

REWARDS[®] Intermediate (2nd Edition),
Secondary (3rd Edition),
and *REWARDS Plus*
RESEARCH FOUNDATION

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Introduction

The following strands of reading instruction are addressed in *REWARDS Intermediate and Secondary*: decoding, encoding, fluency, vocabulary, and comprehension. Decoding of multisyllabic words and fluency (rate development) are the dominant strands, which is why the *REWARDS* acronym stands for *Reading Excellence: Word Attack and Rate Development Strategies*.

Decoding of Multisyllabic Words

Decoding refers to the use of letter-sound associations, structural elements such as prefixes and suffixes, and patterns within words to determine the pronunciation of unknown words. Even though decoding is not sufficient for comprehension, it is nevertheless necessary, for, according to Torgesen, there is no comprehension strategy powerful enough to compensate for the inability to read printed words (2004).

Given the importance of decoding skills to reading comprehension, it is unfortunate that many students lack the decoding skills needed to read and comprehend grade-level text. In fact, many researchers have concluded that poorly developed word recognition skills are the most pervasive and debilitating source of reading challenges (Adams, 1990; Perfetti, 1985; Share & Stanovich, 1995; Shippen, Houchins, Steventon, & Sartor, 2005). Poor decoders, even those who can decode single-syllable words, have a difficult time with multisyllabic words (Just & Carpenter, 1987). Good and poor readers often have different approaches to decoding unknown long words: Good readers break words into syllables while poor readers routinely attempt to process words letter by letter (Bhattacharya, 2006). In addition, lower decoders are more likely to mispronounce affixes and vowels, to disregard large portions of letter information, and are two to four times as likely to omit syllables (Shefelbine & Calhoun, 1991). This challenge is amplified in the intermediate and secondary grades when students are faced with approximately 10,000 words a year they have never seen in print (Nagy & Anderson, 1984). Most of these words have two to five syllables (Cunningham, 1998). Although multisyllabic words do not make up all the words that students read, they do carry most of a passage's meaning, particularly in informational text, as evidenced in this example: *Condensation is the transformation of the physical state of matter from gaseous phase into liquid phase and is the reverse of vaporization.* A student who is unable to decode a passage's long words has no pathway to reading comprehension.

In the past, the major instructional approach to multisyllabic words was teaching students complex syllabication rules for dividing words into dictionary syllables. More recently, instruction has moved away from rigid rule application to more flexible decoding strategies (Archer, Gleason, & Vachon, 2003) because a relationship between syllabication knowledge and successful reading has not been established (Canney & Schreiner, 1977), and the time to teach the rules is extensive. In this vein, *REWARDS* teaches a flexible strategy in which students break long words into decodable chunks utilizing two elements within the words: (a) the affixes, and (b) the vowels in the remaining word parts. In the overt strategy, students circle the prefixes and suffixes and underline the vowels, read the parts of the word, blend those parts into a word, and, finally, correct the word's pronunciation if the students' pronunciation is not a real word or is not consistent with the context.

A number of studies have demonstrated that it is not too late for struggling older readers to learn to read multisyllabic words and to improve their overall reading ability. Working with fourth and sixth graders, Shefelbine (1990) found that students made significant gains when taught to use affixes and vowels to decode longer words. In a secondary study, seventh, eighth, and ninth graders who were taught a decoding strategy for reading long words had fewer oral reading errors and increased comprehension (Lenz & Hughes, 1990). Bhattacharya and Ehri (2004) showed that students' ability to read multisyllabic science terms improved over time as a result of syllable segmentation training.

Encoding (Spelling)

Encoding, or spelling of words, relies on the same information as decoding: (a) knowledge of letter-sound associations, and (b) structural elements, including prefixes and suffixes (Ehri, 2000). Thus, decoding and encoding are reciprocal processes: When decoding is taught and practiced, spelling is strengthened and, when spelling is explicitly addressed, decoding is strengthened (Moats, 2005). As Snow, Griffin, and Burns (2005) concluded, “Spelling and reading build and rely on the same mental representation of a word. Knowing the spelling of a word makes the representation of it sturdy and accessible for fluent reading” (p. 86). For these reasons, in *REWARDS*, students read *and* spell multisyllabic words in each lesson and learn a strategy that can be generalized to what they would do when spelling long words independently:

1. Say the parts of the word
2. Write the parts of the word
3. Examine the written word and, using visual memory, verify that the word is spelled correctly
4. Correct the spelling of the word if it appears to be incorrect

Fluency (Rate, Accuracy, and Prosody)

Fluency refers to the quick and effortless reading of words presented in a list or within connected text (Kuhn & Stahl, 2003). Fluency, consisting of three key elements, includes the student reading **accurately** and with appropriate reading **rate** and **expression** (Hudson, Lane, & Pullen, 2005). *REWARDS* focuses primarily on accuracy and appropriate rate.

Reading fluency is important for many reasons, but the most often stated reason is the relationship between fluency (rate) and comprehension. This relationship is often explained using information processing theory (LaBerge & Samuels, 1974). Human beings have limited cognitive resources in terms of attention and short-term memory. When reading, students must direct their cognitive energies toward recognizing the printed words (decoding) and constructing meaning (comprehension). When decoding is slow and laborious, students’ cognitive energies are drawn away from meaning, thus compromising their comprehension (National Reading Panel, 2000). Both empirical and clinical research support the relationship between fluent oral reading and overall reading ability, including comprehension (e.g., Cunningham & Stanovich, 1998; Fuchs, Fuchs, & Maxwell, 1988; Gough, Hoover, & Peterson, 1996; Jenkins, Fuchs, Espin, van den Broek, & Deno, 2000; Rasinski, Padak, Linek, & Sturtevant, 1994).

There are a many pragmatic reasons for increasing reading rate. When reading is slow and laborious, struggling readers select not to read (Moats, 2001). The consequences of not reading are immense. These struggling students are not making the gains in decoding and fluency that their avid reading peers experience. In addition, they are not gaining background knowledge and vocabulary, which are gifts attributed to voracious reading. As Stanovich (1993) concluded, the extent to which students spend their time reading generally translates into learning new words, new meanings, new linguistic structures, and new ways of thinking. Finally, from a very practical view, struggling readers with low reading rates will take significantly more time to complete assignments. For example, if a student who reads 150 correct words per minute completes a reading assignment in one hour, a student reading 50 correct words per minute will require three hours to complete the same assignment.

A number of methods have been incorporated into *REWARDS* to accelerate gains in reading rate. First, students are taught decoding skills so that they can quickly decode unknown words. Second, practice is provided in reading words more quickly by having students reread lists of words that they have accurately decoded. Finally,

students engage in repeated reading exercises in which they read a portion of a previously read passage for one minute and determine the number of words read. This practice routine is repeated one or two times as students attempt to increase their reading rate. Numerous studies have supported the use of repeated readings to increase the reading rate of students at many reading levels and ages (e.g., Dowhower, 1994; Fleisher, Jenkins, & Pany, 1979; Herman, 1985; Homan, Klesius & Hite, 1993; Mercer, Campbell, Miller, Mercer & Lane, 2000; Meyer & Felton, 1999; O’Shea, Sindelar & O’Shea, 1985, 1987; Rashotte & Torgesen, 1985; Rasinski, 1990; Sindelar, Monda, & O’Shea, 1990). In sum, after completing a comprehensive review of fluency intervention studies conducted in the past 25 years, Chard, Vaughn, and Tyler (2002) concluded that having students with learning disabilities engage in repeated reading activities is associated with improvement in reading rate, accuracy, and comprehension.

Vocabulary

Vocabulary is the knowledge of words and their meanings (Honig, Diamond, & Gutlohn, 2008). As you would expect, there is a strong correlation between knowledge of vocabulary and reading comprehension, particularly as students progress up the grades. Unfortunately, children that come from homes of poverty already differ significantly in vocabulary from their peers raised in middle class homes even before they arrive in school (Hart & Risley, 1995). For example, Hart and Risley estimated the average vocabulary of 4-year-olds in homes of professionals to be 1,100 words while the children in homes of poverty had a lexicon of 500 words—an astonishing difference. By first grade, the vocabulary gap is even greater. Linguistically “poor” first graders know an average of 5,000 words while linguistically “rich” first graders know an average of 20,000 words (Moats, 2001). The vocabulary knowledge of students who enter school with limited vocabularies grows much more discrepant over time compared with their peers who have rich vocabulary knowledge (Baker, Simmons, & Kame’enui, 1997). This disparity in vocabulary extends into secondary schools. Vocabulary knowledge is particularly limited for students who are struggling readers, as they are the ones who fail to gain vocabulary from independent reading.

Given vocabulary’s importance to reading comprehension especially, but also its importance to listening comprehension and to word choice in writing, vocabulary building must be emphasized every school year, in all classes, every day. For this reason, the vocabulary strand in the second edition of *REWARDS* has been significantly expanded, incorporating a number of proven practices.

First, explicit instruction is provided on selected words, a practice that consistently accelerates vocabulary growth (White, Graves, & Slater, 1990). These are *general academic vocabulary* words, which are words that students will encounter in many classes. These words are directly taught using an instructional routine that is similar to those proposed by other authors (e.g., Beck, McKeown, & Kucan, 2002; Biemiller, 2001; Carnine, Silbert, Kame’enui, & Tarver, 2009; Honig, Diamond, & Gutlohn, 2008; Marzano & Pickering, 2005). The instructional routine is:

1. Introduce the word
2. Provide a student-friendly explanation
3. Illustrate the word with examples
4. Check for student understanding

Teachers also have the choice to augment this basic instructional routine by introducing the word’s part of speech, exploring synonyms and antonyms, and expanding instruction to other members of the “word family.” Nagy and Anderson (1984) and other researchers suggest that teachers expand instruction beyond the target

word to words that are related morphologically and semantically (e.g., the word family for *stable* could include *unstable*, *stabilize*, *stabilized*, *stabilization*, *stability*, and *instability*). To better ensure mastery in *REWARDS*, multiple exposures to vocabulary terms are provided with built-in cumulative review.

Second, before passage reading occurs, students learn *domain-specific vocabulary* words, which are words that are directly related to the content-area domain emphasized in the passage. The meanings of these words are introduced and practiced. Research shows that students who receive systematic, direct teaching of critical passage words show improvement in passage comprehension (McKeown, Beck, Omanson & Pople, 1985; Stahl & Fairbanks, 1986).

To strengthen the vocabulary instruction for all students, but particularly English language learners, the concepts and examples are also illustrated with photos.

In addition to directly teaching selected academic vocabulary and domain-specific vocabulary, students are also taught two word-learning strategies that can be employed to determine the meaning of unknown words embedded in connected text. One word-learning strategy involves teaching students the meanings of high-frequency prefixes and suffixes, selected because their meanings are unambiguous (e.g., *re = again*, *un = not*). Twenty prefixes account for 97% of prefixed words; four of the twenty (*un*, *re*, *in* or *im*, *dis*) account for 58% of prefixed words (White, Sowell, & Yanagihara, 1989). The other word-learning strategy is the use of context clues, which is practiced during sentence and passage reading. Simple practice in inferring word meanings was used rather than teaching specific context-clue types (Kuhn & Stahl, 1998). The combined use of these two strategies (morphemic analysis plus contextual analysis) best supports older readers in determining the meaning of unknown words (Baumann, Font, Edwards, & Boland, 2005).

Comprehension

Comprehension, the act of **extracting** what the author has explicitly and implicitly stated and **constructing** meaning, is the goal of all reading instruction. Comprehension will be enhanced if students can (a) decode the unknown words quickly within a passage, (b) read the text effortlessly, and (c) understand the critical passage vocabulary. All of the strands in *REWARDS* contribute to reading comprehension.

While the passage reading exercises in the last six lessons of the program are primarily designed to give students practice reading multisyllabic words within grade-level passages, the exercises are also designed to provide teachers with a model for informational text reading that can be transferred to other materials. Informational, rather than narrative, passages are used in the program because success in all content-area classes requires facility with informational text (Neufeld, 2005). The Common Core State Standards of English and Language Arts call for close reading of this type of text. The literature includes many suggested strategies for close reading (Hinchman & Moore, 2013); teachers must select a method that matches the text, the readers, and the content domain. Before students read the passages in *REWARDS*, a judicious amount of front-loading is provided (just enough instruction on vocabulary and background knowledge to support comprehension, but not so much that passage reading is unnecessary). Then a close reading procedure is implemented in which students read a passage segment twice and respond to questions. Teachers decide whether to ask scaffolding questions before the higher-order question or to ask only the higher-order question, which requires the integration of evidence from the passage. The higher-order questions are text-dependent and have been carefully designed to support formulation of logical, evidence-based answers.

Explicit Instruction

While careful selection of content is critical in accelerating students' growth in reading, use of effective pedagogy is also necessary. For this reason, explicit instruction, which is unambiguous instruction in which information is presented directly, is utilized. Numerous researchers and educational writers have identified the instructional behaviors of explicit instruction, which include both the design and the delivery of instruction (e.g., Archer & Hughes, 2011; Brophy & Good, 1986; Christenson, Ysseldyke, & Thurlow, 1989; Gersten, Schiller, & Vaughn, 2000; Hattie, 2009; Hughes, 1998; Marchand-Martella, Slocum, & Martella, 2004; Rosenshine, 2012; Rosenshine, 1997; Rosenshine, 1995; Rosenshine & Stevens, 1986; Simmons, Fuchs, Fuchs, Mathes, & Hodge, 1995; Swanson, 1999, 2001). In terms of design, the following guidelines were used in *REWARDS*:

1. Instruction should be organized and focused
2. Instruction on skills and strategies should include demonstration (I do it.), guided practice (We do it.), and unguided practice (You do it.)
3. Practice should include initial practice, distributed practice, and cumulative review

Equally important, the instruction must be delivered in an engaging fashion in which the teacher: (a) elicits frequent responses from students, (b) monitors student responses and adjusts the lesson as necessary, (c) provides immediate feedback including praise, encouragement, and corrections, and (d) maintains a brisk pace to ensure attention and engagement.

Explicit instruction is a powerful pedagogy in many situations but especially when students have little background knowledge related to what is being taught and have experienced difficulty in obtaining critical skills and strategies. Therefore, explicit instruction is the perfect instructional tool for the students who need *REWARDS* and for the delivery of its content.

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