

## Evidence-Based Strategies for Reading Instruction of Older Students with Learning Disabilities

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Over a quarter of 8th-grade students and more than one-third of 4th graders do not read well enough to understand important concepts and acquire new knowledge from grade-level text. For students with learning disabilities, the numbers are more troubling. This article describes features of evidence-based instruction for students who continue to struggle with reading in late elementary, middle, and high school. Recommendations are organized into 5 areas that are critical to the reading improvement of older struggling readers: (1) word study, (2) fluency, (3) vocabulary, (4) comprehension, and (5) motivation. Much of the content in this article reflects our efforts with the Special Education and Reading Strands at the National Center on Instruction, funded by the Office of Special Education Programs and the Office of Elementary and Secondary Education. Two reports, both available at <http://www.centeroninstruction.org/>, have particular relevance—*Interventions for Adolescent Struggling Readers: A Meta-Analysis with Implications for Practice* and *Academic Literacy Instruction for Adolescents: A Guidance Document from the Center on Instruction*.

The 2005 National Assessment of Educational Progress (NAEP) administered every other year to a large sample of students in the United States indicated that 36 percent of fourth graders and 27 percent of eighth graders performed below the *Basic* level in reading comprehension. The *Basic* level on the NAEP “denotes partial mastery of the knowledge and skills that are fundamental for proficient work at a given grade” (Perie, Grigg, & Donahue, 2005, p. 2). Students reading below the *Basic* level are unable to understand important concepts and acquire new knowledge from grade-level text.

Many older struggling readers are victims of poor early reading instruction. They were not taught or were insufficiently taught the basic skills necessary for fluent reading and deep processing of text. Some of these students are able to catch up in critical reading skills if provided with additional, sustained instruction in small, focused instructional groups (Torgesen, 2005). Of course, the older and further behind the student, the more ground he or she will have to cover, impacting the intensity and duration of necessary intervention.

However, for many students in this situation, reading at grade level with good comprehension is a reasonable goal.

Other older struggling readers may have received relatively sound instruction during their early school career, but continue to have difficulty with reading fluency or comprehending what has been read. These students, many identified as having learning disabilities (LD), present difficult instructional challenges (Torgesen, 2005). They tend to struggle with more than one component of reading (Torgesen et al., 2007), some at the word level (e.g., difficulties identifying new or unfamiliar words or lack of fluency in reading text), while others have difficulty understanding what has been read. Comprehension difficulties are complex and may relate to inadequate vocabulary or conceptual knowledge, weak reasoning or inferential skills, or an inability to apply active comprehension strategies. Because students who do not read well generally do not read very much, they miss out on countless opportunities for reading practice and for learning from what they have read (Anderson, Wilson, & Fielding, 1988).

This article focuses on students identified as having LD. We recognize that many students in the studies we consider may be grouped with students identified as having LD primarily because they have received insufficient instruction in the primary grades (i.e., their low achievement may not be due

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to LD). However, at this point in the history of LD research it is extremely difficult to ensure that all students included in these studies have had reasonably strong early reading instruction. The extant research is what it is, and our interest in evidence-based instructional practices that support the reading achievement of students at the upper elementary grade levels and in middle and high schools requires that we deal with the available body of work in the most rigorous ways possible.

Our work with the Special Education and Reading Strands at the National Center on Instruction (funded by the Office of Special Education Programs and the Office of Elementary and Secondary Education) is motivated by this interest, and much of the content in this article reflects those efforts. Two reports have particular relevance to this article—*Interventions for Adolescent Struggling Readers: A Meta-Analysis with Implications for Practice* and *Academic Literacy Instruction for Adolescents: A Guidance Document from the Center on Instruction*. Both are available from the National Center on Instruction at <http://www.centeroninstruction.org/>.

### Reading Instruction for Students with LD

The National Reading Panel (NRP) report (2000) identified five areas essential to effective early reading instruction: (1) phonemic awareness, (2) phonics, (3) fluency, (4) vocabulary, and (5) comprehension. Many older struggling readers (particularly those who have had strong early reading instruction) have a reasonable mastery of phonemic awareness and the alphabetic principle (i.e., phonics) and may benefit more from instruction in advanced word study (e.g., decoding multisyllabic words, morphemic analysis) than from continued work on the phonemic and graphemic elements of the language. For others, particularly students with more serious reading difficulties or who have not had strong early instruction, a continued focus on phonics may be both appropriate and necessary. Diagnostic testing and analysis can differentiate instructional needs in this area. It is also important to recognize that the challenge of motivating struggling students to read becomes increasingly difficult as they age (Guthrie & Humick, 2004), whether due to an accumulating history of failure or to the considerable effort required for decoding and processing text. Further, there is emerging evidence that individual differences in motivation to read for understanding play an important role in supporting the acquisition of the comprehension skills that are a major focus of instruction for most older struggling readers (Guthrie & Humick, 2004).

Thus, for older readers, we would adjust the five essential areas in the NRP's report to include these five areas: (1) word study, (2) fluency, (3) vocabulary, (4) comprehension, and (5) motivation. We describe each element in the sections that follow and summarize features of effective instruction for students who continue to struggle with reading in late elementary, middle, and high school.

### Word Study Instruction

Older students struggling at the word level often can decode single-syllable words correctly, but have difficulty decoding multisyllabic words (Archer, Gleason, & Vachon, 2003). They have difficulty dividing words into syllable parts, and they often fail to use effective word-analysis strategies to identify unfamiliar words in text. Intervention that focuses on word analysis and word recognition, versus recognizing and manipulating discrete letters and sounds, is sometimes called *advanced word study* (Curtis, 2004). As indicated, above the suggestion is not that all students with serious reading difficulties, including those with LD, will profit from advanced word study. Students who continue to struggle at the letter-sound level should be offered targeted instruction, and this can be determined through appropriate diagnostic assessment.

Advanced word study addresses strategies needed to analyze words using the meaning and structure of their parts (Henry, 1993). Instruction in word analysis focuses on both morphology, or analysis of the meaningful parts of words (i.e., prefixes, suffixes, inflectional endings, and roots), and orthography, the letter patterns and structural features that are associated with predictable speech patterns. Students are taught to break apart difficult words into smaller familiar units and to use known meanings, or semantic features, of the smaller chunks to identify and define the longer words. Students also learn to identify syllable types (e.g., *r* controlled such as *par* in *partake* and vowel-consonant-*e* as in the second syllable of *partake*), break larger words into their syllable parts, and read those words by blending the parts together. Students also learn to identify irregular words that do not follow predictable patterns.

Word study intervention can improve reading outcomes for struggling students by teaching them to be flexible decoders and to access word analysis and word recognition strategies (Scammacca et al., 2007; Wexler, Edmonds, & Vaughn, 2007). A recent review of the research (Scammacca et al., 2007) in this area found a moderate overall effect for word study intervention across both standardized and researcher-developed measures of word reading and reading comprehension ( $g = .60$ ,  $n = 4$ , 95 percent CI = .25, .95). When the outcomes were limited to standardized word reading and comprehension measures, the effect was .68 ( $n = 3$ , 95 percent CI = .32, 1.03), while on standardized measures of comprehension alone (i.e., no word reading measures), the effect size was .40 ( $n = 2$ , 95 percent CI = -.15, .95).

These are promising findings, though subject to some qualification given the small sample of studies ( $n = 4$ ) available for this part of the meta-analysis. In particular, the estimate of word study's effect on reading comprehension (.40) should be considered with caution. While word study is important for students who need such instruction, its immediate effect on reading comprehension may be small and difficult to detect statistically. It may be a necessary part of improving reading comprehension for some older students; however, it is seldom sufficient by itself.

## Fluency Instruction

Successful older readers typically read orally from 120 to 170 words correctly per minute, depending on the nature and difficulty of the text (Tindal, Hasbrouk, & Jones, 2005). They identify most of the words in text automatically, allowing them to focus on higher order processes, such as understanding, inferring, and interpreting (Archer et al., 2003; Osborn, Lehr, & Hiebert, 2003). Students with reading disabilities, on the other hand, read slowly and with effort, laboring over new or unfamiliar words. They tend to spend less time reading (Osborn et al., 2003) and thus have less developed sight word repertoires, read less fluently, and understand less of what they read.

While fluency does not directly cause comprehension, it does play a facilitative role, and for some struggling adolescents, instruction and practice in this area may be useful (Rasinki et al., 2005). The Scammacca et al. (2007) review of this research found that the fluency interventions examined for older students had a very small effect on students' improved reading rate and accuracy ( $g = .26, n = 4, 95$  percent CI =  $-.08, .61$ ) and virtually no effect on standardized measures of reading comprehension ( $g = -.07, n = 2, 95$  percent CI =  $-.54, .39$ ). These findings are based almost exclusively on a type of fluency intervention called repeated oral reading, which involves reading aloud the same passage several times while receiving instructional feedback (Meyer & Felton, 1999).

Though interventions that involve repeated reading of the same passage(s) often yield improved fluency on the practiced passage (Samuels, 1979), the gains generalize to new, previously unpracticed passages only to the extent that the two share a large number of the same words (Rashotte & Torgesen, 1985). That is, repeated reading has its effect largely because it provides students with opportunities to improve their sight word vocabulary. For older students, it may be no more effective than a similar amount of nonrepetitive wide reading for increasing reading speed, word recognition, and comprehension on unpracticed and dissimilar passages (Homan, Klesius, & Hite, 1993). If substantiated in further research, this finding would be different from that of research with younger students as reported by the NRP (2000). The NRP report did find support for supervised, repeated oral reading as a means for improving general reading fluency in young students also had an impact on their reading comprehension. For older students, the role of fluency instruction generally and the relative effects of differing instructional approaches (e.g., repeated reading versus nonrepetitive wide reading) for improving reading outcomes need additional research.

In the interim, several instructional recommendations seem reasonable. First, fluency is useful, in part, as a proxy for students' ability to identify words automatically. As students increase the number of words they can read on sight, they generally become increasingly fluent (and as they add the same words to their word meaning vocabulary, they become increasingly able to comprehend what was read). Second, fluency instruction and repeated practice with the same text may have instructional value for older struggling readers when combined with focused word-learning instruction that

is coordinated with the passages used for fluency practice. Repeated reading of passages that have instructional target words embedded in otherwise readable text may be more useful than practicing overly difficult passages or passages that include vocabulary to which students have not been repeatedly and frequently exposed. Third, nonrepetitive wide reading may be a reasonable instructional option when students are dealing with text that has a preponderance of known words. Wide reading has the benefit of exposing students to new and different content, vocabulary, and text types (Homan et al., 1993) and, when teacher-supported, may provide instructional opportunities not available within a repeated reading framework.

This much is certain: for students identified as having LD, wide reading or repeated reading by itself should never substitute for systematic, explicit instruction in word study and comprehension strategy use. Indeed, fluency instruction and practice may be most effective when combined with instruction on word-level reading skills and comprehension (Edmonds et al., in press). The idea is that improved fluency unleashes cognitive resources while comprehension strategy instruction provides the older readers with guidance on the use of these newly available resources (Willingham, 2006).

## Vocabulary Instruction

Fluently and accurately identifying words in text is critical to successful reading. Knowing the meanings of those words is no less essential, particularly in relation to reading comprehension and overall academic success (e.g., Baumann, Kame'enui, & Ash, 2003; NRP, 2000). Capable readers have large, oftentimes sophisticated vocabularies, nurtured by reading a great deal across a wide variety of genres. Older students identified as having LD, on the other hand, generally avoid reading as an independent activity, thus limiting their exposure to new vocabulary (Cunningham & Stanovich, 1998). Further, the school-related textbooks that they are required to read often fail to provide legitimate opportunities for vocabulary learning (Hirsch, 2003). Textbooks are generally too difficult for struggling readers and require a level of content-specific prior knowledge not typical of this group (Hirsch, 2003). These students, adolescents who choose not to read independently and who struggle to access content-related texts, perform at lower levels than their more skilled peers in vocabulary knowledge and use and, as they get older, fall further and further behind (Stanovich, 1986).

Experimental research is sparse on effective vocabulary instruction with older students identified as having LD (Scammacca et al., 2007), due partly to the nature of vocabulary learning and to the difficulty of reliably measuring improved vocabulary. The typical study on this topic implements a treatment of interest to teach one group of participants a list of new words, withholds the treatment from a second group of similar students, and then measures outcomes by asking both groups of students to demonstrate their knowledge of the vocabulary taught during the intervention. While this approach is perfectly reasonable, its results are

generally self-evident; students who are taught the meanings of new words are more likely to know their meanings than a similar group of student who do not participate in the intervention.

This effect, however, does not appear to generalize; the treated group is no more likely than the comparison to know the meanings of words *not* on the target list. Students identified with LD need interventions that accelerate their acquisition of new vocabulary and provide enough depth of knowledge about words so their meanings can be easily accessed in multiple contexts while reading. However, examples of the impact of such programs on general vocabulary growth or reading comprehension for students with identified LD are not documented in the literature. Direct vocabulary instruction may have a slight accelerative effect (Stahl, 2003), but the most reliable gateway to improved vocabulary for older students appears to be reading a lot, reading well, and reading widely (Cunningham & Stanovich, 1998).

While introducing struggling students to serial lists of new words on a daily or weekly basis is not likely to close the gap with more skilled readers, it can improve their ability to process important content-area texts (Baumann et al., 2003). Several instructional practices deserve mention. First, instruction that focuses on words that are useful to know and likely to be encountered across a variety of settings may have the widest impact. Beck, McKeown, and Kucan (2002) suggest breaking words into three tiers. Tier 1 words are words students are likely to know (e.g., sad, funny). Tier 2 words appear frequently in many contexts (e.g., regardless, compromise). Tier 3 words appear rarely in text or are content specific (e.g., irascible, biogenetics). Beck and colleagues suggest that teachers focus vocabulary instruction on Tier 2 words drawn from content-area materials that contain words that students are likely both to need (because they are encountered across contexts) and learn well (because students will have repeated opportunities for practice and use).

Learning new and challenging vocabulary encountered in specific content-related texts, such as those used in science and social studies classes, may be best facilitated by providing direct instruction that focuses on simple definitions, examples and nonexamples, and the use of semantic maps (Kim, Vaughn, Wanzek, & Wei, 2004) that reflect the likely sources and possible uses of a new word. Direct instruction of key words can increase vocabulary knowledge and reading comprehension and may be especially effective for students with LD (Bos & Anders, 1990; Bryant, Goodwin, Bryant, & Higgins, 2003; Jitendra, Edwards, Sacks, & Jacobson, 2004). Repeated exposure to new words is also critical (Stahl & Fairbanks, 1986). Many English words have multiple meanings, and students need structured opportunities for practice in a variety of contexts that represent the range of the new word's use and meaning (Stahl & Fairbanks, 1986). Up to 12 exposures may be necessary to develop deep understanding of a new word (McKeown, Beck, Omanson, & Pople, 1985); students with LD may require more than 12 exposures.

Word-study strategies can support learning of a new vocabulary, as suggested earlier. Students can be taught to use reference aids such as dictionaries and online resources, identify context clues, and use root words and prefixes/suffixes

to break words into meaningful parts. We also suggested earlier that wide reading of diverse texts at students' independent (i.e., 95 percent word reading accuracy) and instructional (90 percent accuracy) reading levels can support vocabulary development. Strategically selecting texts that expose students to targeted words can provide valuable practice. Finally, students' vocabulary knowledge can be assessed prior to instruction on specific content, and curriculum-based progress monitoring can be used to track development over time (Espin, Busch, & Shin, 2001). The National Center for Progress Monitoring ([www.studentprogress.org/](http://www.studentprogress.org/)) is a useful resource for learning more about progress monitoring.

## Reading Comprehension Instruction

While the ability to decode words fluently and to understand the meaning of individual words is important, the point of the whole enterprise is to understand the meaning of written text. Reading well is a demanding task requiring coordination of a diverse set of skills. Good readers monitor their understanding by linking new information with prior learning and, when comprehension breaks down, by deploying appropriate repair strategies, like adjusting their reading rate or strategically rereading passages.

Struggling readers, even those with adequate word-level skills and acceptable fluency, often fail to use these types of strategies, either because they do not monitor their comprehension or because they lack the necessary tools to identify and repair misunderstandings when they occur. Intervening in these areas may improve comprehension outcomes for struggling older readers, although the effectiveness of interventions that directly teach and support the use of comprehension strategies was not firmly established in the review of research on students with LD conducted by Scammacca et al. (in press). While a large overall effect was reported across the 12 studies in the sample ( $g = 1.35$ ,  $n = 12$ , 95 percent CI = .72, 1.97), only 2 of the 12 used standardized measures of reading comprehension. While the effect across these two studies was of moderate size ( $g = .54$ ,  $n = 2$ , 95 percent CI = -1.04, 2.11), the small sample and the large standard error undermines the reliability of this finding. The available studies of comprehension strategy instruction for students identified with LD may have provided insufficient amounts of instruction to produce effects on generalized (standardized) measures of comprehension.

Still, few would argue against providing comprehension strategy instruction to struggling readers at points throughout the school day, including content-area classes and in specialized reading interventions. The recent flurry of national policy reports addressing the adolescent literacy crisis (e.g., Biancarosa & Snow, 2004; National Association of State Boards of Education, 2006; National Governor's Association Center for Best Practices, 2005; Kamil, 2003) consistently highlights the importance of this type of instruction. A number of high-profile, large-scale studies (e.g., see <http://www.texasldcenter.org/>) are underway as well. In the interim, it is useful to recognize that most of the studies examined by the NRP (2000) on the impact of instruction

in comprehension strategies actually involved students beyond the third grade level. Although these studies were conducted with diverse groups of students, they may nonetheless represent the most reliable source of guidance for teaching older students in general and for improving comprehension in students with LD (see also Mastropieri & Scruggs, 1997). Instructional strategies that have received *general* research support (e.g., with students not identified as LD, younger students, etc.) are discussed below.

Activating prior knowledge helps students make connections between what they already know and what they are reading (Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989). Struggling readers may not access (or possess) prior knowledge that supports the new information they will learn or they may access incorrect or unrelated information that can interfere with learning. Teachers can assist by previewing headings or key concepts with students or creating prediction and confirmation charts for about 5 minutes before reading and by revisiting the same after reading to assist in reviewing, confirming, or refuting predictions, summarizing, and making connections (Boyle, 1996).

Graphic organizers are visual representations that assist students in identifying, organizing, and remembering important ideas from what they read. They can be used before reading to introduce important information, solicit prior knowledge from students, and make predictions (Bos & Anders, 1990; DiCecco & Gleason, 2002). During reading, graphic organizers can be used to represent and discuss connections, confirm or refute predictions, and record important information. After reading, they can be used to write summaries, to review information, and to make connections. The type of organizer used should be matched to the type of text being read; while an event map is well suited to a narrative text structure, a compare-contrast chart may be more helpful for comprehending certain passages from a social studies textbook.

Comprehension-monitoring strategies enable students to track understanding as they read and to implement repair strategies when understanding breaks down. Students with LD may benefit from direct instruction on such strategies, including noting confusing or difficult words and concepts, creating images, and pausing after each paragraph to summarize (Carnine, 1994). Common fix-up strategies include rereading, restating, and using context and decoding skills to identify unknown words or new ideas (Vaughn, Klingner, & Boardman, 2007). Students can also be taught to ask questions before and during reading to guide and focus reading; to confirm, disconfirm; or extend predictions; and to grapple with the meaning of text by actively engaging comprehension strategies (Vaughn et al., 2007). Instruction and practice in these areas should continue until students are proficient (Pressley, 2000).

Reading for meaning requires synthesizing large amounts of information into its most important elements. Struggling students can be taught to summarize as they read to create, revise, and refine their understanding of a passage (Gajria & Salvia, 1992). Teachers can assist by modeling important organizational steps, by providing structured practice opportunities with ongoing feedback, and by presenting examples and nonexamples of concise, complete summaries.

Scaffolded instruction that starts with short passages that address relatively unsophisticated content and works up to more lengthy and difficult selections may be an effective approach (Klingner & Vaughn, 1996). Students can also be taught to use question-generating strategies as they read and to effectively answer teacher-generated questions (Edmonds et al., in press). Although teacher questioning should be used primarily for assessment purposes, it can be effective instructionally if used to model appropriate self-questioning or to provide direct instruction on locating important information (Edmonds et al., in press). Strategies can be taught for matching different question types to various information needs and text. For example, a question about a factual detail in a passage is likely to be found verbatim within the text, while questions about the main idea may not.

Multicomponent approaches combine several strategies into an organizational plan for reading (Edmonds et al., in press). Teachers can provide instruction over time in previewing, mental imagery, main idea, questioning, and summarizing, for example. Strategies can be taught in combination or individually if students are provided with adequate support and practice opportunities. Cooperative learning and group discussion can facilitate acquisition of specific strategies and integration of multiple strategies (Pressley, 2000). Students with LD will need instruction and support to self-regulate their use of strategies; they will need to know which strategy to use, when to use it, and why.

### Motivation to Read

Reading comprehension is an active, effortful process, particularly when it comes to complex text. Motivation and engagement make reading enjoyable, increase strategy use during reading, and support comprehension (Guthrie & Wigfield, 2000). Struggling readers often lack this motivation (Morgan & Fuchs, 2007), which limits opportunities to build vocabulary, improve comprehension, and develop effective reading strategies. As pointed out by John Guthrie and his associates, “motivated students usually want to understand text content fully and therefore, process information deeply. As they read frequently with these cognitive purposes, motivated students gain in reading comprehension proficiency” (Guthrie et al., 2004, p. 403). In other words, comprehension of complex text involves the conscious application of effortful strategies for processing text; students who are not engaged, or who are not interested in extracting meaning from text, are much less likely to put in the effort to comprehend and, as a result, miss opportunities to become proficient in comprehending complex text.

Finding ways to motivate and engage students in reading is an essential feature of adolescent literacy instruction, particularly as older readers face increasingly difficult reading material and classroom environments that tend to de-emphasize the importance of fostering motivation to read (Guthrie & Davis, 2003). Guthrie and Humenick (2004) identified four features that are critical to increasing and maintaining students’ motivation to read: (1) providing interesting content goals for reading, (2) supporting student autonomy, (3) providing interesting texts, and (4) increasing social

interactions among students related to reading. The motivation of struggling readers should be supported within the context of a comprehensive reading program built around effective instruction on reading skills and strategies.

### Concluding Remarks

For older students with LD who continue to struggle in reading, the challenge is providing instruction that is powerful enough to narrow or close the gap with grade-level standards in reading. This means that students who previously have struggled to even keep pace with expectations for average yearly growth in reading must now make considerably more than expected yearly growth each year if they are to catch up. While adolescence is *not* too late to intervene, intervention must be commensurate with the amount and breadth of improvement students must make to eventually participate in grade-level reading tasks. Because most intervention studies provide only a limited amount of instruction over a relatively short period of time, we do not yet have a clear understanding of all the conditions that must be in place to close the gap for older students with serious reading disabilities. However, it does seem likely that the intensity and amounts of instruction necessary to close the gap for many older students with LD will be considerably beyond what is currently being provided in most middle and high schools. While questions concerning implementation are not the topic of this article, we recognize the enormity of the undertaking. Our task has been to describe the individual elements of effective instruction for older students with LD in reading as they might look in a classroom setting, but we encourage the reader to consider our recommendations within the context of their local school, district, or state.

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