. V. Rasinski, 1991, *Theory Into Practice, 30*, pp. 211-217.

own personal fluency development. To that extent, fluency rubrics are an ideal assessment tool – they provide assessment information that can also guide instruction.

Putting Fluency Assessment to Work in Schools and Classrooms

How do fluency assessments fit into the larger reading curriculum? How often should fluency assessments be administered? Who should administer them? How should the results be shared with parents? These are common questions posed by teachers when considering assessment. Teachers often have good ideas on how to assess, but have difficulty in fitting assessment into the larger curricular picture.

The fluency assessments presented in this booklet have three important characteristics useful to teachers. They are quick and easy to administer, easy to understand, and reflect the three components of fluency as well as more general measures of reading proficiency. These other measures are often more complex and time-consuming than the ones discussed here.

In addition, these fluency assessments are ideal for initial screening of students. In an hour or two, often during independent student work time, a teacher can assess each child in the classroom using the methods and procedures outlined. During the first week of class, teachers can have each child read a grade-level passage for one minute and generate measures of decoding accuracy (percentage of words read correct), rate (WCPM), and interpretive fluency from that reading. This can be part of a larger personal assessment in which teachers gain insight into students' interests in reading and other academic areas. This initial fluency assessment gives teachers baseline information against which to measure subsequent progress. Students who score poorly on this initial assessment may be referred to a reading specialist for further, more in-depth testing.

Fluency assessments are good to share with parents because they reflect student performance on passages students should be expected to read successfully – passages at their assigned grade level. Parents whose children are struggling with reading are often told the

grade-level equivalent of their children's reading performance. Most parents do not find this information helpful; it does not tell them how their children are doing on grade-level material and may lead to misinterpretation. (For example, parents may believe that a fifth grader who reads at second grade level should only be reading second grade material.) Unlike other measures of reading, these fluency assessments tell parents how well their children are performing on material they are expected to read and understand during that current school year. For students who are not reading at grade level, the assessments provide parents with a clear indication of how far away their children are from expected levels of performance (e.g., a fourth grader beginning the year reading at 42 WCPM is 28 WCPM below a minimal expectation for fourth grade). Parents can understand this and have an idea of just how much ground their student has to make up in order to meet grade-level expectations. Additionally, describing a student's reading in terms of a fluency rubric can give parents a clear picture of the level of expressiveness in reading that is expected of their children.

Beyond providing a clear explanation of a student's reading fluency, the assessments provide information on what teachers, parents, and the students themselves can do to improve the students' reading. Students who read at an excessively slow rate need to engage in repeated and assisted readings. Students whose decoding accuracy is poor may need additional word study and phonics instruction. Students who do poorly on the fluency rubric may need additional coaching and support in reading with expression and meaning.

Finally, the brevity of the fluency assessments makes them ideal for repeated use throughout the school year. Many teachers assess their students at the beginning (early September), middle (mid-January), and end (late May) of the school year. Such measures provide teachers with information about student growth over time, in fluency as well as in overall reading achievement. Of equal importance, frequent assessment of students allows teachers to make informed data-based instructional decisions that can lead to better teaching and improved learning (Deno, 1997).

Teachers should administer the assessments as consistently as possible so that differences in results are most likely due to student

fluency level and not changes in procedures. The passages should be changed for each administration to negate the possibility of a practice effect. One way to do this is to find a trade book that is written at the target grade level and that will not be used during the school year. Choose three 250-word passages from various places in the book, and use these passages in the assessments. Although the passages are different, they retain the same readability level and author style from one administration to the next.

If passages are from diverse sources, it is important to get an estimation of their difficulty level and some assurance that they are of equivalent difficulty. This can be accomplished by applying a readability formula. Readability refers to the relative difficulty of a passage, usually stated in terms of the grade level for which the passage is appropriate; it is normally calculated by measuring the lexical (word) and syntactic (sentence) difficulty of a passage. Teachers need to realize that readability formulas provide only rough estimates of the difficulty of a text; the most important factor in determining the relative difficulty of a text – the reader – is not included in most estimation methods. Nevertheless, readability formulas provide some assurance of the difficulty of a passage and its equivalence with other passages.

There are many readability formulas available. The Internet offers various sites for teachers to submit text and instantly determine its read-ability level. Intervention Central (www.interventioncentral.org) provides teachers with an easy-to-use tool for applying two well-known readability formulas.

Regular fluency assessment provides teachers, parents, and students with valuable diagnostic information and tangible evidence of student growth. Moreover, in an era of greater teacher accountability, such assessments provide teachers with a means of demonstrating the effectiveness of their instruction.

Summary and Conclusion

Fluency is more than reading fast: it is reading at an appropriately fast rate with good expression and phrasing that reflects solid understanding of the passage. Since fluency is multidimensional, methods of assessment must capture its multidimensional nature. This booklet provides a broad definition of reading fluency, one that shows its connection to word decoding and comprehension, and presents some simple but effective methods for assessing student reading progress both in fluency and general achievement.

Instruction that is guided by frequent, quick, reliable, valid, and curriculum-based assessment has the potential to lead to improved teacher decision-making and student performance in reading (Fuchs, Deno, & Mirkin, 1984; Fuchs & Fuchs, 1986; Marston & Magnusson, 1985). Thus, reading fluency instruction combined with regular assessment is the key to student success in reading fluency and comprehension.

References

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

Allington, R. L., & Brown, S. (1979). *Fact: A multi-media reading program.* Milwaukee, WI: Raintree Publishers.

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

Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children, 52*, 219-232.

Deno, S. L. (1997). 'Whether' thou goest: Perspectives on progress monitoring. In J. L. Lloyd, E. J. Kameenui, & D. Chard (Eds.), *Issues in educating students with disabilities* (pp. 77-99). Mahwah, NJ: Erlbaum.

Deno, S. L., Mirkin, P., & 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,* 389-407.

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

Edformation. (2003). *AIMSweb: Charting the path to literacy.* Retrieved September 17, 2003, from www.aimsweb.com/norms/reading_fluency.htm

Fuchs, L. S., Deno, S. L., & Mirkin, P. (1984). The effects of frequent curriculum-based measurement and evaluation on pedagogy, student achievement, and students' awareness of learning. *American Educational Research Journal, 21,* 449-460.

Fuchs, L. S., & Fuchs, D. (1986). Effects of systematic formative evaluation: A meta-analysis. *Exceptional Children, 53,* 199-208.

Fuchs, L. S., Fuchs, D., & Deno, S. L. (1982). Reliability and validity of curriculum-based informal reading inventories. *Reading Research Quarterly, 18,* 6-26.

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

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

Johnson, M. S., Kress, R. A., & Pikulski, J. J. (1987). *Informal reading inventories.* Newark, DE: International Reading Association.

Kuhn, M. R., & Stahl, S. A. (2000). *Fluency: A review of developmental and remedial practices* (CIERA Rep. No. 2-008). Ann Arbor, MI: Center for the Improvement of Early Reading Achievement.

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

Marston, D. (1989). A curriculum-based measurement approach to assessing academic performance: What it is and why do it. In M. R. Shinn (Ed.), *Curriculum-based measurement: Assessing special children* (pp. 18-78). New York: Guilford.

Marston, D., & Magnusson, D. (1985). Implementing curriculum-based measurement in special and regular education settings. *Exceptional Children, 52,* 266-276.

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.

Osborn, J., & Lehr, F. (with Hiebert, E. H.). (2003). *A focus on fluency.* Honolulu, HI: Pacific Resources for Education and Learning. Available at www.prel.org/products/re_/fluency-1.pdf

Pikulski, J. J. (1990). Informal reading inventories. *The Reading Teacher, 11,* 514-516.

Pinnell, G. S., Pikulski, J. J., Wixson, K. K., Campbell, J. R., Gough, P. B., & Beatty, A. S. (1995). *Listening to children read aloud: Oral fluency.* Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved February 20, 2004, from http://nces.ed.gov/pubs95/web/95762.asp

Rasinski, T. V. (1985). *A study of factors involved in reader-text interactions that contribute to fluency in reading.* Unpublished doctoral dissertation, The Ohio State University, Columbus.

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

Samuels, S. J. (2002). Reading fluency: Its development and assessment. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (3rd ed., pp. 166-183). Newark, DE: International Reading Association.

Schreiber, P. A. (1980). On the acquisition of reading fluency. *Journal of Reading Behavior, 12,* 177-186.

Schreiber, P. A. (1987). Prosody and structure in children's syntactic processing. In R. Horowitz & S. J. Samuels (Eds.), *Comprehending oral and written language* (pp. 243-270). New York: Academic Press.

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

Schreiber, P. A., & Read, C. (1980). Children's use of phonetic cues in spelling, parsing, and—maybe—reading. *Bulletin of the Orton Society, 30,* 209-224.

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21,* 360-407.

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.

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



Pacific Resources for Education and Learning

900 Fort Street Mall ▪ Suite 1300
Honolulu, Hawai'i 96813
Phone: (808) 441-1300 ▪ Fax: (808) 441-1385
U.S. Toll-free Phone: 1 (800) 377-4773
Email: askprel@prel.org ▪ Website: www.prel.org

Promoting Educational Excellence

ES0414