

The Challenge of

When teachers understand what makes texts complex, they can better support their students in reading them.

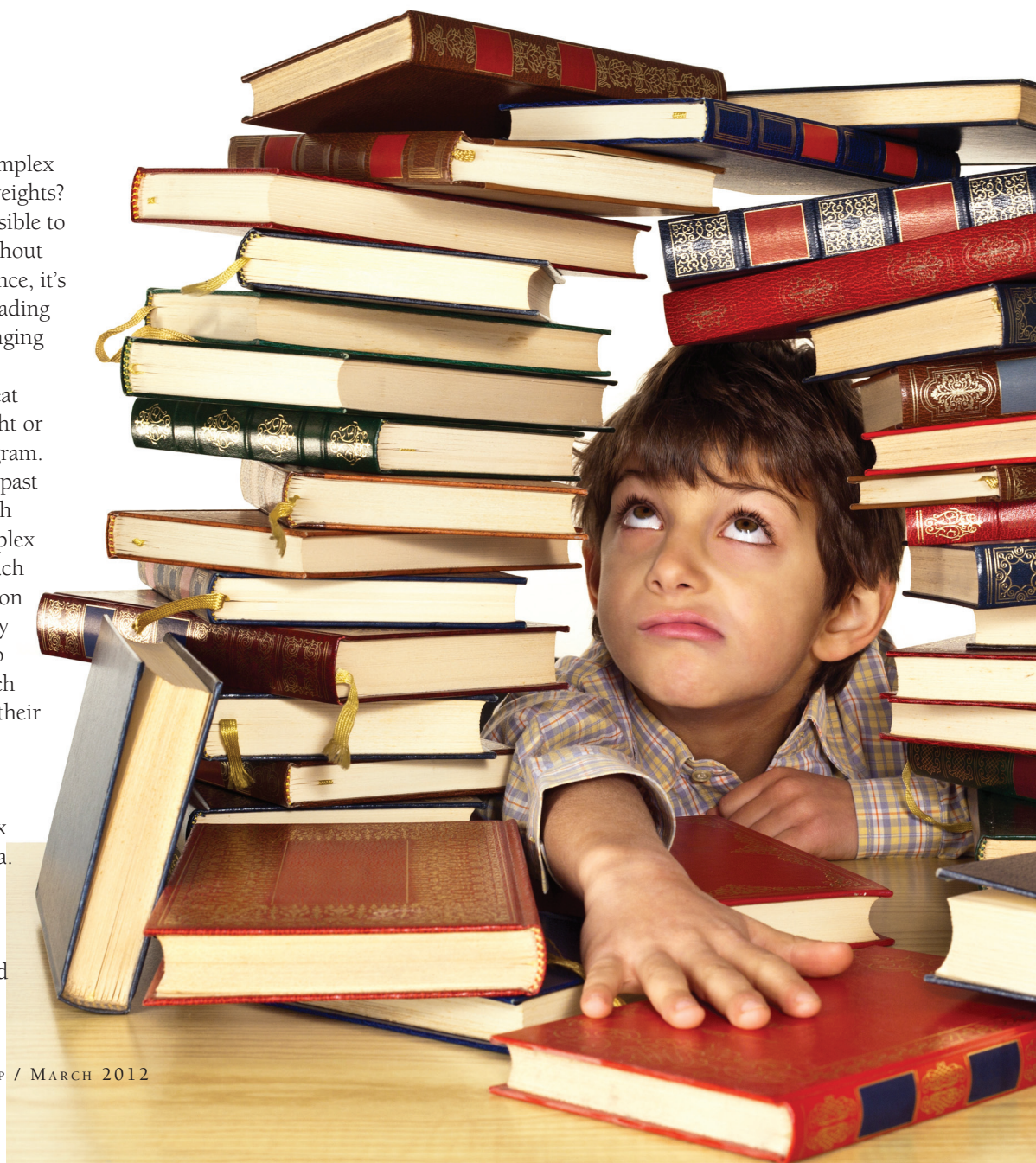
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How is reading complex text like lifting weights? Just as it's impossible to build muscle without weight or resistance, it's impossible to build robust reading skills without reading challenging text. The common core state standards in language arts treat text difficulty as akin to weight or resistance in an exercise program.

This is in contrast to most past discussion of this topic, which emphasized how overly complex text may impede learning. Such discussion therefore focused on developing various readability schemes and text gradients to help teachers determine which books might be too hard for their students. The new standards instead propose that teachers move students purposefully through increasingly complex text to build skill and stamina.

What Makes Text Complex?

To help students learn to read complex texts, teachers need





Challenging Text

to answer the question, What do we mean when we say that a text is difficult? Readability formulas usually answer this question by measuring two factors: challenging vocabulary and long, complex sentences. Here we look at these factors along with several others that also affect readers' ability to comprehend text.



Vocabulary

If you ask students what makes reading hard, they blame the words. And

they're right to place so much importance on vocabulary: Authors introduce their ideas through words and phrases, and if readers don't know what these mean, there's little chance that they will make sense of the text. Studies show that higher-order thinking in reading depends heavily on knowledge of word meanings.¹

Often, textbooks and teachers focus their attention on teaching students the vocabulary words that describe central concepts in science, history, mathematics, or literature. Domain-specific terms, such as *erosion*, *Newton's third law of motion*, *rhombus*, and *metaphor*, are sure to receive instructional emphasis in today's classrooms. However, these words are usually surrounded by other essential but more general academic terms, such as *exerts*, *estimates*, *determines*, *distributed*, *resulting*, *culminates*, and *classify*. These words, every bit as much as those in the first list, are used in particular ways in the various disciplines and warrant instructional attention. Students' ability to comprehend a piece of text depends on the number of unfamiliar domain-specific words and new general academic terms they encounter.

Sentence Structure

Words are not the whole picture. Sentence structure matters, too, because it determines how the words operate together. Thus, understanding the sentence "*The stork was walking in the beautiful cornfield*" requires more than just being able to define individual words. The sentence must also tell the

reader how the ideas expressed by these words fit together (Which stork? Where was the stork? What was it doing?). If the text instead said, "*Stork beautiful the walking in was the cornfield*," all the same ideas would have been presented, yet readers would not understand the meaning.

Other aspects of sentence structure can determine how hard it is for readers to make sense of text. Shorter sentences,

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for example, tend to be easier to read than longer sentences; presumably, they put less demand on the reader's working memory. Longer sentences are likely to include multiple phrases or clauses, so they tend to include more ideas that have to be related to one another. They also have a greater density (longer noun or verb phrases) and more embedding (more complex relationships).

Authors construct such complicated sentences for a variety of reasons. In some cases, complex sentence structures are necessary to communicate the complexity of the information itself—thus the long noun phrases common in science. In literary passages, long-sentence writers like William Faulkner or Evelyn Waugh may be trying to get readers to slow down and explore the architecture of the thoughts and feelings



being expressed. In attempting to convey emotional complexity, we might write a sentence like this:

The yellow snow blower that my father bought for my mother for their 15th wedding anniversary last year is now sitting in the garage, under a pile of old boxes and newspapers, where she left it that night, just before she threw her mobile phone, the one with my picture on it, at dad, and burst into tears.

The many layered phrases in this sentence express the complicated emotions connected with the events better than a series of shorter, clearer sentences would do. However, such sentences can be hard to untangle because of the demands they place on working memory: What happened just before the mother threw her phone? Who burst into tears? The verb phrase is so deeply embedded in this sentence that it can be hard, at first, to identify what is happening. If students are to interpret the meanings such complex sentence structures convey, they need to learn how to make sense of the conventions of text—phrasing, word order, punctuation, and language.

Coherence

Another challenge concerns how particular words, ideas, and sentences in text connect with one another, a feature referred to as *coherence*. Authors use pronouns, synonyms, ellipses, and other tools to connect the ideas across text. For example, take this simple passage:

John and Mary went to space camp. They liked it there. Of course, boys often like rockets, but Mary, too, enjoyed it.

The first sentence tells about something two children did. To make sense of the second sentence, the reader has to recognize that the pronoun *they* refers to the two children who were named in the first sentence and that *there* refers to *space camp*. Similarly, to interpret



the third sentence, the reader has to link *boys* to *John* and recognize that *it* means the same thing as *there* did in the second sentence.

Younger students often have difficulty making such connections, especially if the ideas are far apart or the referents don't get restated frequently. Distant or complex cohesive links can also be challenging for second-language learners or for older students reading about an unfamiliar topic.

Organization

Ideas can be arranged across text in many ways, some more straightforward than others. For example, some kinds of text—such as a science experiment or a recipe—order events in a time sequence. This would also be true of some fiction or historical stories, but not all of them. You will most likely never see a writer play around with a time sequence in presenting a science experiment, but flashbacks in literature

and nonsequential presentations of events in historical writing are common and important.

Other organizational structures include compare-contrast and problem-solution. For example, in science texts, detailed comparisons between species like alligators and crocodiles or between concepts like meiosis and mitosis are common. Similarly, problem-solution structures are evident in both science and social studies; for example, an essay might explain multiple causes of water pollution and then explore multiple solutions for each of these causes. Some organizational structures are used to organize particular text features; for example, a social studies textbook may include particular categories of detailed information (history, geography, economics, and culture) in each chapter.

Students who are aware of the patterns authors use to communicate complex information have an advantage in making sense of text. For example, it's easier to follow *Moby Dick* if you know that it is a narrative of a voyage punctuated by a series of digressions—that one chapter might move the story forward, followed by another that describes the anatomy of whales, the history of whaling, or a sermon that one might hear in a whaling-town church in the 19th century.

Background Knowledge

Vocabulary, sentence structure, coherence, and organization can all be determined by closely analyzing the text itself. A final determinant of text difficulty, however, depends on the reader's prior knowledge.

For example, Ernest Hemingway's *The Old Man and the Sea* is often recommended for use with adolescents. Hemingway's language is spare and plain; he uses common words, and his sentences are often short, without



embedding or complexity. A text gradient analysis would place this text at a 6th grade reading level.

Yet many students at this age would have difficulty understanding this beautiful book. The reason is obviously not in the book itself but in the interaction between the reader and the book. Few preteens have had the emotional experiences that would prepare them to understand the old man's determination to maintain hope and dignity in the face of overwhelming odds. Students' background knowledge, including developmental, experiential, and cognitive factors, influences their ability to understand the explicit and inferential qualities of a text.

What Can Teachers Do About Text Complexity?

Knowledge of text complexity can help teachers design three important components of literacy instruction: building skills, establishing purpose, and fostering motivation.

Build Skills

Let's face it: Some students can't make sense of a complex text because they can't decode it. Any older student who still struggles with decoding needs intervention to address this difficulty.

But even students who have basic decoding skills sometimes struggle to deploy these skills easily and accurately enough to get a purchase on challenging text. To help these students develop reading fluency, teachers should give them lots of practice with reading the same text, as well as instruction to help them develop a stronger sense of where to pause in sentences, how to group words, and how their voices should rise or fall at various junctures when reading aloud.

Fluency instruction becomes more powerful when it's taught not as an end in itself, but rather in the context of students' attempts to make sense of a particular text. True fluency is not merely lining up one sentence after another and reading them aloud quickly; it's

also maintaining understanding across a text. Therefore, fluency instruction should emphasize sentence structure and meaning. Teachers should have students pause to discuss the meaning of the text. They should pair repeated readings of the same text with questions that require the student to read closely for detail and key ideas.

Ongoing, solid vocabulary instruction is another essential component to help students develop skill in reading complex text. This instruction should

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focus not just on domain-specific words and phrases that describe the central concepts in the subject area, but also on general academic words. Effective vocabulary instruction usually provides a rich exploration of word meanings, in which students do more than just copy dictionary definitions—they consider synonyms, antonyms, categories, and specific examples for the words under study.

Students also explore the connections among words, considering other words in the same category, comparing and contrasting words with similar meanings, evaluating or constructing analogies, and building word webs. They also have opportunities to use the words in reading, writing, speaking, listening, drawing, and even physically acting them out. As students analyze the use of the vocabulary terms in text, teachers can guide them to think about the meanings that the authors intended to convey (for example, the differences in implication between *nosey* and *curious*, or *cheap* and *frugal*).

Establish Purpose

Recently, we were asked to explain why a passage about deserts was challenging for readers. As we started to read the

text, we noticed its beautiful language, vivid imagery, and well-wrought descriptions. Despite its beauty, however, we found it hard to make sense of this passage. The problem was that we couldn't tell whether it was meant to be a literary text or a scientific one. Without knowing what kind of text we were reading or what we were expected to do with the information, we had no idea what to attend to.

Students often find themselves in this kind of bind. Younger children

frequently encounter hybrid texts that combine a narrative story with expository information. For example, in the Magic School Bus books, the characters take field trips to learn about electricity, weather, dinosaurs, and other topics. When reading these books, children need to determine whether to focus on the story of the field trip or the information about the concepts. Until they figure it out, they may feel confused.

Older students are confronted with texts from science, history, mathematics, and literature; and they have to grasp the purposes for reading each of these texts so that they can focus their attention appropriately. For example, science texts focus heavily on causation. These texts convey information about what causes what, but they are not typically concerned with the intention behind these events. Students reading a science text may learn that apples grow on trees and that birds eat them, which plays an important role in spreading the seeds around, which creates even more apple trees; however, readers will not be expected to question whether apples grow on trees intentionally so that birds may eat them. In contrast, in reading history and literature, readers need to be concerned with not just the causes of

events, but also the human intentions behind these causes.

In clearly communicating the purpose of reading to students, teachers should not convey so much information that it spoils the reading or enables students to participate in class without completing the reading; rather, they should let students know what learning to expect from the reading. For the text about deserts, for example, establishing the purpose, "Determine the difference between desert and tundra biomes" would direct the reading differently from establishing the purpose, "Examine the author's use of imagery and consider how you could apply it in your own writing." Although both of these purposes are worthwhile, reading for one purpose while performing a task for another would likely result in confusion and even failure. When students struggle to understand the task, they pay less attention to the text itself.

Over time, as students read with

purpose, they develop background knowledge and a deeper understanding of the organizational structures authors use to convey information. This understanding gives students access to increasingly complex texts.

Foster Motivation and Persistence

Learning to read challenging text is similar to undergoing physical therapy. Initially, such therapy is often painful and exhausting, and it's tempting to cheat on the exercises a bit. Physical therapists have to focus not only on the muscle groups that need to be strengthened or stretched, but also on the patient's motivation. They need to keep the patient's head in the game, because working past the pain is beneficial.

Similarly, it can be tough for students to hang in there and stick with a text that they have to labor through, looking up words, puzzling over sentences, straining to make connections. Teachers

may be tempted to try to make it easier for students by avoiding difficult texts. The problem is, easier work is less likely to make readers stronger. Teachers need to motivate students to keep trying, especially when the level of work is increasing. The payoff comes from staying on track.

A good physical therapist knows what good teachers know: You need to create successive successes. Students experience success in the company of their teacher, who combines complex texts with effective instruction. They apply their growing competence outside the company of their teacher by reading texts that match their independent reading ability. Over time, they engage in close reading of texts of their own choosing, as well as assigned texts that build their subject-area knowledge. All the while, they set goals with their teachers so that they can gauge their own progress. Forward motion toward a goal matters.

No More Guesswork

Gone are the days when text was judged as difficult solely on the basis of sentence length and syllable count. We now know that many factors affect text complexity. With this increased understanding, teachers do not have to rely on intuition to figure out which books their students can handle. Instead, teachers can select texts worthy of instruction and align their instructional efforts to ensure that all their students read complex, interesting, and important texts. ^{EL}

¹Stahl, S. A., & Fairbanks, M. M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research*, 56, 72-110.

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