

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. In another study, Taylor et al (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 et al (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.

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

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 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 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, in that both 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.

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 for reading refer to when the demand is made to “read closely to determine what the text says explicitly”.

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 axe 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 existing knowledge in long-term memory.

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.

Fortunately, all of these characteristics of good readers are amenable to teacher intervention. The 10 instructional practices featured are precisely the practices that teachers should employ.

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*.

The 10 Essential Elements of Fostering and Teaching Reading Comprehension

1. Build Disciplinary and World Knowledge

Our first principle follows inevitably from the account of the reading comprehension process in Kintsch’s 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.* 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.

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 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.

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 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). 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, or other integrated approaches to instruction, the emphasis is on the idea that when we link knowledge development to reading for comprehension, both are the beneficiaries.

This tight link raises a fundamental dilemma for reform initiatives that advocate an even greater piece of the curricular pie for reading and mathematics at the elementary level. Such efforts almost inevitably will and already have eclipsed curricular space for social studies and science. The irony is that the knowledge that students would gain in more vigorous social studies and science instruction would, as Kintsch's 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 cutting off our noses to spite our faces.

2. Provide Exposure to a Volume and Range of Texts

It is widely accepted that effective and engaged comprehenders read more than their struggling counterparts. Particularly, the volume of experiences students have interacting with texts both in and out of the classroom significantly correlates with their overall reading success, 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. 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. In addition to volume, the quality and range of books to which students are exposed.

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. Equally as important are informational genres, whose primary purpose is to convey information about the natural or social world, 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"; 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. 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.

3. Provide Motivating Texts and Contexts for Reading

Motivation is highly correlated with learning in general and reading comprehension in particular. 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.

Reading motivation is fostered by complex interactions of text topics and text characteristics, classroom social norms, and instructional practices. Importantly, texts or materials that trigger or capitalize on a student's interests contribute to motivation. 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. 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 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. 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 et al 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. 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 can be addressed simultaneously, and perhaps even work synergistically, to develop reading comprehension.

4. 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. 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 et al, 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.

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. In an interesting twist on strategy instruction, Block et al (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 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 and searching and skimming with informational text.

The model we recommend for teaching any comprehension strategy is the gradual release of responsibility. In this, responsibility for the use of a strategy gradually transfers from the teacher to the student through five stages:

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 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 is wearing pyjamas, and he is carrying a candle. I predict that this is going to be a make-believe story because owls do not really wear pyjamas and carry candles. I predict it is going to be about this owl, and it is going to take place at night-time...."
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.*
 - a. 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."
 - b. 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." ... 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. Check as you read to see whether your prediction came true.”

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. 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 students will reach independent use of the strategy, however, 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. Strategy instruction is most vulnerable to critique when implemented in a heavily scripted fashion. Driven by the need to describe instruction in advance, programs have lessons that are independent of and unresponsive to a specific context or a particular group of students. The 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 hyper-accountability context, it is more apt to become set in stone. There is nothing new in this danger.

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.

1. 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. 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.

Text structure instruction can take different forms, including explicit instruction of various structures as well as instructional supports such as graphic organizers. 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 post intervention. This evidence suggests that including text structure instruction from early on is not only beneficial but also accessible for our youngest readers.

We believe that the most important thing about text structure instruction is not so much 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.

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. *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.*

6. 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. As might be expected, certain approaches to discussion may be more effective than others in increasing students' literal and inferential understanding of texts.

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. A less consistent, although generally robust, finding is that discussion also promotes higher levels of reading comprehension. 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. In their study of fourth-grade classrooms, Chinn et al (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 et al (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 began work on a comprehension routine called Questioning the Author (QtA). Inspired by their own insights from revising text to make it more considerate, 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.

Table 3.5 Questions to Guide Discussion in Questioning the Author

Goal	Candidate questions
Initiate the discussion.	<ul style="list-style-type: none">• 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.	<ul style="list-style-type: none">• That is what the author says, but what does it mean?
Help students link information.	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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.	<ul style="list-style-type: none">• Did the author tell us that?• Did the author give us the answer to that?

The expectation is that students who experience this sort of instructional approach 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 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. It is equally empowering to teachers and students.

7. 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. 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.

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. 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 et al 2004). 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. Even morphological instruction has entered the portfolio of effective vocabulary interventions.

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). They 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 which 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.

8. 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. Research confirms that exemplary teachers who produce high-achieving readers and writers tend to integrate the two domains regularly and thoroughly in the classroom. Further, as evidence of a seemingly bidirectional relationship between reading and writing, children's writing abilities have been shown to predict later reading comprehension, and reading comprehension has been shown to predict students' composition

skills. 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.

Perhaps the strongest examples of reading and writing integration come from approaches that would claim that they are more about integration across curricular boundaries than across the bridge between reading and writing. De La Paz (2005) has been working on 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 (2011) have developed, implemented, and evaluated an approach to improving fourth and fifth graders' reading comprehension that focuses systematically on linking writing to reading comprehension. WIRC requires students to complete a variety of visual representations of key ideas prompted by a target text (think sheets). Situated within a district-mandated basal reading program, WIRC substitutes the think sheets for many of the normal comprehension activities. They 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. Teachers and think sheets help students express content from reading.

- The sheets contain a content knowledge space (What do I mean?) and a discourse knowledge space: What do I say? How do I say it?
- As students move back and forth between these spaces it is found that expressing content in talk and writing helps to construct understanding of reading.
- 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 and deal with the question that vexes every writer: How can I find a way to say that so others will understand?

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 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.

Taking a step back, 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).

9. Observe and Assess

There are many different ways to comprehend a text, 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. 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.

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:

- 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 colleagues 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 et al (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.

10. 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. 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 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. 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.