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## **Supporting Struggling Readers** in Content Area Learning

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## Introduction

*I try to make it make sense, but sometimes I just quit.*

*Reading textbooks is hard because the words are big and I don't understand them, and it gets boring sometimes.*

*I can't read at home, and we don't have enough time in my classes to read silently.*

*I'm good at reading what I want to read. If I don't like it, it's very hard.*

*When I get to a word I don't know I try to sound it out, but sometimes I just skip the word.*

*It's hard the way they explain the problems because sometimes they don't explain it real simple.*

*When the text is hard, sometimes I give up.*

These are the voices of 14- and 15-year-olds, both boys and girls, who struggle to read the texts they encounter in their content area courses at school. They describe reading and writing in academic classes as “hard” and “boring,” and they “give up” because they have few strategies to help them figure out new words or comprehend texts. And yet, academic learning in content areas requires adolescents to become proficient readers—they must be able to comprehend the texts they read, make connections between ideas, make inferences and draw conclusions, and figure out the meanings of unfamiliar words, and they must have the confidence to persevere when texts are difficult.

Unfortunately, too many adolescents are unable to read with the proficiency necessary for success in content area learning. In the most recent implementation of the National Assessment of Education Progress (NAEP) (Lee, Grigg, & Donahue, 2007), one in four adolescents were not even able to read at a basic level. These students could not read with comprehension or make simple inferences. Only one-third were consistently able to draw conclusions, analyze meanings, make connections between what they read and their experiences or world events, or support their ideas with meaningful evidence. As might be expected based on these low levels of literacy, adolescents' content area achievement is also distressingly low:

- 34% of twelfth graders and 30% of eighth graders scored below-basic on knowledge of civics in 2006. These students did not demonstrate even a basic understanding of American constitutional government, their rights and responsibilities as citizens of a democracy, or international issues that affect the United States. Only 27% of twelfth graders and 22% of eighth graders demonstrated proficient or advanced knowledge of civics (Lutkus & Weiss, 2007).

- 39% of eighth graders and 46% of twelfth graders showed below-basic knowledge of science. Four out of 10 adolescents were unable to analyze scientific data, conduct investigations, or apply scientific principles in everyday situations, and they did not have even basic knowledge of Earth, physical, and life sciences. Only 29% of U.S. eighth graders and 20% of twelfth graders demonstrated proficient or advanced science achievement (Grigg, Lauko, & Brockway, 2006).
- 29% of eighth graders demonstrated below-basic mathematics knowledge in 2007. Fewer than one-third achieved proficient or advanced results. Seven out of 10 eighth graders were unable to select and use data to solve problems, communicate in mathematics, make inferences from data and graphs, or use abstract thinking to solve problems (Lee, Grigg, & Dion, 2007).
- Only one-third of eighth graders and one-fourth of twelfth graders achieved proficiency in writing in 2007. The vast majority of adolescents were unable to organize writing effectively, use details to develop a main idea, or write with clarity and adequate mechanics and grammar (Salahu-Din, Persky, & Miller, 2008).

The impact of low reading ability on content area learning is compounded by other factors that make middle and high school challenging for struggling students. The two most common ways of teaching in secondary schools are teacher lecture and independent reading (Goodlad, 1984), teaching strategies that are generally ineffective for struggling readers. In middle and high schools, adolescents typically have a different teacher for each subject area (Wood, Woloshyn, & Willoughby, 1995), so they must be responsible for their own learning. Students who lack independent strategies for learning content and organizing information may struggle with this lack of support.

These challenges are compounded by the fact that many adolescents are disengaged from both school and reading (Kirsch, DeJong, LaFontaine, McQueen, Mendelovits, & Monseur, 2002). Struggling readers may also be frustrated by the mismatch between their online lives at home—where they increasingly use technology (the Internet, social networking, text messaging, gaming, etc.) for communication, entertainment, and learning—and the paper-and-pencil learning experiences they encounter at school (Ito, Horst, Bittanti, Boyd, Herr-Stephenson, Lange, Pascoe, & Robinson, 2008).

Content area learning is essential. Even students with below-proficient levels of literacy must be afforded opportunities to learn the same content—the same math, science, English, and social studies—as their peers who read more proficiently. The content cannot be watered down if students are to pass required graduation exams, become prepared for post-secondary learning, and be active citizens in our society. Schools are increasingly searching for ways to adapt content area instruction to meet the needs of adolescents who struggle with reading and writing.

There is no cookie-cutter answer to the dilemma of content area students with low literacy achievement. Not all students struggle with reading and writing in content areas for the same reasons. Some have difficulty because they have limited vocabulary knowledge. Others struggle with literal comprehension of a text, some are unable to make inferences and draw conclusions, some have limited English language proficiency, some lack motivation, some struggle because of combinations of these factors, and a very small number struggle with decoding (Buly & Valencia, 2002; Valencia & Buly, 2004).

Because students bring individual challenges to the classroom, it is important to differentiate instruction. Differentiating instruction means changing the pace, format, or content of instruction on the basis of a student's strengths, weaknesses, needs, and interests (Heacox, 2001). By differentiating instruction, schools provide carefully designed instruction tailored to students' particular needs. It may be especially important to differentiate the texts that students are asked to read. If all students are reading the same text at the same time, the text is likely to be too challenging for some and too easy for others (Allington, 2005).

One model for differentiating instruction is Response to Intervention (Fuchs & Fuchs, 2006). States are increasingly advocating the use of this model in order to identify and provide support to students who struggle. With the Response to Intervention model (RTI), schools first carefully monitor students' academic progress in regular classroom instruction. Specific, individualized interventions of increasing duration and explicitness are developed for those students who do not make adequate progress. These interventions should be based on careful assessment of students' particular learning needs and lead to differentiation of instruction.

Online learning, in particular, can provide support for struggling readers and allow schools to differentiate instruction. Online learning contexts can also provide resources for RTI interventions. In a review of research, Hiebert, Menon, Martin, and Bach (2009) showed that online contexts support adolescents' learning, including the learning of students who struggle with literacy, because they can be designed to be more engaging, accessible, and connected than many traditional learning contexts.

In particular, online contexts can provide scaffolds for learners that allow for differentiation of instruction based on students' learning needs. Scaffolds are supports that are provided to help students learn content, and scaffolds help students to acquire cognitive strategies that support future learning (Wood, Bruner, & Ross, 1976). As students work toward mastery, the level of scaffolding can be gradually reduced. Online contexts can provide two types of scaffolding: adaptive and strategic (Hiebert, Menon, Martin, & Bach, 2009).

**Adaptive scaffolds** are changes to content or texts that make them more accessible, such as, for example, when texts are designed to be more readable through vocabulary control or the number of ideas presented on each page. Adaptive scaffolds can also take the form of features of the learning environment that students are able to manipulate as needed in order to access learning, such as text-to-speech support that allows students to hear texts they would otherwise be unable to read.

**Strategic scaffolds** support students in acquiring and using strategies to support their own learning, both in the immediate context and in learning situations far beyond. Proficient learners integrate and apply a variety of reading and learning strategies, such as asking themselves questions, summarizing as they read, and using roots to figure out multisyllabic words. Strategic scaffolding teaches students how and when to use these mental strategies and supports learners' use of strategies as they engage with the materials.

While both adaptive and strategic scaffolds may be provided in traditional learning contexts, online contexts allow scaffolds to be designed for and built into the learning context and for scaffolds to be flexibly utilized in order to differentiate instruction (Hiebert, Menon, Martin, & Bach, 2009). This white paper describes adaptive and strategic scaffolds that research has shown to support the academic content area learning of adolescents who struggle with reading.

## **Adaptive Scaffolding: Accessible Texts, Online Scaffolds, and Motivating Content**

While it is imperative that struggling readers and writers learn the same standards-based content as their peers, they cannot learn that content if the texts they have to read are far beyond their capabilities. Adaptive scaffolding provides students with access to the content and skills they are supposed to be learning; adaptive scaffolding does not mean watering down the content, but rather designing the texts and supports for reading those texts so that they are comprehensible. Adaptive scaffolds described here include the construction of accessible texts, online features that support access to content, and motivating contexts that engage students in reading and learning.

### ***Accessible Texts***

Adolescents can learn very little, if anything, from texts that are too hard to read (Ivey, 2000). If the text is too difficult, students are unlikely to comprehend the concepts, and many will become disengaged and simply stop reading (O'Connor, Bell, Harty, Larkin, Sackor, & Zigmond, 2002). Depth, coherence, and vocabulary control can make texts more accessible.

#### **Depth and coherence**

Pick up nearly any secondary textbook, and you find that the text attempts to be all things for all people, covering not only the major concepts, but also providing a wide variety of nonessential information, some of it quite trivial. Struggling readers have difficulty sorting out the essential from the less important information. If an equal number of words are given to George Washington's wooden teeth and to the First Congressional Congress, struggling adolescents may not be able to determine which of these ideas is most important to remember.

Depth of coverage may make texts more accessible. When the text is focused on central issues and ideas, students begin to build depth of understanding that allows them to make inferences and analyze ideas, which in turn makes the text more engaging. Coherence also supports students' reading. When all of the concepts on a page are related to one another in a concise, cohesive text, struggling readers may have an easier time comprehending the material (McNamara & Shapiro, 2005). Struggling readers can be easily distracted by extraneous information that is not central to the key ideas being presented. In online contexts, limiting the number of links per page can affect comprehension (Dee-Lucas & Larkin, 1999).

**Vocabulary control**

Struggling readers need to learn the same content area vocabulary as their stronger-reading peers. They need to know the terms for the major concepts and processes in the discipline (see below for more on vocabulary instruction). However, the text that surrounds essential content area vocabulary and academic terms should be carefully controlled to make the text itself more accessible.

When the majority of text is constructed from high-frequency and monosyllabic words that struggling readers already know or can easily decode, students are likely to be able to determine the meanings of the academic vocabulary they need to understand the content (Hiebert, 2005). English language learners (ELL), in particular, are supported by “comprehensible input,” that is, by reading texts they can readily comprehend (Krashen, 1982).

If students are unfamiliar with the words used to define a conceptual term, they will not be able to learn that new vocabulary, to learn the concepts being presented, or to comprehend the text. Hiebert (2005) describes the kinds of texts that are likely to be accessible to struggling readers as being comprised of a substantial proportion of high-frequency words—words that are frequently seen in academic text.

In addition to controlled vocabulary, texts for struggling readers should be designed to have multiple repetitions of key content area vocabulary. One exposure to a word is not enough to learn its meaning, let alone how it is used in context (Beck, McKeown, & Kucan, 2002; Nagy & Scott, 2000). Students may need as many as 17 meaningful exposures to a word to learn the meaning of that word (Ausubel & Youssef, 1965; Nagy, Anderson, & Herman, 1987).

**Online Scaffolds**

Online contexts offer a variety of tools that provide adaptive scaffolds for struggling readers. Users can access these features on an as-needed basis in order to support comprehension and learning. Online scaffolds include text-to-speech voiceovers, vocabulary rollovers, links and connections, graphic organizers, and the presentation of information through multiple modes.

**Text-to-speech voiceovers**

Recorded text-to-speech voiceovers allow students to listen to text as they read along and have been shown to support the comprehension and learning of struggling readers (Montali & Lewandowski, 1996). Students can choose to access text-to-speech when text is too difficult to read independently—say, when they are required to read a primary source in social studies—and ignore the voiceover and read independently when the text is more accessible.

**Vocabulary rollovers**

Rollovers can provide definitions, examples, and pronunciations of unfamiliar vocabulary words that support struggling readers (Reinking & Rickman, 1990). Putting the definition right there on the page might be distracting (think of all those footnotes or margin notes that many struggling readers ignore when they are reading Shakespeare). Rollovers provide a tidy technological solution. Students can roll the

cursor over just those words that they need defined without losing their place in the text.

### **Links and connections**

Hypertext links and connections between pages and between ideas, including rollovers that provide additional information, can also provide support for struggling readers. Links and connections can provide any knowledge students need to comprehend a particular passage. Connections can allow users to jump back to previously presented information or to present background information they may lack. Links can also help learners build connections between ideas. Students learn more and are more engaged when they see and are helped to make connections between ideas (Hiebert, Menon, Martin, & Bach, 2009).

### **Graphic organizers**

Graphic organizers serve several functions that can support reading comprehension and content area learning (Frey & Fisher, 2007). Graphic organizers can provide a visual representation of the content that helps students to organize learning in their minds. Students can complete graphic organizers as a way of organizing information, taking notes, and synthesizing information from multiple sources. Students can also use graphic organizers for pre-writing and for multi-step mathematical computations. While graphic organizers can be used in paper-based contexts, online contexts allow for interaction, feedback, and prompting that can support students' use of graphic organizers.

### **Multiple modes**

Online contexts make it easier to present concepts through multiple modes. When carefully, simply, and coherently designed, multiple modes of presenting content can support struggling readers' learning and comprehension (Hiebert, Menon, Martin, & Bach, 2009). Online contexts can combine text, sounds, visual images, video, voiceovers, and other ways of representing key concepts. Each of these modes of representation highlights different aspects of the content and therefore may provide a richer, deeper explanation of the ideas. Multiple modes of presenting ideas can provide support for English language learners, in particular, because they use non-linguistic cues to support concept and vocabulary building.

### **Engaging content**

Motivation refers to a willingness to take on a particular task or activity (Kamil, Borman, Dole, Kral, Salinger, & Torgeson, 2008). Adolescents, particularly struggling readers, may become less motivated over time, particularly if they have repeated failures in school (Harter, Whitesell, & Kowalski, 1992). When the task is perceived as overwhelming, adolescents with a history of school failure may be unwilling to engage in the hard work of trying to learn academic subjects (Alvermann, 2004). External incentives and admonitions to achieve rarely motivate students (Kamil, Borman, Dole, Kral, Salinger, & Torgeson, 2008). Instead of external influences, what adolescents find motivating is engagement (Guthrie, 2008).

Struggling adolescents are more likely to engage in reading and learning when the content is shown to be related to their own lives, when the text makes a real-world connection to their concerns and interest, or when they are interested in the content

(Guthrie, 2008; Kamil, Borman, Dole, Kral, Salinger, & Torgeson, 2008). Agency supports engagement as well. When they feel that they have some control over their own learning and some likelihood of success in the task, they are more likely to persevere.

“Early success and meaningful feedback can provide students with ongoing motivation to engage with the learning task. This is especially true when that feedback focuses on things students have control over, such as achievement and the process of learning, as opposed to intrinsic qualities that students do not control, such as intelligence, or to focusing solely on the outcome (getting the answer correct) (Alvermann, 2004; Kamil, Borman, Dole, Kral, Salinger, & Torgeson, 2008).

“Students also feel a greater sense of agency when they have some choice in the task. When students have some power to make decisions about their learning, they may have a greater sense of ownership and responsibility and may therefore be more engaged (Deci & Ryan, 1985; Guthrie & McCann, 1997).

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### **Strategic Scaffolding: Active Reading Strategies and Vocabulary Instruction**

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Proficient readers are active readers. They actively work before, during, and after reading to make sense of the text, using mental strategies to comprehend and learn. Unfortunately, too many adolescents are passive readers; they run their eyes over the letters on the page just hoping some of the meaning will jump, by itself, into their brains, and they skip over unfamiliar words, hoping they can scrape by.

Passive readers can become active readers by being taught active reading and vocabulary strategies (Duffy, 2002; NICHD, 2000; Pressley, 2000). These strategies are taught through a process often called “guided release of responsibility” (Pearson & Gallagher, 1983). The first step of strategy instruction is the explanation and modeling of the strategy. Modeling is often done through a think-aloud exercise or a demonstration of the strategy being used in the reading of real text. The next step is for the student to try using the strategy through guided practice with feedback. Once the student can flexibly apply the strategy independently during reading, the supports and feedback are removed (Kamil, Borman, Dole, Kral, Salinger, & Torgeson, 2008).

#### ***Active Reading Strategies***

Eight active reading strategies and four vocabulary strategies have been shown to be powerful strategic scaffolds for increasing students’ comprehension and learning.

##### **Accessing prior knowledge**

In order to comprehend, readers must access their prior knowledge; that is, they must make connections between what they already know and what they are reading (Rumelhart, 1980). When readers associate new knowledge with something they already know, it becomes easier to learn and retrieve the knowledge again in different contexts. Students comprehend more when, as they read the text, they call up in their minds the concepts and vocabulary they already know (Spires & Donley, 1998). During reading, readers should continue to make connections between the content of what is read and their life experiences and knowledge of the subject.

Making connections to prior knowledge during reading helps readers to understand the text and to know what to focus on while reading; it can also motivate and support engagement in the text—which keeps us reading on (Armbruster, Lehr, & Osborn, 2001; Harvey & Goudvis, 2000). In classrooms, teachers often do this for students, asking questions that require students to think about relevant background knowledge. However, active and proficient readers must learn to activate and access prior knowledge on their own every time they read.

### **Making and revising predictions**

Active readers make predictions both before and during reading. Predictions support comprehension because they get readers actively thinking about what they are reading and foster engagement in the text, encouraging readers to read on to find out if their predictions are confirmed (Gunning, 2006). Predictions do not always have to be correct. Proficient readers constantly revise their predictions based on continued reading. Predictions, however, are not just guesses; they should be based on background knowledge and evidence from the text.

### **Using text features and visual cues**

Text features and visual cues are items on the page that active readers use to gain access to the ideas in the text and to support comprehension (Kerper, 1998). Content area texts, in particular, are rife with visual cues that authors place on the page in order to support meaningful reading.

Headings and subheadings can provide readers with a sense of the organization of a passage before and during reading. Bolded text and italics help readers know what terms to pay attention to and which ideas are most important. Captions explain more about the photographs and illustrations, which are included to provide visual information that cannot be conveyed by written text. Graphs, charts, text boxes, timelines, and other visual cues all provide information that can be presented more concisely in a visual form than in text.

Struggling readers often do not attend to these visual cues (Strickland, Ganske, & Monroe, 2002) and may need explicit support in learning to use visual clues to assist in reading and learning.

### **Making inferences**

Struggling readers are often very literal readers. They pay close attention to the literal meanings of words (Westby, 1999) but may fail to make inferences or think critically about what they read. Active readers, however, read more deeply because they make inferences as they read, blending together the information on the page and the background knowledge they possess in order to draw conclusions or to “read between the lines” (Gunning, 2006). No text can be 100% transparent, and much of the meaning in any text is implied. Making inferences is essential to meaningful comprehension of content area text. Struggling readers can become more proficient at making inferences through explicit modeling and instruction in inference-making (Hanson & Pearson, 1982; Johnson & Johnson, 1986).

### **Asking questions**

One of the most powerful strategies that supports reading comprehension is asking (and answering) questions (Kamil, Borman, Dole, Kral, Salinger, & Torgeson, 2008). Asking questions serves several purposes (Harvey & Goudvis, 2000). Asking questions engages the reader, encourages continued reading, and helps students to pay attention to whether they are comprehending the text and to gain a deeper understanding of the text.

Typically in school, teachers ask students questions about the text. When those questions are well-crafted and focus on higher-order thinking, having students answer questions can support comprehension by helping them attend to key ideas and inferences (Strickland, Ganske, & Monroe, 2002; Allington, 1983). However, students also need to be taught how to ask and answer their own questions in order to become independent active readers who can comprehend on their own, and who think about the text as they read (Harvey & Goudvis, 2000).

### **Making mental images**

Active readers make mental images as they read, that is, they construct visual and other sensual images in their minds that are evoked by the text, picturing the sights, sounds, and situations being described. For some passages, making mental images is the best way to understand the text, such as a description of a particular battle or a math problem about perimeter (Gunning, 2006). Making mental images fosters engagement by making the text more interesting and helps students make predictions, develop inferences, and summarize the text, thereby increasing comprehension (Gambrell & Javitz, 1993).

### **Monitoring (and fixing up)**

Active readers actively monitor their own comprehension when they pay attention to whether the text makes sense as they read. If the text stops making sense, active readers deliberately apply fix-up strategies that help them repair meaning (Gunning, 2006). They may slow down, go back to the last place the text made sense and re-read, ask themselves questions in order to figure out the meaning of what they are reading, or keep reading to see if the text explains what does not yet make sense.

Struggling readers often do not monitor for comprehension or know when or how to apply fix-up strategies. However, monitoring and fix-up strategies can be taught through instruction that focuses on the metacognition (thinking about thinking) that good readers use (Armbruster, Lehr, & Osborn, 2001; Duffy et al., 1987).

### **Summarizing**

Summarization also supports comprehension. Active readers summarize during and after reading by determining the main idea and supporting details (Hidi & Anderson, 1986; Pressley, Johnson, Symons, McGoldrick, & Kurtia, 1989). Summarizing allows students to determine the relative importance of ideas as they read and to attend to only the most important concepts. Summarization also supports monitoring for comprehension—when readers briefly summarize at the end of a page or section, they know that the text is making sense and make stronger connections between ideas.

These eight active reading strategies support reading comprehension in any content area. All eight active reading strategies can help students understand and learn from the texts they encounter in science, social studies, English, and mathematics. However, there are some differences in the types of texts and the ways in which active reading strategies get applied in each domain.

Students are more likely to read a timeline or a primary source in social studies, to read stories and poems in English, to need to interpret a pie chart or a research report in science, or to read word problems in mathematics. Teaching students how to read the particular texts of each domain can support both literacy achievement and content area learning. Literacy strategy instruction should continue throughout middle and high school and should be embedded in the instruction in all content areas (Dieker & Little, 2005).

### **Vocabulary Strategies**

One of the most challenging aspects of content area learning is the vocabulary that is written in content area texts. Many struggling readers possess limited vocabularies, making content area reading a challenge—it is difficult to learn a new concept when you do not already know the meanings of the words being used to define it.

This may be particularly true for English language learners who are learning both new concepts in their content area courses and English words for concepts they already know in their first language (Carlo, 2007; Klingner & Vaughn, 2004). Struggling readers can be provided with strategic scaffolding that supports content area learning and vocabulary acquisition if they are taught academic vocabulary and phrasal compounds, as well as strategies for using morphemes and context clues to figure out words and meanings.

#### **Academic vocabulary**

From grades 3 through 9, students encounter approximately 88,500 unique words in the texts that they read at school (Carroll, Davies, & Richman, 1971; Nagy & Anderson, 1984). Out of that vast number of unique words, however, is a relatively manageable corpus of high-frequency, often-repeated words that comprise the bulk of academic texts (Zeno, Ivens, Millard, & Duvvuri, 1995; Hiebert, 2007).

- Slightly fewer than 1,000 words make up the majority of words that students are expected to read at school, accounting for 62%-69% of texts read in grades 9-10.
- About 5,000 words make up about 80% of the words in those texts. Some of these are words that are used almost exclusively at school (e.g., chlorophyll, perimeter), and some have particular academic meanings quite different from the ways they are used at home (e.g., area, figure, and major).

Struggling adolescents can be supported by direct instruction in these core academic words, by repeated opportunities to read these key words in contexts, and by learning to use context to determine what meaning is appropriate for a particular text (Hiebert, 2007; Kamil, Borman, Dole, Kral, Salinger, & Torgeson, 2008). If students can become proficient with these high-frequency words, they can often use semantic knowledge and context to figure out the rarer words they encounter.

### **Compound words and phrases**

Even when students recognize and know the meanings of individual words, they may not be able to determine the meanings of compound words and phrases. Content area texts abound with compound words such as *flashback* and *vice-president*, and with phrases two or more words in length, such as *states of matter*, *order of operations*, *14th-century England*, and *climate change* (Dressler, 2006).

Struggling readers, particularly English language learners, may not recognize that the larger phrase has a meaning distinct from each of its component words. Direct instruction in how to recognize when words are part of longer compound phrases and how to determine their meanings can support struggling readers (Hiebert & Bravo, in press).

### **Words in context**

One of the most powerful vocabulary strategies for struggling readers is to learn to use context to determine word meanings (Kamil, Borman, Dole, Kral, Salinger, & Torgeson, 2008). Context can mean both the text that surrounds the word and visual cues such as illustrations and other graphics. Active, proficient readers use context to figure out the general meaning of a word, to determine which of multiple possible meanings of a word is the right one, and to comprehend the passage being read. Explicit instruction in how to use context to determine word meaning can boost students' vocabulary knowledge and comprehension (Baumann, Edwards, Boland, Olejnik, & Kame'enui, 2003).

### **Morphemes**

Active readers also use knowledge of morphemes to determine word meanings as they are reading. Morphemes are the smallest meaningful pieces in words, such as affixes (suffixes and prefixes) and roots. Many content areas have specialized morphemes that appear repeatedly (*-ology* in science, *demo-* in social studies, *poly-* in mathematics, etc.). Knowledge of content area morphemes and strategies for using morphemic knowledge can help readers figure out unfamiliar words (Baumann, Edwards, Boland, Olejnik, & Kame'enui, 2003; Henry, 1988).

## **The Literacy Advantage Series of Courses: Content Area Learning with Adaptive and Strategic Scaffolding**

The Literacy Advantage series of courses has been designed to provide adolescents who struggle with literacy with the scaffolding they need in order to master academic content and become active learners. These are not watered down or easier courses. They teach all of the standards-based content required in English, mathematics, social studies, and science. However, to meet the needs of struggling adolescents, the courses in the Literacy Advantage series provide adaptive scaffolding that makes the content accessible, as well as strategic scaffolding to support adolescents in becoming active readers and learners.

### ***Adaptive Scaffolds and the Literacy Advantage Series***

Courses in the Literacy Advantage series provide adaptive scaffolds that make the content accessible. These scaffolds help students to be able to read the text and learn the material.

#### **Accessible texts**

The texts in the Literacy Advantage series are accessible to struggling readers and writers in both their content and vocabulary, and they further adapt in their level of accessibility as students opt into scaffolding vocabulary features. First, the texts have been designed with depth and coherence. The courses strip away any distracting or superfluous information to focus in-depth on the core ideas that are central to each course. The number of ideas per page is limited so that students will know what information to attend to, providing for coherence. Navigation tools and links help students to understand the connections between ideas.

Most important, the vocabulary of the text has been carefully considered. All of the key terms and vocabulary necessary for mastery of the content are presented, defined, explained, and repeated in context so that they may be learned. Other than needed content area vocabulary, the rest of the text, including all instructional text, is drawn from the lowest three levels of Hiebert's (2005; 2007) Word Zones™ list of high-frequency words. This means that at least 95% of the words in Literacy Advantage courses are words that appear most frequently in academic texts. These are words that struggling adolescents are likely to know already or words they need for success in content area learning. Finally, all of the potentially unknown words such as content area key terms and academic words are supported with rollovers that provide definitions, examples, pronunciations, and, where appropriate, graphic illustrations.

#### **Online scaffolds**

In addition to including rollovers that define unfamiliar words, the courses in the Literacy Advantage series provide a wide variety of online scaffolds that support access to the text. Text-to-speech voiceovers allow students to choose to listen to the text when they need to. Support Cards are links to available support that appear throughout each course and that provide scaffolding in a number of ways.

Reading Support Cards reinforce strategy learning and help with comprehension of each page by coaching students in applying appropriate active reading strategies. Rediscover Support Cards provide remediation, if students need it, to help learners be successful on a particular page. This can include reminding students about what they have already learned or providing necessary background information that students need

in order to comprehend the current page. Check It Out Support Cards provide interesting facts related to the content. Graphic organizers, including study sheets, writing prompts, and interactive pages, provide support for note-taking and for organizing and understanding the relationships between ideas. Key content is presented in multiple modes with video clips, animations, sound, and graphics to enhance and support the written text. These online scaffolds are flexible and adaptable—students can access these features only if and when they need them.

### **Engaging content**

Literacy Advantage courses present the same standards-based content as other Apex Learning courses. Special care has been taken to present that content in an engaging way. Connections to real-world issues and students' lives are made throughout each course, helping students understand the relevance of the content. While the vocabulary is controlled, the content itself is rich and intriguing. Finally, because early success and meaningful feedback can be motivating, the first unit teaches students how to navigate the course and how to use active reading and vocabulary strategies. Early success in this unit and frequent feedback that focuses on both learning and learning processes also support student engagement.

### ***Strategic Scaffolds and the Literacy Advantage Series***

Strategic scaffolding in the Literacy Advantage series takes the form of explicit instruction in active reading and vocabulary strategies. These strategies are taught in order to help students succeed in each course and to provide students with ways of reading they can use to enhance learning in future courses, both online and in face-to-face classrooms.

#### **Active reading strategies**

The Literacy Advantage series explicitly teaches each of the eight research-based active reading strategies: accessing prior knowledge, making and revising predictions, using text features and visual cues, making inferences, asking questions, making mental images, monitoring (and fixing up), and summarizing. The first unit in each course teaches and models the active reading strategies and teaches students to watch for icons that symbolize each strategy (e.g., a crystal ball for predicting, a security camera for monitoring). When students see these icons they are reminded to use the strategy to comprehend. The active reading strategies are also reinforced throughout each course in a number of ways. The strategies are modeled multiple times so that students can learn how the strategies are used in each particular domain. Study guides coach students in applying active reading strategies. Reading Support Cards already discussed prompt students to apply appropriate reading strategies throughout the direct instruction.

#### **Vocabulary strategies**

The Literacy Advantage series also explicitly teaches students vocabulary strategies so that they can become independent readers who know many words and who can figure out the meanings of unfamiliar words. Repetition and explicit teaching of academic words and key content area terms support word learning. Students are also taught to determine the meanings of academic words by using reference tools, such as online dictionaries, and by using knowledge of word families and morphemes. In addition, students are explicitly taught to use context to determine word meanings or the right definition of multiple-meaning words. The first unit also teaches students how to read

and determine the meanings of compound words and phrases. Less-frequent academic words and key terms are written in a colored font. Students can use this color-coding to decide when and how often to use the rollover feature for support with definitions and pronunciation of these words.

The Literacy Advantage series of courses has been designed for adolescents whose reaching achievement indicates that they are likely to struggle with content area learning. The Literacy Advantage series is not intended for every adolescent. Students whose literacy achievement is proficient or above would not be well served by the many adaptive and strategic scaffolds that are found in Literacy Advantage courses, as they may find those features boring or distracting. However, for those students with basic and below-basic literacy achievement, the Literacy Advantage series of courses provides powerful, research-based adaptive and strategic scaffolds that allow access to the content and support students in becoming active learners. For these students, the Literacy Advantage series provides resources for differentiating learning, for Response to Intervention, and for motivating students who are struggling in content area courses to achieve.

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