



Getting Up to Speed on Reading Fluency

Anne M. Dudley & Nancy Mather

University of Arizona, Arizona

Although it was once coined the “most neglected component of reading” (Allington, 1983), reading fluency has received considerable attention from researchers, practitioners, and educational policy makers in the past two decades. More recently, reading fluency has been recognized as one of five essential components of reading development and is described as an essential skill in a reader’s transition from *learning to reading* to *reading to learn* (National Reading Panel, 2000). Attention to reading fluency has also grown due to states’ and districts’ widespread adoptions of early reading assessments that employ multiple fluency measures to monitor children’s acquisition of pre-reading and decoding skills.

Reading fluency is an important indicator of overall reading acquisition, as well as a key cause of poor reading comprehension (LaBerge & Samuels, 1974; Stahl, 2004). When we listen to readers who are non-automatic with decoding, it is easy to understand why they often do not grasp the meaning of what they read. Students who fail to acquire rapid and accurate decoding skills by third or fourth grade, often fall behind their average reading peers in academic performance and achievement, and rarely catch up. As poor readers progress into the intermediate grades (3rd-5th), they have to invest considerably greater amounts of time completing reading assignments, and performing and comprehending grade-level work. In addition, they experience higher levels of frustration and anxiety, and as a result, lack the motivation and desire to participate in reading activities. In addition to forming negative attitudes, students who struggle to become fluent with reading often experience related consequences, including: (a) a reduction in vocabulary growth and background knowledge, (b) fewer opportunities to develop and practice reading comprehension strategies and schema for understanding certain genres, and (c) less reading practice (Cunningham & Stanovich, 1997, 1998; Moats, 2001; Rasinski, 2000).

Students in the middle grades who lack motivation to read may read as few as 10,000 words per year, whereas average readers may read 10 times or even 100 to 500 times this number of words (Nagy & Anderson,

1984). As a result, average readers continue to increase their background knowledge, vocabulary, and academic skills, whereas poor readers fall further and further behind. Stanovich (1986) and others have referred to this phenomenon as the “Matthew Effect,” where the “rich get richer, and the poor get poorer.”

WHAT IS READING FLUENCY?

Although it is easy for teachers to recognize a fluent reader when they hear one, considerable debate still surrounds the definition of reading fluency. Most definitions of reading fluency are based on some aspect of either LaBerge and Samuels’ (1974) information processing model or Perfetti’s (1985) verbal efficiency theory. Both of these theories are founded on the concepts that (a) word decoding and reading comprehension are separate and sequential processes, (b) word decoding skills correlate strongly with reading comprehension, and (c) difficulties in automatic word recognition significantly affect readers’ abilities to comprehend what they are reading (Jenkins et al., 2003).

Prosody, the reader’s ability to orally read a text with appropriate stresses, pauses, and intonation, has also been identified as an important component of reading fluency. When readers are able to mirror the inflections of spoken language, they are demonstrating their abilities to comprehend the text, self-monitor, and self-correct their reading errors. As researchers have learned more about the subskills and interrelated components that contribute to a reader’s ability to read fluently, some have argued that the definition of reading fluency should extend beyond the observable behaviors of reading rate, accuracy, and prosody. Many researchers and educators, however, prefer to define reading fluency simply as rate plus accuracy expressed by “words correct per minute” (Hasbrouck & Tindal, 1992). This definition makes it easy to numerically measure and chart a student’s oral reading rate and accuracy,

Within this framework, oral reading fluency is represented by one’s ability to read connected text smoothly with little conscious effort to the mechanics of decoding (Meyer & Felton, 1999). Fluency requires automatic word recognition at a rate that frees a reader’s cognitive resources so that he or she can focus on the

meaning of text. Thus, when readers decode automatically, they are able to shift their cognitive energies away from decoding and direct their attention instead to deriving meaning from the text. Though these definitions allow us to describe what reading fluency is, to make instructional decisions, educators must also know: (a) how to measure fluency, (b) how fast is fluent, (c) how much growth can be expected from reading fluency interventions, and (d) the types of interventions that are effective.

HOW TO MEASURE READING FLUENCY

To monitor the reading development of all children, a variety of reading fluency measures have been developed. These measure several reading subskills including: phonemic-awareness, letter naming, letter-sound correspondences, word, non-word, and text reading. In many cases, these types of measures have been adopted by states and districts in efforts to: (a) monitor emerging reader's acquisition of basic reading skills, and (b) measure students' yearly progress as required by our national education accountability program. Such measures have been useful in helping teachers to identify students who are responding well to classroom reading instruction, as well as those who are not and may require additional or differentiated instruction. As a result of increased awareness of reading fluency's role in reading development, the adoption of reading fluency performance standards by many states, and the wide-spread use of reading fluency measures, educators are beginning to acknowledge the importance of reading fluency instruction and consciously integrate fluency instruction into their reading curriculum.

For the past 25 years, both general and special educators have used oral reading fluency curriculum-based measures as performance indicators to assess the acquisition of basic reading skills. The use of frequent, ongoing, curriculum-based measurement (CBM) systems has assisted teachers in both instructional decision making and improving student outcomes. CBM is a standardized measurement system, composed of multiple, alternate forms of a test that represent a full year's curriculum (Fuchs & Fuchs, 1993). With respect to reading fluency, CBMs take the form of a series of short, grade-level reading passages of equivalent difficulty that are administered weekly, monthly, or quarterly. CBMs are also convenient in that they are easy to interpret, and take only a few minutes to administer.

The concept of CBM has been employed by several standardized early reading assessments designed to measure students' fluency in phonemic awareness, letter-sound, non-word reading, sight word reading, and connected text reading. The Dynamic Indicators of Basic Early Literacy Skills (6th ed.) (DIBELS) (Good & Kaminski, 2002) and AIMSweb (Edformation, Inc., 2004) are two examples of research-based, standardized measures that have been employed by educators across the country in efforts to

assess and monitor students' acquisition of early reading skills. DIBELS is comprised of a series of research-based, standardized measures that are available to educators (at no cost). DIBELS offers short, standardized, individually administered fluency measures designed to monitor the development of pre-reading and early reading skills. In addition to phoneme segmentation, non-word, and real word fluency measures, DIBELS provides short reading probes designed to monitor oral reading fluency in both English and Spanish for grades 1-6. These free probes as well as a fee-based data management system are available at <http://dibels.uoregon.edu>.

AIMSweb is a fee-based, formative assessment system designed to assist classroom teachers in screening, assessing, and monitoring children's skill acquisition in the areas reading, writing and math. The system offers CBMs in oral reading fluency, reading comprehension, spelling, and written expression for grades 1-8, early literacy and numeracy for grades K-1, as well as measures in math computation and math facts for grades 1-6. This three-tiered system combines CBM materials with a web-based data management and reporting system to help teachers track their students' progress. AIMSweb materials and fluency norms can be found at <http://www.aimsweb.com>. The primary purposes of gathering oral reading fluency data are to (a) determine a student's level of decoding skills, (b) determine instructional goals and objectives, (c) place students into instructional groups, (d) monitor student growth in reading skills, (e) determine if instruction is effective, and (f) make changes in instruction when necessary (Deno, 1986; Deno & Fuchs, 1987; Fuchs, Deno, & Mirkin, 1984; Fuchs & Fuchs, 1986; Wesson, Vierthaler, & Haubrich, 1989). Educators can create or purchase grade-level reading passages and use them to provide instruction and monitor student progress or growth in reading fluency. In order to determine appropriate instructional goals and to determine if students are making adequate or expected progress, educators need to know how many words per minute represents an "average" or "typical" performance (Hasbrouck & Tindal, 1992).

HOW FAST IS FLUENT?

How does one determine the rate at which a student at a particular grade level should be able to read a grade-level text? In order to determine average oral reading performance standards at each grade level, teachers can: (a) use guidelines offered by reading programs, (b) develop their own classroom grade-level standards or norms, or (c) locate and use national grade-level norms. Several reading fluency programs provide reading rate ranges that students at different instructional levels should fall within. However, these ranges tend to be broad and are more useful with respect to determining instructional placement.

Educators can create their own classroom performance

standards or norms, by collecting and averaging their students' scores in words correct per minute (WCPM) on the same grade-level passage or set of equivalent passages. Student scores can be further analyzed to determine group percentiles or percentages of students who receive scores above, below, or equal to the group's average raw score. See Hasbrouck and Tindal's (1992) article on developing large scale "Curriculum-Based Oral Reading Fluency Norms for Students in Grades 2-5" in *Teaching Exceptional Children* for an in-depth description of how to develop classroom or district oral reading fluency grade-level norms.

Within this article, Hasbrouck and Tindal provided large-scale oral reading fluency (ORF) norms compiled from 7,000 - 9,000 students in grades 2-5 from five mid-western and western states. The student population included special education, Title 1/remedial, typical and advanced readers and provided ORF norm scores of WCPM at the 25th, 50th and 75th percentile for the fall, winter, and spring. Providing fall, winter, and spring ORF norms is useful in that one can estimate the type of growth in WCPM that a student may make in the fall,

spring and throughout the school year. Recently, these fluency norms have been expanded to include grades 1-8 and can be viewed with the descriptive population data at http://brt.uoregon.edu/tech_reports.htm or <http://www.readnaturally.com/pdf/oralreadingfluency.pdf>.

Over the past five years, AIMSweb has compiled and published nation-wide ORF norms based on the ORF scores of the thousands of students whose teachers subscribe to and use the AIMSweb system for monitoring their students' progress in ORF. Recently, AIMSweb published three-year aggregate norms (2001-2002, 2002-2003, 2003-2004), representing the ORF scores of words correct per minute from Edformation's Standardized Assessment Passages for grades 1-8. Norms were derived from a student population that includes special education, Title 1/remedial, typical and advanced readers and provide ORF norm scores or WCPM at the 10th, 25th, 50th, 75th, and 90th percentiles for the fall, winter and spring for the 1st-8th grades. Table 1 provides a copy of the AIMSweb national norms as retrieved in February, 2005 from http://www.aimsweb.com/norms/reading_fluency.htm.

Table 1.

AIMSweb® Growth Table Reading-Curriculum Based Measurement Multi-year Aggregate								
		Fall		Winter		Spring		
Grade	%ile	Num	WRC	Num	WRC	Num	WRC	ROI
1	90	6087	42	28842	74	30511	104	1.7
	75		19		44		78	1.6
	50		7		23		50	1.2
	25		2		12		27	0.7
	10		0		6		14	0.4
	Mean		16		33		55	1.1
	StdDev		23		30		36	
2	90	25620	100	27649	126	28226	143	1.2
	75		75		101		117	1.2
	50		51		75		91	1.1
	25		24		50		67	1.2
	10		13		24		39	0.7
	Mean		54		76		92	1.1
	StdDev		34		38		40	
3	90	23857	130	26420	147	27101	163	0.9
	75		102		122		138	1
	50		75		94		110	1
	25		47		65		81	0.9
	10		28		39		51	0.6
	Mean		77		94		109	0.9
	StdDev		39		41		43	

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4	90	21877	148	23067	167	23886	183	1
	75		122		140		154	0.9
	50		98		113		125	0.8
	25		72		89		100	0.8
	10		47		62		72	0.7
	<i>Mean</i>		98		114		127	0.8
	<i>StdDev</i>		40		42		44	
5	90	20920	166	22038	182	22869	198	0.8
	75		140		156		171	0.9
	50		111		126		140	0.8
	25		84		98		108	0.7
	10		59		73		81	0.6
	<i>Mean</i>		113		127		139	0.7
	<i>StdDev</i>		45		44		46	
6	90	15236	181	15584	198	16954	211	0.8
	75		156		170		183	0.7
	50		131		144		155	0.7
	25		101		113		125	0.7
	10		70		83		94	0.7
	<i>Mean</i>		126		141		153	0.7
	<i>StdDev</i>		44		45		46	
7	90	8187	184	7479	197	9526	208	0.7
	75		158		170		182	0.7
	50		131		140		154	0.6
	25		104		114		125	0.6
	10		82		89		99	0.5
	<i>Mean</i>		131		141		153	0.6
	<i>StdDev</i>		41		43		43	
8	90	6233	185	6027	194	7740	200	0.4
	75		163		171		180	0.5
	50		140		148		156	0.4
	25		109		117		129	0.6
	10		78		86		98	0.6
	<i>Mean</i>		135		143		153	0.5
	<i>StdDev</i>		42		43		41	

Num = Number of Students WRC = Words Read Correct ROI = Rate Of Improvement ROI is Spring Score minus Fall Score (or Winter minus Fall) divided by 36 weeks (or 18 weeks)

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HOW MUCH READING GROWTH CAN WE EXPECT?

In efforts to address this question, AIMSweb has calculated the Rate of Improvement (ROI) for students at each percentile rank in each grade level. The ROI was calculated by subtracting the WCPM fall score from the WCPM spring score and dividing the total by 36, the number of weeks of instruction that occurred between these two measures. In this way, AIMSweb calculated the average weekly gain in words per minute for students at each percentile rank at each grade level.

The AIMSweb ROI scores confirm two distinct patterns found in the rates of children's reading growth: (a) the greatest growth in words per minute occurs in the early grades and lessens with each succeeding year; and (b) with the exception of the first grade, maximum growth tends to occur at the beginning of each school year and decrease in the spring (Fuchs & Fuchs, 1993; Shaywitz, 2004). In addition, scores in the lowest 10th percentile at each grade level, show considerably fewer words per minute gains each week, than the scores of average and above average readers. Thus, the achievement gap

between struggling readers and average readers increases each year, suggesting the need for effective reading fluency instruction for struggling readers.

READING FLUENCY INSTRUCTION

The purposes of reading fluency instruction are to: (a) provide reading practice at students' independent reading levels, and (b) increase both reading rate and reading accuracy as measured by the correct number of words read per minute. Research suggests that increasing a student's reading fluency at his or her independent reading level will heighten the student's reading comprehension on independent-level texts, and may increase the student's reading fluency on instructional- and grade-level texts. If a reader reads with less than 97% accuracy, the text is too difficult for reading fluency practice.

When planning reading fluency instruction, it is important to identify (a) students' independent reading levels, (b) passages at the students' independent reading levels, and (c) reasonable reading goals in WCPM at the independent level. To identify a student's independent reading level, first determine the level a student can read text with 97-100% accuracy. Next, determine where the student's reading rate falls in the spectrum of reading rates associated with the passage grade level. For example, if a 4th grader reads 4th-grade passages with an average of 90% accuracy at 49 WCPM, she is likely to struggle with decoding if she is required to read 4th grade passages. However, if that same fourth grader reads 2nd-grade passages with 97 or 98% accuracy at an average of 70 WCPM, or at a rate equivalent to beginning second graders who fall between the 50th and 70th percentile, then it is likely that she can make reasonable fluency gains by practicing passages at the 2nd and 3rd grade levels. The 4th grade-level readings may be appropriate instructional level texts for vocabulary, comprehension, and literary analysis tasks, but not for fluency instruction.

Several methods have been used to improve reading fluency. Repeated reading is one of the most widely used and researched reading fluency interventions. This technique has proven to be an effective instructional intervention for increasing oral reading fluency among normally developing, as well as struggling readers (Mastropieri, Leinart, & Scruggs, 1999; Meyer & Felton, 1999; National Reading Panel, 2000). Repeated reading requires a reader to reread a meaningful passage three to four times until oral reading production is fluid and automatic. These exercises are easy to implement and often take fewer than 10-15 minutes a day. Repeated reading was originally designed to be used as a supplement to any developmental reading program (Samuels, 1997) and is based on three main goals: (a) increasing reading rate, (b) the transfer of increased reading rates to subsequent material, and (c) increasing comprehension with each successive rereading of the text (Meyer & Felton, 1999).

Although some variation exists among different

repeated reading procedures (Samuels, 1979), most include the following steps: (a) the instructor selects a set of short reading passages (50-200 words) at the reader's independent or instructional reading level; (b) the reader is instructed to read a passage out loud while an instructor or monitor records reading time (in seconds) and reading errors or miscues; (c) the reader practices rereading the passage silently or aloud several times; (d) the reader rereads the passage out loud to the instructor while the instructor records reading time and errors; (e) the reader continues to reread the passage until he or she reaches a pre-determined word per minute criterion rate; and (f) the instructor and/or reader record the reading rate (words per minute) on a graph. The procedure is then repeated with a new passage at a similar level. Many instructors add the step of giving students corrective feedback about errors directly after the student's first timed reading in efforts to have the student practice the text with the greatest amount of accuracy possible.

Several supplemental, research-based reading fluency programs have also been published in the past decade. A variety of fluency-based interventions, including Rapid Word Recognition Charts and an online course on fluency instruction, are available through the Neuhaus Education Center (www.neuhaus.org). Two additional examples of commercial programs are: *Read Naturally* and the *Great Leaps Reading Program*. *Read Naturally*, a taped-book reading fluency program designed for struggling readers who read between the 1st and 8th grades. This program uses teacher modeling, repeated reading, and progress monitoring. *Read Naturally* provides high interest reading materials in both English and Spanish and offers a phonics series and a multicultural reading series. More information on this program can be found at <http://www.readnaturally.com>.

The *Great Leaps Reading Program* is an inexpensive, research-based, easy to use, supplemental reading fluency program for readers of all ages who read between the primer and middle school levels. *Great Leaps* provides fluency practice in three areas: (a) phonics, (b) sight words and phrases, and (c) oral reading fluency. The program is easy to implement has been used by parents, instructional aids and teachers to help struggling readers attain higher rates of oral reading fluency. More information on *Great Leaps* can be found at <http://www.greatleaps.com>.

Clearly, more than fluency instruction is needed for struggling readers but it is one important component of effective reading instructional programs. The goal is to help children be able to read text with ease so that all of their attention can be directed toward understanding. Although we still have more to learn about the most effective ways for measuring and increasing reading fluency, much progress has been made. Fortunately, fluency can no longer be described as the most neglected component of reading instruction.

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NOTES on the CONTRIBUTORS



Sue Biggam is the Associate Director of Research and Development for the VT READS Institute in Montpelier and Burlington, Vermont. Previously Sue was the Elementary Reading Consultant for the Vermont Department of Education. She earned her Ed. D. from the University of Vermont, and has a particular interest in classroom based assessment of reading.

Ellen A. Thompson is currently a member of the literacy faculty at the University of Vermont after having taught for twenty-one years at the elementary level. Ellen is a past Teacher of the Year for the State of Vermont and is National Board Certified in the area of Early Childhood Generalist. Ellen has published a book about her teaching experiences, entitled *I Teach First Grade*. Currently, Ellen is a student in her Ed.D. program at the University of Vermont

Bob Blaisdell is an associate professor of English at City University of New York's Kingsborough Community College. He has edited more than two dozen children's books, including "Leo Tolstoy's Tales and Fables for Children" (Prometheus), and more than a dozen anthologies of literature, including "Tolstoy as Teacher: Leo Tolstoy's Writings on Education" (Teachers & Writers Collaborative). He has edited "Great English Essays" for Dover Publications.

Anne M. Dudley is a graduate teaching and research assistant at the University of Arizona in Tucson, where she teaches undergraduate special education courses and works on the Reading Instruction Methods of Efficacy (RIME) Online Project. She received her MA in English and will receive her doctorate in Special Education and School Administration in 2005. She has over 15 years experience as a special educator, writing teacher, and college instructor in Vermont, Colorado, Arizona, and Switzerland. Her areas of interest are early and secondary reading acquisitions, reading fluency, secondary special education, and transition.

Nancy Mather is a professor at the University of Arizona in Tucson in the Department of Special Education, Rehabilitation, and School Psychology. She specializes in the areas of assessment, reading, writing, and learning disabilities. In addition, she is a co-author of the Woodcock-Johnson III and conducts research and training in its use. She has presented widely both nationally and internationally and has written numerous articles and several books. Most recently she has coauthored with Dr. Sam Goldstein a book for educators entitled: *Learning disabilities and challenging behaviors: A guide to intervention and classroom management*, and a book with Dr. Lynne Jaffe: *Woodcock-Johnson III: Reports, recommendations, and strategies*.

Grace Oakley is a lecturer in Education at Edith Cowan University, Perth, Western Australia. She has had experience as a classroom teacher and also as a LOTE (Languages Other Than English) teacher. Grace's PhD investigated the ways in which teachers could use Interactive Multimedia (IMM) to assist children who had reading difficulties and the facilitative and inhibitive factors they encountered when planning, implementing and evaluating these interventions. Her other research interests are fluency, home literacy practices, and 'new' literacies.

Jay Samuels taught in elementary schools in New York State and in California for ten years. During this time he taught in all the grades, did teacher training, conducted demonstration classes, and taught the first class for the gifted that Los Angeles started as a response to Sputnik. He received his doctorate in educational psychology at UCLA in 1965.

From 1965 to the present he has been a professor of Educational Psychology at the University of Minnesota where he teaches learning, cognition, and assessment for teachers. At the University he received their Distinguished Teaching Award, and his educational psychology class for teachers has been listed by some students as the best course taken at the University at exit interviews with students who are graduating.

He has been the co-Editor of *Reading Research Quarterly*, and has received the Wm. S. Gray Research Award from International Reading Association and the Oscar Causey Research Award from the National Reading Conference. He is in the Reading Hall of Fame. Most recently, he was a member of the National Reading Panel, which was the group that was mandated to make recommendations on what works in reading instruction based on research evidence.