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Chapter 3

Essential Elements of Fostering and Teaching Reading Comprehension

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If learning to read effectively is a journey toward ever-increasing ability to comprehend texts, then teachers are the tour guides, ensuring that students stay on course, pausing to make sure they appreciate the landscape of understanding, and encouraging the occasional diversion down an inviting and interesting cul-de-sac or byway. The evidence for this role is impressive. In one study, some teachers of first-grade students in a high-poverty school district got 80% of their students to grade level in reading comprehension by the end of the year, while others in the same school district got only 20% of their students to grade level (Tivnan & Hemphill, 2005). In another study, Taylor, Pearson, Peterson, and Rodriguez (2003) found that second through fifth graders showed dramatically different rates of growth in reading comprehension over the course of the school year, depending on their teacher and the specific practices in which he or she engaged. Teachers can even overcome disadvantages in reading comprehension that students bring to school. For example, Snow, Barnes, Chandler, Goodman, and Hemphill (1991) found that students whose home environments were poor with respect to promoting reading comprehension development nonetheless made adequate progress in reading comprehension if they had strong teachers of reading comprehension for two consecutive years. If otherwise similar students had a strong comprehension teacher for only one year, only 25% made adequate progress, and none of the students who experienced two years of poor comprehension instruction overcame the effects of poor support for reading comprehension development at home. In sum, teachers matter, especially for complex cognitive tasks like reading for understanding.

What Research Has to Say About Reading Instruction (4th ed.) edited by S. Jay Samuels and Alan E. Farstrup.

So, what makes successful teachers of reading comprehension successful? What goes into reading comprehension instruction that works for a broad range of students? In this chapter, we focus on 10 essential elements of effective reading comprehension instruction that research suggests every teacher should engage in to foster and teach reading comprehension:

1. Build disciplinary and world knowledge.
2. Provide exposure to a volume and range of texts.
3. Provide motivating texts and contexts for reading.
4. Teach strategies for comprehending.
5. Teach text structures.
6. Engage students in discussion.
7. Build vocabulary and language knowledge.
8. Integrate reading and writing.
9. Observe and assess.
10. Differentiate instruction.

These practices should be implemented within a gradual release of responsibility model, incrementally turning over responsibility for meaning-making practices from teacher to student, then cycling back through this release with increasingly complex texts, while simultaneously employing instructional approaches that include several essential elements of effective comprehension instruction. To understand why these 10 elements are essential to fostering and teaching reading comprehension, we must understand the nature of reading comprehension itself. We must understand how skilled comprehenders construct meaning, so we can help students learn to construct meaning in the same way. Thus, the first section of this chapter discusses theory and research about the nature of reading comprehension. Next, we address each of the 10 essential elements, providing specific examples of how each can be enacted in classrooms and identifying the research base that supports those enactments. Finally, we end with future directions for research and development in reading comprehension and a tool for evaluating your own fostering and teaching of reading comprehension.

How Skilled Comprehenders Construct Meaning

Over the past 20 years, cognitive psychologists have reached broad consensus on the nature of comprehension. Of all the current models of comprehension, Kintsch's (1998, 2004) Construction–Integration model is recognized as the most complete and fully developed. His model shares a lot in common with the older but more popular schema theory model (see R.C. Anderson & Pearson, 1984), in that both models carve out a central role for readers' prior knowledge in the comprehension process. In both schema theory and the Construction–Integration model, a virtuous (the opposite of a vicious) cycle drives the process: We bring knowledge to the comprehension process, and that knowledge shapes our comprehension. When we comprehend, we gain new information that changes our knowledge, which is then available for later comprehension. So, in that positive, virtuous cycle, knowledge begets comprehension, which begets knowledge, and so on. In a very real sense, we literally read and learn our way into greater knowledge about the world and greater comprehension capacity.

The two terms in the name of Kintsch's (1998) model, *construction* and *integration*, are both crucial in the comprehension process. When we read, we use our knowledge along with our perceptions of what we think the text says to literally build, or construct, mental representations of what the text means. Once those representations are constructed, we can merge, or integrate, the information in those models with the knowledge stored in our minds. When we achieve that integration, we call it learning; we literally know more than we did before the reading.

In Kintsch's (1998) model, two levels of representation are critical: the text base and the situation model. For Kintsch, the text base involves an accurate reading of the text for the purpose of getting the key ideas from the text into working memory. Yet, knowledge plays a key role even in building that accurate representation of the text. We use our knowledge of the world, along with our knowledge of how language and text work, to make all the local inferences required to connect the sentences to one another—to build, if you will, a coherent representation of what the text says. Connecting pronouns to their antecedents is one kind of linking inference, for example, figuring out that the "he" in sentence 2 refers to "Roberto" in sentence 1:

1. Roberto desperately wanted to buy a new bicycle.
2. He took an after-school job sweeping out the bodega around the corner from his family's apartment.

Another kind of local inference is making logical connections among ideas or events in the text. In the example sentences, this means that a local inference is involved in figuring out that wanting the new bicycle was a key motive in prompting Roberto to take the job at the bodega. The kind of reading involved in constructing a text base is what the recently issued Common Core State Standards (Council of Chief State School Officers & National Governors Association [CCSSO& NGA], 2010) for reading refer to when the demand is made to "read closely to determine what the text says explicitly" (p. 10).

The second level of representation, the situation model, is the coherent mental representation of the events, actions, and conditions in the text that represent the integration of the text base with relevant prior knowledge from readers' store of knowledge in long-term memory. To develop a satisfactory situation model, readers must meet two standards: (1) The model has to be consistent with the text base encountered to that point in the reading, and (2) the model must correspond with their relevant prior knowledge of how the world works. In short, readers must integrate information from the text base (i.e., words, sentences, paragraphs) with available and relevant prior knowledge retrieved from long-term memory and fold it all into an emerging situation model of the meaning of the text at that point in the process. If the text base is an account of what the text says, then the situation model can be thought of as an account of what the text means.

When readers build a situation model, they rely even more heavily on background knowledge and inferential processes than when building a text base. In our scenario with Roberto and the bodega, for example, readers might infer, even on the basis of minimal information from the text base, that Roberto is a self-motivated, independent person who understands that he has to work for what he wants in life. They might also have to connect the term *bodega* with their schema for neighborhood grocery store and infer that the neighborhood in which Roberto lives has a sizable Latino population. At a simpler level, a first grader who reads that George Washington chopped down a cherry tree will infer that he used a hatchet or an ax to perform the act. Writers of narratives often omit the motives that drive characters to particular actions in a story on precisely the grounds that they expect readers to use their knowledge of stories, life experiences, and human nature to infer those motives.

Constructing a situation model is central to reading comprehension and is the mechanism that allows readers to integrate what they already know with what they read in the service of building new knowledge

structures. These new constructs will modify or replace those currently in long-term memory. Just as knowledge drives comprehension, so does comprehension provide the reader with new knowledge to modify the existing knowledge structures in long-term memory. This is the kind of reading that is emphasized in standards 7–9 in the Common Core State Standards (CCSSO & NGA, 2010) for reading:

> 7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
> 8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
> 9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take. (p. 10)

To be intentionally redundant, knowledge begets comprehension begets knowledge in just the sort of virtuous cycle we would like students to experience. This cycle has a down side, in that some readers do not come to the task with a knowledge base, inferential capacities, motivations, or dispositions sufficient to enable comprehension.

Skilled readers have several advantages over less skilled readers when it comes to model building. They have greater facility with text processing—everything from recognizing words and reading them fluently to applying skills and strategies to construct meaning, including those identified in Table 3.1. Skilled readers also possess greater stores of knowledge, including language knowledge (e.g., vocabulary, of complex syntax or grammar), textual knowledge (e.g., of text structures and textual devices), and world knowledge (e.g., disciplinary, interpersonal). Thus, skilled readers are more readily able to integrate broader arrays of relevant elements from the text base and bring wider and deeper knowledge to the task of constructing a situation model. Skilled readers are also more motivated and engaged readers, reading more actively and more voluminously, thus further developing their knowledge and skill (Guthrie, 2004).

Fortunately, all of these characteristics of good readers are amenable to teacher intervention. The 10 instructional practices featured in the remainder of this chapter are precisely the practices that teachers should employ to help all readers acquire these understandings, strategies, and dispositions.

Table 3.1. What Good Readers Do When They Read

- Good readers are *active* readers.
- From the outset, they have clear *goals* in mind for their reading. They constantly *evaluate* whether the text, and their reading of it, is meeting their goals.
- Good readers typically *look over* the text before they read, noting such things as the *structure* of the text and text sections that might be most relevant to their reading goals.
- As they read, good readers frequently *make predictions* about what is to come.
- They read *selectively*, continually making decisions about their reading—what to read carefully, what to read quickly, what not to read, what to reread, and so forth.
- Good readers *construct, revise, and question* the meanings they make as they read.
- Good readers try to determine the meanings of *unfamiliar words and concepts* in the text, and they deal with inconsistencies or gaps as needed.
- Good readers draw from, compare, and *integrate their prior knowledge* with material in the text.
- They think about the *authors* of the text, their style, beliefs, intentions, historical milieu, and so forth.
- Good readers *monitor their understanding* of the text, making adjustments in their reading as necessary.
- Good readers *evaluate the text's quality and value* and react to the text in a range of ways, both intellectually and emotionally.
- Good readers *read different kinds of text differently*.
- When reading narrative, good readers attend closely to the setting and characters.
- When reading expository text, good readers frequently construct and revise summaries of what they have read.
- For good readers, text processing occurs not only during "reading," as we have traditionally defined it, but also during short breaks taken during reading…[and] even after the reading has ceased.
- Comprehension is a consuming, continuous, and complex activity, but one that, for good readers, is both *satisfying and productive*.

Note. Modified from "Effective Practices for Developing Reading Comprehension," by N.K. Duke & P.D. Pearson, 2002, in A.E. Farstrup & S.J. Samuels (Eds.), *What Research Has to Say About Reading Instruction* (3rd ed., pp. 205–206), Newark, DE: International Reading Association.

The 10 Essential Elements of Fostering and Teaching Reading Comprehension

Build Disciplinary and World Knowledge

Our first principle follows inevitably from the account of the reading comprehension process in Kintsch's (1998, 2004) Construction–Integration model. The amount of related domain or world knowledge that a reader brings to a text significantly affects that reader's comprehension of that text; this is a fact that has been established over the course

of many years (e.g., R.C. Anderson & Pearson, 1984; Bos & Anders, 1990; Kendeou & van den Broek, 2007; McNamara, Floyd, Best, & Louwerse, 2004; McNamara & Kintsch, 1996; Paul, 1990), as discussed previously. This basic finding was confirmed, but with an interesting twist, once again in a recent study designed to understand the importance of world knowledge and decoding skills as related to young readers' comprehension. McNamara and colleagues (2004) engaged third-grade students in reading two texts, one narrative and one expository. The researchers found that comprehension of the expository text, in contrast to the narrative text, was significantly related to the student's amount of world knowledge. Again, this evidence suggests that efforts to provide readers with opportunities to build domain and world knowledge support their subsequent reading comprehension.

Although it stands to reason that wide reading of a variety of texts results in more world knowledge, many approaches take on the goal of building knowledge directly by situating knowledge-building goals alongside reading comprehension or literacy goals (Cervetti, Pearson, Bravo, & Barber, 2006; Cunningham & Stanovich, 2001; Guthrie, Anderson, Alao, & Rinehart, 1999; Palincsar & Magnusson, 2001; Romance & Vitale, 2001). For example, the IDEAS (in-depth expanded applications of science) model replaces literacy instruction with a two-hour block of integrated science–literacy instruction. Students receiving this instruction have consistently outpaced students receiving regular language arts and science programs on national norm-referenced assessments (Romance & Vitale, 2001).

Featured Approach: Seeds of Science/Roots of Reading. Two of us, Billman and Pearson, have worked for several years on a program known as Seeds of Science/Roots of Reading (Cervetti et al., 2006), which was designed to promote science and literacy integration. The program's fundamental premise is that reading, writing, and language (e.g., vocabulary, discourse) are best developed when they are put to work as tools to help students acquire knowledge and inquiry skill in a specific domain, such as science. Somewhat ironically, the evidence gathered thus far (Goldschmidt, 2010; Wang & Herman, 2005) indicates that the effects for the development of deep science knowledge are the strongest, followed in order by durable but decreasingly strong effects, in writing, vocabulary, and reading comprehension development. Vis-à-vis comprehension instruction, two particularly notable features of the Seeds of Science/Roots of Reading curriculum are worth elaborating. First, the approach takes

advantage of a fundamental isomorphism, or at least a strong similarity, between reading comprehension strategy instruction (e.g., predicting outcomes on the basis of textual evidence and world knowledge) and science inquiry strategies (e.g., making predictions based on hands-on evidence and topical knowledge of the domain being taught). This means that the inquiry component of science and the strategy component of reading are mutually reinforcing and synergistic, in that what one learns in the one improves the other. Second, concept development in science (e.g., learning the stages of the water cycle) is viewed as tightly linked to reading vocabulary development. So, students are not only learning words but also learning new ideas and acquiring new labels to name those ideas. Words are not the point of words; ideas are. In Seeds of Science/Roots of Reading as well as in IDEAS, Concept-Oriented Reading Instruction (CORI; an approach discussed later in this chapter under the topic of motivation), or any number of other integrated approaches to instruction (see Pearson, Moje, & Greenleaf, 2010), the emphasis is on the idea that when we link knowledge development to reading for comprehension, both knowledge and comprehension are the beneficiaries.

This tight link raises a fundamental dilemma for reform initiatives, of which No Child Left Behind is the most obvious example, that advocate an even greater piece of the curricular pie for reading and, to a slightly lesser extent, mathematics at the elementary level. Such efforts almost inevitably will and already have eclipsed curricular space for social studies and science, as the data suggest (Dorph et al., 2007; McMurrer, 2008). The irony, of course, is that the knowledge that students would gain in more vigorous social studies and science instruction would, as Kintsch's (1998, 2004) Construction–Integration model dictates, fuel comprehension development directly and powerfully. The possibility exists that by emphasizing generic reading instruction at the expense of disciplinary learning, we may be, as the saying goes, cutting off our noses to spite our faces.

Provide Exposure to a Volume and Range of Texts

It is widely accepted that effective and engaged comprehenders tend to read more than their struggling counterparts (e.g., Guthrie, 2004). Particularly, the volume of experiences students have interacting with texts both in and out of the classroom significantly correlates with their overall reading success (e.g., Donahue, Finnegan, Lutkus, Allen, & Campbell, 2001; Taylor, Pearson, Clark, & Walpole, 2000), which suggests that effective comprehension instruction should provide students

with ample opportunities to engage with texts. For example, experimental studies of voluntary summer reading have found that increasing the volume of texts to which students have access over the summer significantly improves their overall reading achievement (e.g., Allington et al., 2010; Kim & White, 2008). Similarly, Neuman (1999) found that increasing the volume of texts in child-care centers led to increased engagement with texts and improvements in children's early literacy measures. This may be due in part to the influence that reading can have in developing students' verbal skills and domain knowledge, both of which positively influence one's reading success (Cunningham & Stanovich, 2001). In addition to volume as an influencing factor, the quality and range of books to which students are exposed (e.g., electronic texts, leveled books, student/teacher published work) has a strong relationship with students' reading comprehension (e.g., Hoffman, Sailors, Duffy, & Beretvas, 2004).

In providing exposure to a range of texts, one important dimension to consider is the genre of the text, particularly its communicative purpose. Because reading success does not necessarily transfer between different genres (Duke & Roberts, 2010), students should be exposed, in volume, to the full range of genres we want them to be able to comprehend. Our curricula should include narrative genres, whose purpose is to share and make meaning of experience, as with fairy tales, realistic fiction, and many true stories (Duke, Caughlan, Juzwik, & Martin, in press). Equally as important are informational genres, whose primary purpose is to convey information about the natural or social world (Duke, 2000), as in websites, books, or articles that describe plants, animals, or places or explain natural or social processes or phenomena. Then, there are the hybrid or in-between genres, both print and digital, that are not easily classified as narrative or informational: biographical and autobiographical texts, whose purpose is "to convey information and to communicate a perspective on a person's life" (Duke et al., in press); texts whose purpose is to tell us how to do something (i.e., procedural, how-to); texts intended to persuade or convince us of something (i.e., persuasive); poetry; drama; and so forth. Including so-called functional genres, such as signs, labels, coupons, lists, and letters, may also help students recognize important purposes for comprehension.

The texts we include in classrooms should vary in other respects as well. For example, we want to include texts that are very well written and facilitative of comprehension, as well as those that may cause students some difficulty, thus catalyzing the use and instruction of comprehension strategies and helping students think about how they, as writers, can

make text easier or more difficult to understand. Texts should represent a range of complexity, as emphasized in the Common Core State Standards (CCSSO & NGA, 2010). We certainly want readers to have opportunities to read texts that are not difficult for them, but we also want readers to have access to texts that challenge them. Although it has long been recommended that we prevent readers from reading frustration-level texts, it is becoming clear that challenging texts, at least as determined by word-reading accuracy, may not in fact be frustrating to students (Halladay, 2008). In some cases, these challenging texts may have other equally, if not more, important attributes, such as promoting high engagement, providing material for students' content area investigations or writing, or providing inducement to apply fix-up and other coping strategies. When such texts are used, teachers will have to employ a variety of instructional strategies, such as partner reading and collaborative strategy use, to provide the extra measure of scaffolding needed to support students' comprehension of more challenging text (Billman, Hilden, & Halladay, 2009).

Provide Motivating Texts and Contexts for Reading

Motivation is highly correlated with learning in general and reading comprehension in particular (e.g., Brophy, 2004; Guthrie, 2004; Guthrie et al., 2006; Naceur & Schiefele, 2005). Motivated reading behavior is characterized by students valuing and engaging in the act of reading with expectations of success and with greater persistence and stamina when encountering difficulty; as such, motivation is directly tied to personal interest and self-efficacy as well as achievement (Ainley, 2006; Fink, 1995; Guthrie, 2004). Reading motivation is fostered by complex interactions of text topics and text characteristics, classroom social norms, and instructional practices (e.g., Guthrie et al., 2006; Nolen, 2001, 2007; Pressley et al., 2003; Pressley, Wharton-McDonald, Allington, Block, & Morrow, 1998; Schraw, Flowerday, & Lehman, 2001; Turner & Paris, 1995). Importantly, texts or materials that trigger or capitalize on a student's interests contribute to motivation (e.g., Jiménez & Duke, 2011). Students' motivation to read is also enhanced by providing contexts, materials, or tasks that catch students' spontaneous attention or situational interest. Instruction that includes hands-on activities, opportunities to engage in reading for authentic purposes, and texts with a clear structure and vivid, concrete examples is associated with motivated engagement and, subsequently, better recall and learning (Guthrie et al., 2006; Purcell-Gates, Duke, & Martineau, 2007; Sadoski, Goetz, & Rodriguez, 2000; Schraw et al., 2001).

This and other research lead us to think that we must be concerned with the will and thrill, not just the skill, of comprehension. One critical element of will and thrill is motivating texts for reading. Some texts seem inherently interesting to many students. For example, it is a rare day when a book about shark attacks or one by Steven Jenkins does not garner great interest in many students. However, other texts can be quite interesting to some students while decidedly uninteresting to others, with important consequences for the reader and the teacher. A study by Jiménez and Duke (2011) illustrates this well. Fourth-grade students were surveyed about expository text topics of which they like to read. From the responses, a group of students with inverse reading interests was identified; half were interested in reading about working animals but not about robotics, and half were interested in reading about robotics but not about working animals. All students in the group were asked to read six texts, three on working animals and three on robotics, thinking aloud as they did so and providing an oral recall after each set of three. When students read on the topic of reported interest to them, whether working animals or robotics, they employed a greater number and range of comprehension processes. This tells us that if our goal is to stretch students' comprehension muscles, we should provide them with texts of interest. Some teachers use interest surveys or other tools to learn about students' interests and then stock individualized book crates with texts likely to be of interest. Some teachers give individual students keywords they can use when consulting a librarian or conducting searches in the library that may yield texts of interest to them. Notably, although it makes sense to be concerned with helping students find texts that are a good fit for their reading level as well as their interests, we can be somewhat flexible in this regard. In the Jiménez and Duke study, even after controlling for prior knowledge, students' actual comprehension, as measured by recall, was much higher when students were reading on a topic of interest. Too often we think of a student in regards to a predetermined reading level (e.g., M, magenta, 16), when in reality, as this and other studies have shown, a student's reading level varies depending on his or her interest in the text, as well as other factors, including background knowledge, as discussed earlier in this chapter. Think of interest as a compensatory factor, one that can get the job done when the text is extra challenging or the student's skill level is not quite up to the task.

Of course, interesting texts are not the only way to generate interest in reading. A study of highly effective teachers of literacy found that they kept students engaged 90% or more of the time (Pressley et al., 1998);

they didn't do this using interesting texts alone. Turner and Paris (1995) have written about six Cs of motivating contexts for literacy learning: choice, challenge, control, collaboration, constructing meaning, and consequences. Most important, in our view, are compelling reasons to comprehend, not simply to fulfill the requirements of an assignment or to earn a grade but for reasons deeper than that, such as to learn material to teach a group of younger students, to learn how to make something to give to a friend, or to be absorbed by a good tale. One study found that second and third graders whose teachers engaged them in reading and writing texts more like those you would find outside of school, for reasons similar to those for which people read and write outside of school, showed higher growth in reading comprehension; students whose teachers employed more school-like texts and tasks, such as reading a chapter of the textbook and answering the questions at the end, showed lower rates of comprehension growth (Purcell-Gates et al., 2007).

Featured Approach: Concept-Oriented Reading Instruction. An approach that is highly effective at developing reading comprehension, and places motivation front and center, is CORI (Guthrie, Wigfield, & Perencevich, 2004). In this approach, which has been tested with third and fifth graders, teachers focus 60–90 minutes of the literacy block on a conceptual theme in science, such as animal survival, over a series of weeks. Students collaborate, make choices, and set goals for learning and sharing learning, all related to the conceptual theme. For example, one group's goal might be to learn about, develop, and present a poster about animal locomotion to another group. To accomplish this goal, students are engaged in reading and writing daily, all in the service of learning about the conceptual theme (see Table 3.2 for a CORI lesson structure; for more information, visit www.cori.umd.edu). CORI is notable in addressing many, if not all, of the 10 essential elements of fostering and teaching reading comprehension. There are the motivating contexts for reading, of course, but there is also a heavy focus on building disciplinary and world knowledge, exposure to a volume and range of texts (class or team sets of 24 different informational books, 23 novels, 3 storybooks, and 1 poetry book, as well as additional texts for struggling readers), teaching strategies for comprehending, integrating reading and writing, and so forth. This discussion reinforces a crucial point in our approach, that the essential elements of fostering and teaching reading comprehension that we present in this chapter can be addressed simultaneously, and perhaps even work synergistically, to develop reading comprehension.

Table 3.2. Structure of a Concept-Oriented Reading Instruction Lesson

- *10 minutes*—Students practice their oral-reading fluency with poetry or informational books (three days per week), or hands-on science activity and/or study of science concepts.
- *10 minutes*—The teacher provides a comprehension minilesson on self-monitoring, inferencing, or fix-up strategies, including rereading, chunking, discussing, questioning, visualizing, connecting, looking up, reading ahead, reading aloud, and using knowledge.
- *15 minutes*—One of three teacher-led guided reading group uses texts related to the conceptual theme, during which the teacher models, scaffolds, and provides guided practice in the application of reading comprehension strategies to serve learning related to the conceptual theme.
- *15 minutes*—While the teacher is with the second guided reading group, students write about information and concepts learned from the guided reading text or about their responses to a theme-related novel they are reading.
- *15 minutes*—While the teacher is with the third guided reading group, students engage in independent reading of novels for which they have book clubs.

Note. Some teachers added up to 5 minutes to each activity for a total of 90 minutes of Concept-Oriented Reading Instruction. Adapted from "Contributions of Concept-Oriented Reading Instruction to Knowledge About Interventions for Motivations in Reading," by J.T. Guthrie, A. McRae, & S.L. Klauda, 2007, *Educational Psychologist,* 42(4), 237–250.

Teach Strategies for Comprehending

Effective teachers of reading comprehension help their students develop into strategic, active readers, in part, by teaching them why, how, and when to apply certain strategies shown to be used by effective readers (e.g., Duke & Pearson, 2002). Although many teachers teach comprehension strategies one at a time, spending several weeks focused on each strategy, a study that was conducted with second graders reading informational text has suggested that this may not be the best way to organize strategy instruction (Reutzel, Smith, & Fawson, 2005). In that study, teachers were assigned at random to introduce a set of strategies briefly and then quickly move students to applying or juggling multiple strategies simultaneously, which resulted in students with stronger performance on some measures. Studies and reviews of various integrated approaches to strategy instruction, such as reciprocal teaching (e.g., Palincsar & Brown, 1984), have suggested that teaching students comprehension routines that include developing facility with a repertoire of strategies from which to draw during independent reading tasks can lead to increased understanding (e.g., Brown, 2008; Guthrie, Wigfield, Barbosa, et al., 2004; Spörer, Brunstein, & Kieschke, 2009). In addition, teaching students to read strategically has

been shown to significantly increase students' comprehension of texts in various content area domains, such as science and social studies (e.g., Klingner, Vaughn, Arguelles, Hughes, & Leftwich, 2004; Lederer, 2000; Romance & Vitale, 2001). In an interesting twist on strategy instruction, Block, Parris, and Whiteley (2008) observed that the integration of kinesthetic learning aids into transactional strategy lessons (e.g., moving one's arm across the body to signal an inference) for a period of 12 weeks led to significant improvement on measures of explicit and implicit comprehension, with the largest effects seen in students in grades K–2.

The list of strategies that research indicates are worth teaching—that is, if taught, they improve reading comprehension—varies from one research review to another (Duke & Pearson, 2002; National Institute of Child Health and Human Development [NICHD], 2000) but often includes the following:

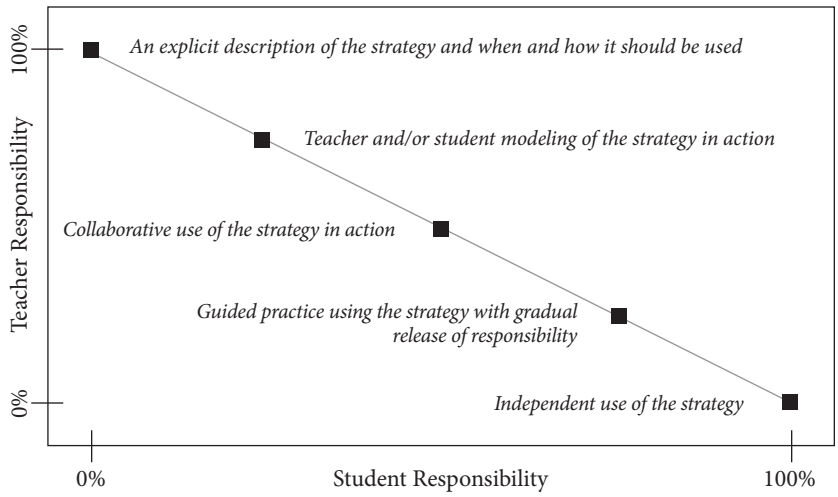
- Setting purposes for reading
- Previewing and predicting
- Activating prior knowledge
- Monitoring, clarifying, and fixing
- Visualizing and creating visual representations
- Drawing inferences
- Self-questioning and thinking aloud
- Summarizing and retelling

In addition to these, there are strategies worth teaching for only some genres, such as attending to story elements for narrative text (e.g., Baumann & Bergeron, 1993; Idol, 1987) and searching and skimming with informational text (e.g., Symons, MacLatchy-Gaudet, Stone, & Reynolds, 2001).

The model we recommend for teaching any comprehension strategy is the gradual release of responsibility (Pearson & Gallagher, 1983). In this model (see Figure 3.1), responsibility for the use of a strategy gradually transfers from the teacher to the student through five stages (Duke & Pearson, 2002, pp. 208–210):

1. *An explicit description of the strategy and when and how it should be used*. "Predicting is making guesses about what will come next in the text you are reading. You should make predictions a lot when

Figure 3.1. An Adapted Version of the Gradual Release of Responsibility Model



Note. Adapted from "The Instruction of Reading Comprehension," by P.D. Pearson & M.C. Gallagher, 1983, *Contemporary Educational Psychology*, *8*(3), 317–344.

you read. For now, you should stop every two pages that you read and make some predictions."

2. *Teacher and/or student modeling of the strategy in action*. "I am going to make predictions while I read this book. I will start with just the cover here. Hmm...I see a picture of an owl. It looks like he—I think it is a he—is wearing pajamas, and he is carrying a candle. I *predict* that this is going to be a make-believe story because owls do not really wear pajamas and carry candles. I predict it is going to be about this owl, and it is going to take place at nighttime...."
3. *Collaborative use of the strategy in action*. "I have made some good predictions so far in the book. From this part on I want you to make predictions with me. Each of us should stop and think about what might happen next.... Okay, now let's hear what you think and why...."
4. *Guided practice using the strategy with gradual release of responsibility*.

   Early on...

   "I have called the three of you together to work on making predictions while you read this and other books. After every few pages

I will ask each of you to stop and make a prediction. We will talk about your predictions and then read on to see if they come true."

Later on...

"Each of you has a chart that lists different pages in your book. When you finish reading a page on the list, stop and make a prediction. Write the prediction in the column that says 'Prediction.' When you get to the next page on the list, check off whether your prediction 'Happened,' 'Will not happen,' or 'Still might happen.' Then make another prediction and write it down."... (This example is based on the reading Forecaster Technique from Mason and Au described and cited in Lipson and Wixson [1991]. Note that this technique should not be used daily but rather periodically with students who are working to internalize the practice of predicting.)

5. *Independent use of the strategy.* "It is time for silent reading. As you read today, remember what we have been working on—making predictions while we read. Be sure to make predictions every two or three pages. Ask yourself why you made the prediction you did—what made you think that. Check as you read to see whether your prediction came true. Jamal is passing out Predictions! bookmarks to remind you."

It is important to emphasize how critical that middle portion of the release, collaborative and guided practice, is to effective instruction. We have noticed a number of teachers who provide explicit teaching but expect students to independently apply strategies too soon. A key finding of research on highly effective teachers serving high-poverty students is that they spend a good deal more time coaching (i.e., providing guided practice for) students—that is, being the "guide on the side" as students try out their developing facility to apply strategies in actual reading and writing tasks (Taylor et al., 2000). Similarly, these researchers found that coaching during real-time reading was effective for word identification strategies as well as comprehension strategies. The secret seems to be in helping students use strategies for solving problems, whether word recognition or comprehension, while they are reading.

We cannot leave this discussion of the gradual release of responsibility without noting two complexities of its use. First, it is inherently recursive in the sense that once students reach independent use of the strategy, as in the lower right-hand corner of Figure 3.1, they will inevitably end up back in the middle or even sometimes in the upper left-hand corner of the figure's release continuum. Each time readers encounter a new topic or a text that is more complex, such as with complex language or excessively

obscure words, they will need a little scaffolding to "get their sea legs" in those new textual waters. Also, students sometimes forget a lesson overnight or over a weekend, at least temporarily, so when they return to school, they may not remember how to independently enact the strategy they were using effortlessly the previous school day. The point for teachers is to get used to sliding up and down that release continuum as circumstances demand. Second, once students develop enough facility with a strategy that it becomes part of their ongoing repertoire of strategies, they do not really need to use it every day for the rest of their lives. We have seen a disturbing tendency in recent years for certain strategies to become overused to the point of diminishing returns (e.g., predicting outcomes). The time students spend predicting what will happen next on the basis of the pictures should not swamp the time spent reading and comprehending the text. Periodic review of each strategy is certainly called for, but repeated practice for days on end is unnecessary. Most often, and for most encounters with text, the primary focus should actually be reading, for compelling purposes, with teachers guiding and helping students select strategies as needed for students to meet their comprehension goals while working through the tough parts of the texts they encounter.

Strategy instruction has recently experienced harsh professional critique, not so much of thoughtfully designed and executed strategy instruction, but of poor or rigidly implemented instruction (e.g., McKeown, Beck, & Blake, 2009; Wilkinson & Son, 2011). We believe strategy instruction is most vulnerable to critique when implemented in a heavily scripted fashion. Driven by the need to describe instruction in advance and universally, programs have lessons that are independent of and unresponsive to a specific context or a particular group of students. The dynamic, adaptive, and responsive character of strategy instruction found in research studies demonstrating its efficacy can be compromised in this setting, and the instruction can become rigid and inflexible. Even worse, if strategy instruction becomes the object of assessment, as is likely in our current hyperaccountability context, it is more apt to become set in stone. There is nothing new in this danger. Indeed, in the second edition of this book, Pearson, Roehler, Dole, and Duffy (1992) cautioned that (a) good reading strategies are as adaptable as they are intentional, and (b) good strategy instruction is as adaptable as it is intentional, and both are at risk in an environment that requires strict adherence to accountability demands.

Rigid, highly routinized strategy instruction may not be as effective as conventional discussions focused on knowledge acquisition (McKeown et al., 2009; Wilkinson & Son, 2011). Moreover, it may breed an excessive

reliance on abstract, content-free, metacognitive introspection about strategy use (Pearson & Fielding, 1991). When too generic and abstract, too isolated from the goal of acquiring knowledge and insight, strategy instruction is in danger of becoming an end unto itself, an introspective nightmare that is more complicated than the ideas the strategies are supposed to help the students acquire (Pearson & Fielding, 1991).

In a sense, strategies suffer from the same problem as phonics rules. Ideally, either is only a means to an end. When phonics rules or strategies become their own goals, the system runs amok. Either breeds a mock compliance when put into a special, school talk box hauled out only for the lesson. The only way to block this sort of mock compliance is to provide real apprenticeships in strategy use—the kind of reading internship that helps students learn two key lessons about strategies: (1) when, why, and how to apply strategies, and (2) that by being able to pull out just the right tool to get over a hurdle at just the right moment, students become smarter, more effective, and more strategic readers.

Teach Text Structures

Just as discipline and world knowledge are known to influence comprehension, the role that knowledge of text structure plays in recalling and comprehending text has been well established (e.g., Armbruster, Anderson, & Ostertag, 1987; Meyer, Brandt, & Bluth, 1980; Richgels, McGee, Lomax, & Sheard, 1987; Robinson & Kiewra, 1995; Slater, Graves, & Piché, 1985). Although exposure to a variety of genres contributes to building familiarity with various text structures, as discussed earlier in this chapter, direct instruction around the structures commonly found in different genres also benefits students, especially those students who may struggle with reading (Gersten, Fuchs, Williams, & Baker, 2001). Text structure instruction can take different forms, including explicit instruction of various structures as well as instructional supports such as graphic organizers (Goldman & Rakestraw, 2000). Most early text structure research focused on the impact of this instruction on the comprehension and learning of upper elementary and older students (Goldman & Rakestraw, 2000). More recent studies have shown that explicit text structure instruction also improves primary-grade students' comprehension (e.g., Hall, Sabey, & McClellan, 2005; Stevens, Van Meter, & Warcholak, 2010; Williams et al., 2007; Williams, Stafford, Lauer, Hall, & Pollini, 2009). In a six-week intervention embedded in guiding reading instruction, children were taught a compare/contrast text structure while reading expository texts. The instruction included the use of graphic organizers, explicit instruction emphasizing clue words, and practice analyzing exemplar texts. Students

in the treatment condition had a better conceptual understanding of the compare/contrast structure and produced more structured summaries of expository paragraphs postintervention. This evidence suggests that including text structure instruction from early on is not only beneficial but also accessible for our youngest readers.

Key to effectively implementing text structure instruction is understanding how texts are structured. Table 3.3 identifies and illustrates common elements of many narratives, and Table 3.4 identifies and illustrates common structures found in informational texts. In our view, it is unlikely to make sense to teach all of these elements and structures within a given year. Rather, teachers might work together across grades, guided by standards and curricular documents, to determine which elements and structures might be taught when. The stakes in these decisions about sequencing instruction may not be as high as you think. We believe that the most important thing about text structure instruction is not so much

Table 3.3. Elements of Structure in a Narrative Text[a]

Element	Description	Example
Characters	Who the story was about	A girl named Little Red Riding Hood, her grandmother, and the wolf
Setting	Where and when the story happened	The forest and Grandmother's cabin, during the day
Goal	What the main character was trying to do	Little Red Riding Hood set out to deliver a basket of food to her sick grandmother.
Problem	Why the main character took certain actions	Little Red Riding Hood was not aware that the wolf had eaten Grandmother.
Plot or action	What happened to the main character or what she or he did to try to solve a problem	She met the wolf on her way to Grandmother's, and the wolf pretended to be Grandmother.
Resolution	How the problem was solved and how the story ended	A nearby hunter rescued Little Red Riding Hood and her grandmother from the wolf.
Theme(s)	General lessons or ideas	You shouldn't talk to strangers.

Source: The list of elements is drawn from Baumann and Bergeron (1993), Morrow (1996), and Pressley et al. (1990).
[a]Not all stories contain examples of conflict. The panel provides the *Little Red Riding Hood* example to illustrate one option for describing these elements to students. Some students from various cultural backgrounds may not be familiar with certain folktales like this one. Teachers should construct lessons around texts that are best suited to their students.
(*Note*. The table and notes are reprinted and cited from *Improving Reading Comprehension in Kindergarten Through 3rd Grade* [NCEE 2010-4038; p. 19], by T. Shanahan, K. Callison, C. Carriere, N.K. Duke, P.D. Pearson, C. Schatschneider, et al., 2010, Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.)

Table 3.4. Structures of Informational Text

Structure	Description	Example	Common clue words	Sample activities
Description	What something looks, feels, smells, sounds, tastes like, or is composed of	Characteristics of a hurricane		Have students use the details in a descriptive paragraph to construct an illustration or three-dimensional display.
Sequence	When or in what order things happen	A storm becomes a hurricane	first, then, next, after, later, finally	Assign each student to represent one event in a sequence. Ask the class to line up in order and, starting at the front of the line, to explain or enact their respective events in turn.
Problem and solution	What went wrong and how it was or could be fixed	Hurricane Katrina destroyed homes and stores, so groups like the Red Cross had to bring food and medicine from other parts of the US	because, in order to, so that, trouble, if, problem	Provide opportunities for students to act out key phases of a passage.
Cause and effect	How one event leads to another	What happened to the people who lived in Louisiana after Hurricane Katrina	because, therefore, cause, effect, so	Have students match up pictures representing "causes" and "effects" in a game-like activity.
Compare and contrast	How things are alike and different	How hurricanes are the same as or different from tornadoes	both, alike, unalike, but, however, than	Set out overlapping hula hoops, one to represent each side of the comparison, and have students sort visual representations of each characteristic into the shared and different areas of each hoop.

Source: The list of structures was derived from Williams et al. (2007) and Duke (2000). The panel developed the definitions and examples for illustrative purposes.
(*Note*. The table and notes are reprinted and cited from *Improving Reading Comprehension in Kindergarten Through 3rd Grade* [NCEE 2010-4038; p. 20], by T. Shanahan, K. Callison, C. Carriere, N.K. Duke, P.D. Pearson, C. Schatschneider, et al., 2010, Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.)

which structures are taught when, but (a) that students learn that text is structured and (b) that they develop the ability to take advantage of any particular text's structure in learning and remembering its key information. This disposition will serve students especially well when they come across texts that employ multiple text structures or use unconventional approaches to organize information or convey an experience.

Many of the essential elements discussed elsewhere in this chapter can facilitate text structure instruction, such as having a range of well-structured texts at hand and having compelling reasons for understanding the structure of a text (e.g., identify the setting and characters of a narrative to perform it as a play, identify causes and effects of a particular phenomenon for use in creating public-service announcements for the local community). The gradual release of responsibility model presented earlier can also facilitate text structure instruction. As with comprehension strategies, we want to explicitly describe text structures, model their use in reading (and writing), identify and use the structures of text collaboratively with students, guide students as they take increasing responsibility for attending to text structure on their own, and provide students with independent opportunities to engage with the structure of texts.

Another important tool to support text structure instruction is the use of graphic organizers, such as story maps, Venn diagrams for compare/contrast, and flowcharts for problem/solution. These and other visual representations can be powerful tools for comprehending, learning, and remembering material from, in, and with text. As we explained in the previous edition of this volume,

> The point about visual representations is that they are *re*-presentations; literally, they allow us to present information *again*. It is through that active, transformative process that knowledge, comprehension, and memory form a synergistic relationship—whatever improves one of these elements also improves the others. (Duke & Pearson, 2002, p. 219)

Engage Students in Discussion

Recognizing that comprehension is an active and often collaborative process of making meaning, effective teachers of reading comprehension tend to employ classroom discussion to help readers work together to make meaning from the texts they encounter (e.g., Langer, 2001). As might be expected, certain approaches to discussion may be more effective than others in increasing students' literal and inferential understanding of texts (Murphy, Wilkinson, Soter, Hennessey, & Alexander, 2009).

One consistent finding from the research is that classroom teachers who employ higher order questioning during discussions promote greater rates of active participation among their students (Murphy, et al., 2009); a less consistent, although generally robust, finding is that discussion also promotes higher levels of reading comprehension (e.g., Applebee, Langer, Nystrand, & Gamoran, 2003; Bitter, O'Day, Gubbins, & Socias, 2009; McKeown et al., 2009; Taylor et al., 2003). Discussion in which students show a good understanding of and critical thinking about the text often includes listening and linking to others' ideas, providing evidence from the text to support one's thinking, and regular student participation (Wolf, Crosson, & Resnick, 2004). In their study of fourth-grade classrooms, Chinn, Anderson, and Waggoner (2001) found that text-based discussion emphasizing collaborative reasoning increased higher level thinking and overall reading engagement more than recitation styles of interaction (i.e., Initiate-Respond-Evaluate). Dong, Anderson, Kim, and Li (2008) have also found that collaborative reasoning has deep and lasting effects on the quality of arguments that students make when writing in response to texts they have read and discussed in their quasi-debate approach to querying the text. Similarly, Van den Branden (2000) revealed that primary-grade students who engaged in conversation around texts had higher comprehension than those who did not collaboratively negotiate meaning. She hypothesized that higher comprehension may have resulted from the challenges of explaining oneself to others or the collaborative effort to repair breakdowns in comprehension.

Featured Approach: Questioning the Author. Beginning in the early 1990s, Beck and McKeown, along with a group of colleagues at the University of Pittsburgh and in the surrounding schools, began work on a comprehension routine called Questioning the Author (QtA). Quite literally inspired by their own insights (see Beck, McKeown, Sandora, Kucan, & Worthy, 1996) from revising text to make it more considerate (Beck, McKeown, & Gromoll, 1989), Beck and her colleagues bootstrapped this approach to engaging students with text. The idea was that if they, as knowledgeable adult readers, found the process of trying to figure out what authors had in mind in writing a text in a certain way, might not students benefit similarly from querying the author in a similar spirit? Hence, they developed a set of generic questions that could be asked as a teacher and group of students made their way through a text. The essential approach is to query a text collaboratively, section by section, with questions like those listed in Table 3.5.

Table 3.5. Questions to Guide the Discussion in Questioning the Author

Goal	Candidate questions
Initiate the discussion.	• What is the author trying to say? • What is the author's message? • What is the author talking about?
Help students focus on the author's message.	• That is what the author says, but what does it mean?
Help students link information.	• How does that connect with what the author already told us? • What information has the author added here that connects to or fits in with…?
Identify difficulties with the way the author has presented information or ideas.	• Does that make sense? • Is that said in a clear way? • Did the author explain that clearly? Why or why not? What's missing? What do we need to figure out or find out?
Encourage students to refer to the text either because they've misinterpreted a text statement or to help them recognize that they've made an inference.	• Did the author tell us that? • Did the author give us the answer to that?

Note. From "Questioning the Author: A Yearlong Classroom Implementation to Engage Students With Text," by I.L. Beck, M.G. McKeown, C. Sandora, L. Kucan, & J. Worthy, 1996, *The Elementary School Journal*, *96*(4), p. 389.

The expectation is that students who experience this sort of instructional approach to text inquiry will develop improved understanding of the texts to which the routine is applied, improved understanding of texts they meet on their own at a later time, and most important, a critical disposition toward texts in general. Ideally, this approach will help students entertain the possibility that a comprehension failure may have as much to do with the author's failure to provide a considerate message as it does with the failure of the reader to bring appropriate cognitive and affective resources to bear in trying to understand it.

The data on the efficacy of QtA (see Beck et al., 1996; McKeown et al., 2009) are quite encouraging. First, with the support of a professional community, teachers can learn to transform their text discussions from traditional recitations to these more student-centered, interpretive, and

decidedly critical discussions. Second, when the routine is implemented, students assume a greater role in the overall text discussions, nearly doubling their piece of the discussion pie compared with traditional discussions, and initiate many more interactions. Third, and most important, students become much more successful at higher level comprehension and monitoring their comprehension as a result of participating in QtA. It is equally empowering to teachers and students. Perhaps the most stringent test of QtA occurred in the 2009 study (McKeown et al., 2009), which produced superior results to either a no-treatment control group or a strategy instruction group (albeit, in our collective view, a highly scripted version of strategy instruction). Those who wish to implement QtA should consult the works that Beck and her colleagues have written for classroom teachers (particularly Beck & McKeown, 2006; Beck, McKeown, Hamilton, & Kucan, 1997).

Build Vocabulary and Language Knowledge

The relationship of language and vocabulary to reading comprehension is well established, and as such, defining the nature and characteristics of best practices for vocabulary instruction has been the focus of much research (see Baumann, 2009, for a review; NICHD, 2000). In reviewing research in this area, the National Reading Panel (NICHD, 2000) drew several broad conclusions:

- Vocabulary impacts comprehension.
- It is learned incidentally while reading and listening to books.
- Repeated exposure, especially in different contexts, is the key to learning word meanings.
- Prereading instruction of keywords can be helpful.
- Computerized programs seem to increase vocabulary knowledge.

We would add that vocabulary instruction should relate new words to known words, embed instruction in relevant contexts, and include experiences surrounded with meaningful talk (e.g., Baumann, 2009; Hiebert & Kamil, 2005; Stahl & Nagy, 2006).

Reading aloud, a common instructional strategy, is one widely researched context that is rich with opportunities for teaching vocabulary. Read-aloud experiences that include direct explanations of words along with dialogic interactions that foster deep understanding result in significant gains in vocabulary and reading comprehension (e.g., Apthorp,

2006; Biemiller & Boote, 2006; Brabham & Lynch-Brown, 2002; Coyne, McCoach, & Kapp, 2007; Silverman & Hines, 2009; Spycher, 2009). In a study examining adults' read-aloud styles with first and third graders, Brabham and Lynch-Brown found that an interactional read-aloud style resulted in greater gains in amount of vocabulary and reading comprehension across both grade levels. Others have shown that instruction that fosters metalinguistic awareness and understanding of multiple meanings of words also impacts students' general vocabulary knowledge and reading comprehension (Burns, Dean, & Foley, 2004; Nagy, Berninger, & Abbott, 2006; Nelson & Stage, 2007; Zipke, Ehri, & Cairns, 2009). In one study, an intervention focused on multiple-meaning words that introduced the varied meanings on day 1 followed by contextually based instruction and practice on day 2 resulted in vocabulary acquisition and reading comprehension gains for third and fifth graders who entered the study with low achievement in both areas (Nelson & Stage, 2007). Even morphological instruction has entered the portfolio of effective vocabulary interventions (Carlisle, 1995).

Featured Approach: Semantic Ambiguity Instruction. Zipke and colleagues (2009) have documented the efficacy of a novel and engaging approach to teaching students how to deal with the multiple meanings of words, particularly homophones. Taking their cue from Amelia Bedelia, the notorious heroine in the children's books by Herman Parish, they encourage students to engage with semantic ambiguity, how to resolve it, and how to manipulate it to create word puzzles, puns, and other jokes (e.g., a chocolate mousse depicted as a moose made of chocolate). Building on research by Yuill (1998), Zipke et al. designed four 45-minute lessons to create this sort of metalinguistic awareness among third-grade students. Delivered individually, the lessons focused, in order, on (a) multiple meanings of words, (b) multiple meanings of sentences (e.g., the dog chased the man on a bike), (c) analyzing and creating riddles, and (d) reading, interpreting, and enjoying Amelia Bedelia books. Robust transfer effects were found on one of two standardized reading comprehension assessments when compared with a control condition that, to control for a Hawthorne effect, emphasized rich literature discussions. What is especially encouraging about this particular approach is its emphasis on engaging language play as compared with the heavy-handed tone of much comprehension instruction.

Integrate Reading and Writing

Current understanding in the field of literacy dictates that reading and writing mutually reinforce one another and rely on some of the same cognitive processes (e.g., Fitzgerald & Shanahan, 2000; Shanahan, 2006; Tierney & Shanahan, 1996). This insight suggests that instruction may be more effective when teachers integrate reading and writing experiences in the classroom. Research confirms that exemplary teachers who produce high-achieving readers and writers tend to integrate the two domains regularly and thoroughly in the classroom (e.g., Knapp, 1995; Morrow, Tracey, Woo, & Pressley, 1999; Pressley, Yokoi, Rankin, Wharton-McDonald, & Mistretta, 1997; Thomas & Barksdale-Ladd, 1995; Wharton-McDonald, Pressley, & Hampston, 1998). Further, as evidence of a seemingly bidirectional relationship between reading and writing (Berninger, Abbott, Abbott, Graham, & Richards, 2002; Shanahan & Lomax, 1986), children's writing abilities have been shown to predict later reading comprehension (e.g., Parodi, 2007; Shatil, Share, & Levin, 2000), and reading comprehension has been shown to predict students' composition skills (e.g., Abbott, Berninger, & Fayol, 2010). Although fewer experiments have looked at the effects of reading and writing integration, results suggest that combining instruction in writing and reading may promote increased literacy levels in students (e.g., Craig, 2006; Graham & Hebert, 2010; Konopak, Martin, & Martin, 1990; Raphael, Englert, & Kirschner, 1989; Raphael, Kirschner, & Englert, 1988).

Perhaps the strongest examples of reading and writing integration come from approaches previously discussed: Seeds of Science/Roots of Reading, IDEAS, CORI. Although all of the developers of these approaches would claim that they are more about integration across curricular boundaries than across the bridge between reading and writing, the programs inevitably promote reading–writing relationships in systematic ways and, in what may be an equally important effort, link both reading and writing to oral-language development. So, for example, in Seeds of Science/Roots of Reading (Cervetti et al., 2006), when students encounter a new word in a science text, they are encouraged, and almost required, to use it in their oral discourse when working together in a hands-on investigation and later when writing to explain the results of that investigation. Similar cross-modal (i.e., where modes are reading, writing, talking, and doing, as in hands-on science) connections are made for discourse and argument structures as well as words. Thus, through their hands-on investigation in a unit on designing mixtures, students learn about ingredients that make for a good glue and about the

nature of the evidence that distinguishes strong glues from weak ones. Later, the students are asked to design a new mixture that will serve some other everyday use, such as hair gel. Following a similar cross-modal process, students read about the properties of various ingredients, carry out a series of experiments designed to test the effectiveness of their product, and at each step, write explanations and arguments that use the same criteria for strength of evidence that they have encountered in their reading and hands-on activities. They might even read a narrative account about another class of students conducting a similar experiment and be asked to evaluate the validity of the arguments made by the students in the narrative. Thus, oral and written language continually reinforce one another, as do reading and writing.

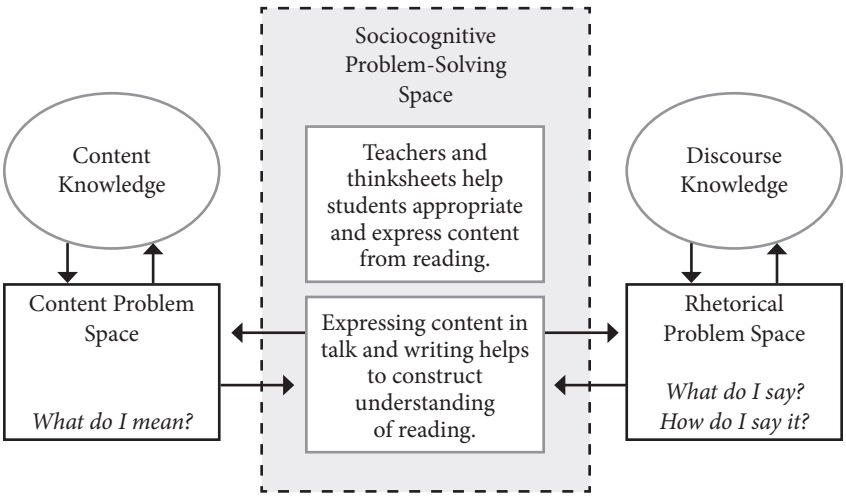
De La Paz (2005) has been working on similar integration strategies in social studies. Working with eighth-grade students, she evaluated an integrated social studies and language arts unit designed to promote historical understanding and argumentative writing skills. English teachers taught students a strategy for planning and composing argumentative essays. In parallel, the social studies teachers promoted historical reasoning instantiated as reading and reconciling primary and secondary documents to understand complex historical events in the texts they encountered. The experimental students, when compared with a business-as-usual control condition, were able to produce significantly better essays, in which quality was indexed by historical accuracy, persuasiveness, length, and the nature and density of their arguments.

Featured Approach: Writing Intensive Reading Comprehension (WIRC). Collins and colleagues (Collins, Lee, Fox, & Madigan, 2011) have developed, implemented, and evaluated an approach to improving fourth and fifth graders' reading comprehension that focuses directly and systematically on linking writing to reading comprehension. Theoretically driven by Kintsch's (1998, 2004) Construction–Integration model of reading and Bereiter and Scardamalia's (1987) problem space model of writing, WIRC requires students to complete a variety of visual representations of key ideas prompted by a target text. (Collins et al. term these visual representations *think sheets* and insist that they are not worksheets.) Situated within a district-mandated basal reading program, in which students would normally engage in a variety of discussion and worksheet activities surrounding the text of the week, WIRC substitutes the think sheets for many of the normal comprehension activities that are suggested in the teacher manual. The think sheets are designed to ensure that students develop a

rich text base and situation model for the text of the week as they prepare to write a culminating response to the text at week's end. Figure 3.2 is a graphic depiction of these important relationships. The key point is that through talk and writing, students are able to build a richer representation of the content of the texts they read (i.e., the content knowledge box in the figure) and deal with the question that vexes every writer: How can I find a way to say that so others will understand (i.e., the rhetorical knowledge box in the figure).

Collins and colleagues (2011) have conducted a rigorous evaluation of WIRC, finding that it produces robust effects on transfer tests of reading comprehension (modeled after the National Assessment of Educational Progress–influenced state standards tests in the state of New York) in comparison to the basal-driven, business-as-usual control group. The researchers also found that the longer the implementation and the more faithful the implementation to the intervention design, the stronger the effects on comprehension. This is powerful evidence of the value of using writing, and the systematic use of talk, to support reading comprehension.

Figure 3.2. Structure of the Sociocognitive Problem-Solving Space



Note. Adapted from *Bringing Together Reading and Writing: An Experimental Study of Writing Intensive Reading Comprehension (WIRC) in Low-Performing Urban Elementary Schools*, by J.L. Collins, J. Lee, & J. Fox, 2011, manuscript submitted for publication.

Taking a step back to look at all of these salutary findings that occur when reading and writing—and in most cases, talk—are employed in the name of improved comprehension, it may well be that revisiting and re-representing important ideas in many modes is what matters most. When we read, we represent the ideas we encounter semantically, but it is verbal representation in the case of talk, and orthographic in the case of writing. These multiple and varying representations may be responsible for the observed improvement in understanding and memory for key ideas encountered in the text. If they are only encountered in reading, without benefit of the verbal recoding prompted by conversation or the orthographic recoding required when students set pen to paper (or finger energy used to view images in our technological world), the bonds students are able to make between new information from text and existing knowledge in memory are weaker and less likely to endure long enough to reshape that knowledge. In other words, it may be that talk and writing are really aids to learning (i.e., changing what is in our store of knowledge in memory).

Observe and Assess

There are many different ways to comprehend a text (e.g., Wade, 1990; Wade, Trathen, & Schraw, 1990), and readers bring different strengths and weaknesses to the process. For example, one reader might have strong prior knowledge related to a text that compensates for relatively poor clarifying and fix-up strategies, whereas another reader might have weak prior knowledge related to a text but make up for it by using a variety of strategies that help build meaning in such circumstances. Similarly, there are many different reasons a reader may struggle with comprehension (e.g., Duke, Pressley, & Hilden, 2004). Unfortunately, scores on most comprehension assessments do not tell us why a reader is struggling. For example, a study by Buly and Valencia (2002) found that students who scored below proficient on their state's fourth-grade high-stakes comprehension assessment were struggling for very different reasons. Some appeared to struggle primarily because of word reading and fluency difficulties; their vocabulary and meaning construction processes were actually a relative strength. Others, referred to as word callers, had strong word reading and fluency but relatively poor vocabulary and meaning construction processes (see Cartwright, 2010, for further discussion of and interventions for such readers).

As we argue in the next section, we assume that teachers' responses to and instruction for students should differ depending in part on their

assessment of students' comprehension strengths and weaknesses. If so, then careful observation and assessment is needed to ascertain students' comprehension strengths and weaknesses. For this task, a mere comprehension score or level will be insufficient. Assessments required for this task must provide more details and diagnostics by examining several aspects of and/or contributors to comprehension.

A growing repertoire of assessments aims to address this need. For example, the Qualitative Reading Inventory developed by Leslie and Caldwell provides information about the student's background knowledge related to a passage, the nature of the student's miscues (e.g., does he or she reflect concern with what makes sense?), the student's approach to retelling a passage, and the student's literal and inferential comprehension. The Benchmark Assessment System created by Fountas and Pinnell provides information on the nature of students' miscues; students' key understandings of material within, beyond, and about the text; and the students' ability to write about what they have read. The Concepts of Comprehension Assessment developed by Billman and colleages and the Informational Strategic Cloze Assessments designed by Hilden and colleagues assess students' comprehension of graphics within a text, vocabulary knowledge and strategies, knowledge of informational text features, and use of comprehension strategies. The Diagnostic Assessment of Reading Comprehension (see Francis et al., 2006) assesses students' inferencing, text memory, recall of knowledge, and the ability to integrate prior knowledge with information in the text.

Unfortunately, virtually no research has as yet tested the impact of comprehension assessment, let alone different forms of comprehension assessment, on either the nature or quality of teacher instruction and/or student learning. One exception is a study by Bolt, Duke, Billman, and Betts (2011), in which they randomly assigned grades 1 and 2 teachers to administer an informational comprehension assessment (i.e., the Concepts of Comprehension Assessment) three times per year to a subset of students in their classes; and the teachers also received scores from the researchers for another subset. Results showed that students in classrooms in which teachers administered the assessment showed greater growth as measured by the comprehension assessment as well as by an assessment of informational writing; this transfer effect is important because it suggests that what students learned was not driven by narrowly teaching to the test. However, much more research is needed, including studies of the impact of different comprehension assessments on both teachers' comprehension instruction and students' comprehension growth.

Differentiate Instruction

As explained in the previous section, students have different strengths and weaknesses with respect to comprehension, suggesting the need for different foci for and kinds of instruction. Unfortunately, we have found that much comprehension instruction is provided in a whole-class format. For example, the entire class is provided with explicit instruction and modeling of the predicting strategy. If the bulk of the class is not predicting or not predicting well, then this makes sense. However, if some of the students are already making well-founded predictions regularly, they do not need this instruction. Additionally, if some students are still not monitoring their reading for meaning, instruction in that may be a higher priority for them. It is possible that instruction may lead to excessive reliance on a single strategy at the expense of developing a broader and more balanced portfolio of strategies (Hilden, 2009).

For these reasons, we suggest that much comprehension instruction be conducted in small groups or individually based on students' needs (e.g., Connor et al., 2009; Taberski, 2000). The idea of needs-based grouping is not at all new; it has been recommended by experts as an alternative to ability grouping for as long as we have worried about individual differences in schooling (see R.H. Anderson, 1962), but it isn't implemented as regularly as it should be, either for comprehension instruction or basic decoding skills. To illustrate how it might be employed, a group of students whose retellings reflect a lack of attention to the structure of the text might constitute a small group for instruction, a second group of students who would especially benefit from the opportunity to discuss texts with others in a structured format might form another group, and so forth. Notably, students with the same needs may not necessarily be reading at the same level in terms of word recognition. In these cases, it may make sense to select a text that is relatively easy from a word recognition perspective but difficult from a comprehension one (e.g., an easy-to-read text with relatively unfamiliar science content). In other cases, it may work just fine to teach and coach students in a group without all of them reading the same text. In the CORI approach discussed earlier, small groups of students form "idea circles," in which students meet to discuss the same idea (e.g., a particular adaptation for animal survival) as explored through different texts, each at the appropriate reading level of only one member or a subset of members of the group (Guthrie & McCann, 1996). Much more research and development is needed around needs-based grouping for comprehension instruction, but at this point, we believe that the complexity of

comprehension processes and variation in comprehenders means that differentiation should be a priority.

Directions for Reading Comprehension Research and Development

As we hope this chapter has indicated, we know a great deal about how to foster and teach reading comprehension well (see Figure 3.3 for a useful tool for evaluating your own fostering and teaching of reading comprehension). However, we know far less about how to help teachers learn to orchestrate this panoply of practices. Despite decades of research identifying effective practices for improving reading comprehension, comprehension instruction remains rare (e.g., Connor, Morrison, & Petrella, 2004) and poorly done (e.g., Dewitz, Jones, & Leahy, 2009). We need to understand far better how great teachers of comprehension became great and how to help many more teachers become so. We need case studies of teachers learning to teach reading comprehension (e.g., Hilden & Pressley, 2007), research that examines the knowledge teachers need to engage in specific practices supportive of comprehension (e.g., Kucan, Hapgood, & Palincsar, in press), development of innovative approaches to preservice and inservice teacher education around reading comprehension (e.g., Kucan & Palincsar, 2008–2011), and studies of the impact of specific professional development models on students' reading comprehension growth (e.g., García et al., 2006; García, Pearson, Taylor, Bauer, & Stahl, in press; Pearson, Taylor, & Tam, 2005; Taylor, Pearson, Peterson, & Rodriguez, 2005).

In our chapter on effective practices for developing reading comprehension in this volume's last edition, we asked, "Will our definition and fundamental understanding of comprehension keep pace with the changing nature of text?" (Duke & Pearson, 2002, p. 232). As pressing as that question seemed in 2002, it is all the more pressing now. Forms of text widely read today (e.g., Twitter feed, blogs) did not even exist less than a decade ago. If research on different genres of text to date is any indication, readers will use somewhat different processes and strategies, and apply somewhat different structural and featural knowledge to understand these different forms of text (Coiro & Dobler, 2007; Duke & Roberts, 2010; Leu et al., 2005). We have been learning to modify our comprehension instruction for different genres of text, on- and offline (Duke et al., in press), but we need to make rapid progress in this area if we are to prepare readers to be versatile enough to comprehend the historically unprecedented range of text available to them.

Figure 3.3. A Tool for Evaluating Your Fostering and Teaching of Reading Comprehension

- ☐ Is much of the day devoted to building disciplinary or world knowledge?
  - ☐ Is a combination of hands-on experience and text employed?
  - ☐ Is emphasis placed on the discourse and practices of the discipline, as well as content?
  - ☐ Are reading, writing, speaking, and listening presented as tools to help students acquire knowledge and inquiry skill?
- ☐ Are students provided with exposure to a volume and wide range of texts?
  - ☐ Does instruction include texts that meet the following criteria?
    - ☐ Of a wide range of genres
    - ☐ On a wide range of topics
    - ☐ Of a wide range of reading levels
    - ☐ In both digital and print formats
  - ☐ Is instruction tailored to specific genres and contexts during the literacy block and content area instruction?
  - ☐ Do students have access to a wide range and large volume of texts for take-home and summer reading?
- ☐ Are students offered motivating texts and contexts for reading?
  - ☐ Are students provided with texts of individual interest to them?
  - ☐ Are classroom activities designed to involve choice, challenge, student control, collaboration, emphasis on constructing meaning, and consequences for students' effort?
  - ☐ Are students reading (and writing) texts similar to those that occur outside of school for purposes similar to those for which people read and write outside of school?
- ☐ Are students taught to become strategic readers?
  - ☐ Does instruction help students coordinate and use multiple strategies while reading?
  - ☐ Does instruction focus on the following strategies that research indicates are worth teaching?
    - ☐ Setting purposes for reading
    - ☐ Previewing and predicting
    - ☐ Activating prior knowledge
    - ☐ Monitoring, clarifying, and fixing up
    - ☐ Visualizing and creating visual representations
    - ☐ Drawing inferences
    - ☐ Self-questioning and thinking aloud
    - ☐ Summarizing and retelling
  - ☐ Does strategy instruction follow a gradual release of responsibility framework with an explicit description of when and how to use the strategy, modeling and collaborative use of the strategy in action, and guided and independent practice?
- ☐ Are students taught about text structures?
  - ☐ Is instruction of text structures organized in a meaningful way across grade levels to enable students to do the following?
    - ☐ Understand that text is structured
    - ☐ Take advantage of this knowledge in learning and recalling key information in texts

(continued)

Figure 3.3. A Tool for Evaluating Your Fostering and Teaching of Reading Comprehension *(continued)*

- ☐ Are students taught visual representations of common text structures through the use of graphic organizers (e.g., story maps, Venn diagrams, flowcharts)?
- ☐ Does instruction employ a gradual release of responsibility by explicitly describing text structures, modeling their use in reading and writing, using the structures of text collaboratively with students, and guiding them as they take increasing responsibility for attending to text structure?

☐ Is there an emphasis on engaging students in discussion around texts?

- ☐ Do discussions place emphasis on the following?
  - ☐ Higher order questioning
  - ☐ Listening and linking to others' ideas
  - ☐ Providing evidence from the text to support one's thinking
  - ☐ Regular student participation

☐ Is a good portion of the day spent building students' vocabulary and language knowledge?

- ☐ Does instruction provide students with multiple experiences with a wide variety of words (e.g., multiple-meaning words, related words, content area vocabulary)?
- ☐ Is vocabulary and language knowledge instruction embedded in relevant contexts?
- ☐ Do read-aloud experiences promote language learning through direct explanations of words along with meaningful discussion to foster deeper understanding?

☐ Are reading and writing connections emphasized?

- ☐ Does instruction integrate reading and writing in a meaningful manner, such as through content area instruction or response to literature?
- ☐ Is there an emphasis on helping students build a rich representation of the content from their readings through writing and oral discussion?
- ☐ Do students have ample opportunities to revisit and re-represent important ideas in reading, writing, speaking, and listening?

☐ Is careful observation and assessment utilized regularly to ascertain students' comprehension weaknesses and strengths?

- ☐ Are a range of assessment and observation tools used to understand different aspects of students' comprehension, such as their background knowledge, literal and inferential comprehension, and understanding of graphics?
- ☐ Does information gathered via observation and assessment inform comprehension instruction in the classroom?

☐ Is instruction thoughtfully differentiated in the classroom?

- ☐ Are lessons taught to the whole class only when most of the students in the room would benefit from that particular instruction at that particular time?
- ☐ Does comprehension instruction include regular use of small groups based on students' particular comprehension strengths and needs?

Another key task facing research and development in reading comprehension is to understand how reading comprehension instruction is best coordinated across entire schools and districts. The relative scarcity of effective reading comprehension instruction in the past has meant the practices we have described in this chapter were sparsely implemented in schools (e.g., maybe 1 or 2 teachers in a staff of 15–20 might actually use them). What might happen when this kind of instruction is a focus every year in every classroom at every grade level? Do we, for example, teach the same comprehension strategies and text structures at each grade level, or does there come a point at which dividing and conquering these strategies and structures by year is more productive? What can we expect of students who have had years of high-quality comprehension instruction? How can we continue to challenge these students? Although these questions are complex and difficult to research, they also represent a welcome development. Having to deal with the aftermath of years of high-quality, comprehensive reading comprehension instruction would be a good problem to have.

Questions for Reflection

1. Find a text that is difficult for you to comprehend, such as a text in biochemical engineering, and note the processes you use to try to comprehend the text. How do these compare with the description of how skilled comprehenders construct meaning presented at the outset of this chapter?
2. While reading comprehension strategy instruction has taken hold in many classrooms, although not always in the manner we would like, many other essential elements of fostering and teaching comprehension identified in this chapter have not. Based on your experience in schools and classrooms, which of these elements are most neglected, and what factors do you think contribute to their neglect?
3. The essential elements we have presented apply well beyond the core reading program or the reading/language arts or literacy block. How can you imagine each of the essential elements mapping on the different parts of the school day and materials?
4. Arrange to observe comprehension instruction in a local school and classroom. Which essential elements do you see enacted in this classroom and how? Which elements deserve greater attention in the classroom, and how might that be accomplished?

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