

Developing Reading Comprehension

1. Prior Knowledge, Background, and Vocabulary

There is a broad consensus among a diverse group of educators and researchers that the primary goal and purpose of reading is to comprehend text—to understand what we read. Even more impressively, there is a consensus about the nature of comprehension.

Comprehension is not just the by-product of accurate word recognition. Instead, comprehension is viewed as a complex process which requires active and intentional cognitive effort on the part of the reader. Both the products of comprehension and the process itself are interactive and dynamic. Comprehension is influenced by the reader's purpose, by the type and nature of the text, and by prior knowledge and vocabulary development. In addition, there is considerable research and a convergence of agreement that effective reading comprehension requires strategic reading abilities. Finally, there is also considerable good information about the types of instruction that promote and develop strategic reading behaviors and effective comprehension.

There is a reciprocal relationship between readers' prior knowledge/vocabulary development and their ability to read and understand a wide variety of texts. Good prior knowledge and appropriate experiences certainly enhance comprehension; but wide reading also expands vocabulary and promotes conceptual development. It is very clear that extensive reading practice is essential in building both fluency and knowledge. It is equally clear that good, explicit instruction in some areas provides additional benefit to students.

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Over the past three decades, research findings have consistently demonstrated how prior knowledge and experience influence reading comprehension. Simply put, the more accurate and elaborated knowledge readers have about the ideas, concepts, events, or objects described in the text, the better they will understand. Similarly, fragmented information and/or misconceptions can impede comprehension. Misconceptions and limited information influence comprehension in a number of ways. People read unfamiliar text more slowly, they remember less, they construct meanings that are inconsistent with the author's, and they sometimes reject the text information outright.

Although we have long understood how important prior knowledge is to comprehension, we now see that there are several types of prior knowledge that influence comprehension:

Topic knowledge. Students vary in how much they know about any particular concept. In addition, they may differ in the accuracy of that knowledge and in how well-connected the knowledge is to other, related, ideas. This, of course, affects comprehension. If children are reading about familiar topics (whether it is a science concept like evaporation or a social topic like birthday parties), their comprehension will benefit from their excellent prior knowledge.

Domain knowledge. As children learn more about various fields of knowledge, they develop a specialized sense of particular areas of study. This knowledge is known as domain knowledge because it is related to the study of specific subject matter. Thus, students with excellent domain knowledge of mathematics know more specific topical information, but they are also more likely to understand how the discipline is organized and how experts think and write about this area.

Knowledge of text structures and types. Authors create written texts for many purposes and use a variety of text structure to support and enhance their purpose. Sometimes, for example, authors use a sequential ordering of events that relies on characters, settings, and action to organize what they want to say. Other times, they use a cause-effect pattern that highlights the causal relationships between ideas and concepts. These different structures impact comprehension. Similarly, not all texts are written from within the same genre. For example, stories (usually narrative texts) have a different organizational structure than does historical exposition.

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Readers who know and understand how different texts are structured can and do use this knowledge to aid comprehension. Although many people acquire this knowledge through repeated exposure to different types of texts, there is excellent evidence that developing readers can be taught to recognize these structures and that this instruction improves comprehension. It is important to note also, that these factors interact. That is, familiarity with a particular type of text can override more limited familiarity with topic and vice versa. Thus, students who are generally well-read and comfortable with a variety of text types and structures can overcome some limitations in prior knowledge. Alternatively, students who are highly familiar with the topics in a particular text, will likely be successful even if they have not experienced the particular text type.

Prior knowledge also interacts with strategic reading (see next section) and influences how successful students are in applying their skills and strategies when needed to comprehend text. Therefore, students with limited relevant background knowledge are likely to be handicapped in two ways; they lack background knowledge which in turn influences how they use their strategies and skills.

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• **1992 - Stanovich**

“Other things being equal, more reading leads to more rapid growth in vocabulary and other knowledge bases . . . reading makes people ‘smarter’.” (p. 226)

• **1998 - Snow, Burns, & Griffin**

“The breadth and depth of a child’s literacy experiences determine not only how many and what kinds of words she or he will encounter but also the background knowledge with which a child can conceptualize the meaning of any new word and the orthographic knowledge that frees that meaning from the printed page. Every opportunity should be taken to extend and enrich children’s background knowledge and understanding in every way possible, for the ultimate significance and memorability of any word or text depends on whether children possess the background knowledge and conceptual sophistication to understand its meaning.” (p. 219).

• **2000 - Alexander & Jetton**

“Of all the factors (involved in learning from text), none exerts more influence on what students understand and remember than the knowledge they possess.” (p. 291).

They go on to quote Alexander & Murphy (1998, p. 28):

“In essence, ‘existing knowledge serves as the foundation of all future learning by guiding organization and representations, by serving as the basis of association with new information, and by coloring and filtering all new experiences.’” (p. 291)

“When subject-matter knowledge is limited, students appear to apply strategies in somewhat less efficient and effective ways.” (p. 299)

• **2000 - Goldman & Rakestraw**

“Knowledge of (text) structure is clearly important in efficient and strategic processing of text.” (p. 323)

“Conclusion 1: Readers use their knowledge of structure in processing text.

Conclusion 2: Knowledge of structural forms of text develops with experiences with different genre, and is correlated with age/time in school.

Conclusion 3: Making readers more aware of genre structure improves learning.” (p. 321)

• **2000 - Pressley**

“Literature exposure increases reader knowledge . . . Thus, when children read books that include a great deal of information pertaining to beginning science, they know more science, which should improve comprehension of related science content encountered in the future.” (p. 553)

“. . . knowledge is not a singular entity, but consists of many diverse forms and dimensions . . . (and) what one knows is as likely to come from everyday out-of-school experiences as from formal learning, and can sometimes result in resistant, constrained or distorted understandings.” (p. 292)

•2000 - National Reading Panel

“ . . . reading comprehension has come to be viewed as the ‘essence of reading’ ” (p. 4-1)

“With regard to comprehension, several "predominant themes have emerged: (1) . . . reading comprehension is a cognitive process that integrates complex skills and cannot be understood without examining the critical role of vocabulary learning and instruction and its development; and (2) active interactive strategic processes are critically necessary to the development of reading comprehension . . . ”

2. Strategic Reading

Reading ability—both comprehension and word recognition—is facilitated when readers use strategies. Although even very young children can and do employ strategies during reading, a strategic approach to reading is absolutely essential for readers in grades 4-8. The texts and tasks that readers regularly encounter in these grades are more conceptually demanding, are more complex in both form and function, and often address topics or domain knowledge that is unfamiliar. Under these circumstances, even able readers can benefit from explicit instruction and effective instructional support in the use of strategies.

A review of the research conducted over a 30-year period has established that effective comprehension of text requires active involvement with the text and the ability to employ strategies during reading. Most experts agree that strategies are different from skills in several ways. It is generally agreed, for example, that strategies are intentional and planful. Good readers and writers can make plans for accomplishing their literacy tasks. They understand and think about their purpose for reading or writing. They preview materials and determine how difficult the task will be. Using their own knowledge and experience, they make predictions and brainstorm ideas and they consider how much time they have. Then, strategic readers and writers select from a wide repertoire the skills and approaches they will use and monitor their progress as they read/write.

Good readers use strategies in a flexible manner. Reading requires the orchestration of a number of skills and strategies. Among mature readers, word recognition is generally quite automatic and it is this skillful behavior that permits them to be strategic when necessary. It is important to note that these strategy and skill distinctions can operate at many levels. Most researchers agree that the idea of automatic, unconscious functioning is characteristic of skills, whether we are referring to word identification or comprehension. Similarly, there is agreement that the intentional, planful, flexible nature of strategies is important whether we are reading unknown words, comprehending, or writing.

Becoming strategic is a developmental process; it occurs over time as students encounter increasingly difficult texts and new situations. The same relatively small set of strategies emerges quite early in children's development. Among the most highly useful strategies are: (1) making predictions and drawing inferences, (2) self-questioning, (3) monitoring comprehension, (4) summarizing, and (5) evaluating. These strategies, individually, are not as important as a "strategic approach" which allows readers to respond differently to different topics, texts, genres and tasks.

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Effective comprehenders often use several strategies at one time.

Strategies are not easy to acquire; students typically require good explicit instruction over considerable time in order to gain control of a strategic approach. The hallmark of truly effective strategy instruction is the explanation, modeling, and guiding of this strategic approach during authentic reading experiences. Most recently, research has demonstrated that, when student-initiated literature discussion is added to this instructional approach and teachers "scaffold" or support strategy use when needed ("transactional strategies instruction"), that student performance is facilitated even more. Strategic reading development is enhanced when teachers support their students during challenging reading tasks. In particular, the active discussion of text seems to promote more reader "engagement" which, in turn, influences motivation to employ strategic approaches and enhances appreciation for reading. Since students' motivation appears to rest, at least in part, on their sense of efficacy—their belief that they are capable—the relationship between strategic reading instruction and motivation is clearly reciprocal. (See Motivation, Independent Reading and Writing, and Home Connections.)

Research-based instructional materials for students in grades 4-8 must systematically and explicitly teach a strategic approach to reading a variety of types of texts where students learn the most critical strategies for effective comprehension. The following quotations support the conclusions drawn in this section:

• **2000 - National Reading Panel**

"Reading comprehension is purposeful and active." (p. 4-39)

"Readers normally acquire strategies for active comprehension informally. Comprehension strategies are specific procedures that guide students to become aware of how well they are comprehending as they attempt to read and write." (p. 4-5)

"The empirical evidence reviewed favors the conclusion that teaching of a variety of reading comprehension strategies leads to increased learning of the strategies, to specific transfer of learning, to increased memory and understanding of new passages, and, in some cases, to general improvements in comprehension. In particular, individual strategies that can be used in natural reading or content area instruction and through interaction with the teacher over a text appear to have a strong scientific support for their effectiveness and

for their inclusion in classroom programs on comprehension instruction.” (p. 4-51)

“The past 2 decades of research appear to support the enthusiastic advocacy of instruction of reading strategies expressed in the (following) quotations:

‘The best way to pursue meaning is through conscious, controlled use of strategies’ (Duffy, 1993, p. 223) and, ‘The data suggests that students at all skill levels would benefit from being taught these strategies’ (Rosenshine, Meister, & Chapman, 1996, p. 201).

“The Panel’s review of the literature indicates that there has been an extensive effort to identify reading comprehension strategies that can be taught to students to increase their comprehension and memory for text. The instruction of cognitive strategies improves reading comprehension with a range of abilities.” (pp. 4-47-48)

“Reading requires the coordinated and flexible use of several different kinds of strategies. Considerable success has been found in improving comprehension by instructing students on the use of more than one strategy during the course of reading. Skilled reading involves an ongoing adaptation of multiple cognitive processes. Becoming an independent, self-regulated thinking reader is a goal that can be achieved through instruction of text comprehension.” (p. 4-47)

“Being strategic is much more than knowing the individual strategies. When faced with a comprehension problem, a good strategy user will coordinate strategies and shift strategies as it is appropriate to do so.” (p. 4-47)

“The 8 kinds of instruction that appear to be effective and most promising for classroom instruction are:

1. Comprehension monitoring
2. Cooperative learning
3. Graphic and semantic organizers
4. Story structure—from which students learn to ask questions
5. Question answering—reader answers teacher-posed questions, with feedback
6. Question generation—reader asks questions
7. Summarization
8. Multiple-strategy teaching in which the reader uses several of

the procedures in interaction with the teacher over the text. Multiple-strategy teaching is effective when the procedures are used flexibly and appropriately by the reader or the teacher in naturalistic contexts.” (p. 4-6)

“When teachers teach these strategies, their students learn them and improve their reading comprehension.” (p. 4-6)

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•2000 - Alexander & Jetton

“Strategies are essential tools in learning. It is unfathomable to expect meaningful learning from text to occur without some evidence of strategic processing. Likewise, when readers employ strategies efficiently and effectively, these procedures are facilitative, promoting deeper and better understanding.” (p. 295, emphasis in the original)

•2000 - Pressley

“Despite the improvements in fluency and knowledge permitted by extensive reading, the ‘read, read, read’ approach does not lead to as active meaning construction during reading as occurs when students are taught explicitly to use and articulate comprehension strategies when they read.” (p. 554)

(In transactional strategies instruction) “There are lively interpretive discussions of texts, with students encouraged to interpret and respond to text as they are exposed to diverse reactions to text by their classmates. There are no restrictions on the order of strategies execution or when the particular members of the group can participate. The transactional strategies instructional approach succeeds in stimulating interpretive dialogues in which strategic processes are used as interpretive vehicles, with consistently high engagement by all group members . . . Transactional strategies instruction produced better comprehension test scores and more interpretive readers in these studies, with the effects quite striking in all three studies.” (pp. 555-556)

3. Vocabulary Development

The importance of vocabulary development as a major contributor to reading comprehension has long been acknowledged and widely studied. However, in spite of the attention vocabulary has received there are still many unanswered questions about vocabulary development and its relationship to reading comprehension.

There is growing consensus that children's vocabularies need to grow at a rate of about 2,500 to 3,000 words a year during the elementary grades, some analyses suggesting that the figure may be even higher.

The rapid rate at which vocabulary needs to grow clearly precludes the possibility of directly teaching all the vocabulary students need to acquire, especially since there is some research which suggests that children may need many repetitions of a word in order to learn its meaning. The massive amounts of vocabulary that children need to learn and that most do learn has led many researchers to the conclusion that most vocabulary must be acquired incidentally through wide, frequent reading. (See Motivation, Independent Reading and Writing, and Home Connections.) There is evidence that reading materials are far richer in vocabulary content than is oral language. There is also evidence that students can be taught strategies that increase their ability to derive the meaning of words that they encounter in their reading.

There is also broad consensus that there is benefit to be derived from directly teaching words to children. For example, there is evidence regarding the positive effects of teaching important vocabulary from texts prior to student reading of those texts. Research also suggests that instruction that uses a combination of approaches (e.g., use of context plus definitions) results in better vocabulary learning, as do approaches that link vocabulary learning to building background knowledge such as semantic mapping and semantic feature analysis. Likewise, there is evidence that providing students with instruction in morphemic analysis (meanings of prefixes, suffixes, root words) enhances student vocabulary development.

Research-based reading materials should promote wide reading to enhance vocabulary acquisition (and reading comprehension), should instruct students in strategies that enhance their ability to derive word meanings from materials they read, and should prepare students for reading texts by teaching key vocabulary through a combination of methods and actively relate that vocabulary to the background knowledge needed for reading texts. These materials should be designed to provide students with the relevant vocabulary and background knowledge they

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need for reading a selection, should develop vocabulary and background knowledge for the broad reading they will do in school subjects and beyond, and should stimulate an interest in reading that will result in wide, frequent independent reading.

• **1985 - Anderson, Hiebert, Scott, & Wilkinson**

“Useful approaches to building background knowledge prior to a reading lesson focus on the concepts that will be central to understanding the upcoming story, concepts that children either do not possess or may not think of without prompting.” (p. 50)

• **1991 - Baumann & Kameenui**

“The real issue (in vocabulary learning) is that of striking a balance between direct instruction and learning from context.”

“Further, the more intense or direct definitional vocabulary instruction is, the greater the gains in word knowledge.” (p. 613)

“Various semantic relatedness and prior knowledge approaches, such as semantic mapping and semantic feature analysis, are effective techniques for teaching new concepts to students of varied abilities and different racial and ethnic backgrounds. Further, there is some evidence that these methods also enhance passage comprehension.” (p. 260)

“Specifically, it appears as though elementary and middle grade students can be taught specific morphemic elements and that they are able to spontaneously generalize (infer) the meaning of one word from a morphologically similar derivative.” (p. 623)

• **1994 - Fielding & Pearson**

“Research of the late 1970s and early ‘80s consistently revealed a strong reciprocal relationship between prior knowledge and reading comprehension ability. The more one already knows, the more one comprehends; and the more one comprehends, the more one learns new knowledge to enable comprehension of an even greater and broader array of topics and texts.” (p. 62)

“Further, the positive statistical relationship between amount of time spent reading and reading comprehension (Anderson et al., 1988) may

be largely attributable to the knowledge base that grows through text reading.” (p. 63)

• **1998 - Snow, Burns, & Griffin**

“Vocabulary - . . . While research shows some benefit of direct instruction on vocabulary development, it also finds that vocabulary growth is heavily influenced by the amount and variety of material children read . . . the power of home and school reading for vocabulary building are strongly influenced by the support and encouragement that students are given for attending to and learning about new words as they read.” (p. 17)

“Every opportunity should be taken to extend and enrich children’s background knowledge and understandings in every way possible, for the ultimate significance and memorability of any word or text depends on whether children possess the background knowledge and conceptual sophistication to understand its meaning.” (p. 219)

“Written text places high demands on vocabulary knowledge. Even the words used in children’s books are more rare than those used in adult conversations and prime time television. Learning new concepts and words that encode them is essential to comprehension development.” (p. 217)

“Vocabulary instruction generally does result in measurable increase in students’ specific word knowledge.” (p. 217)

“An important source of word knowledge is exposure to print and independent reading. As noted above, books introduce more rare words than conversation and television do. So, educational approaches that encourage children to read more both in school and out should increase their word knowledge and reading comprehension.” (p. 218)

• **1998 - Hiebert, Pearson, Taylor, Richardson, & Paris**

“Exposure to lots of text, including children’s independent reading and read-alouds by teachers, improves comprehension achievement, vocabulary growth, and learning English as a second language.”
(Topic 5, p. 3)

• **1998 - Learning First Alliance**

“Children’s vocabularies can be built by teaching specific words that appear in students’ texts, giving students opportunities to use these words in a variety of contexts, and teaching students dictionary skills.

We want students to pay attention to and like words. While research shows some benefit of direct instruction on vocabulary development, it also finds that vocabulary growth is heavily influenced by the amount or variety of material children read.” (p. 17)

• **1999 - Beck, McKeown, & Omanson**

“Our greatest interest was with the relationship between vocabulary knowledge and reading comprehension. That there is a very strong relationship is well established in the literature as are the problematic aspects of that relationship. Numerous factor analytic studies have shown that vocabulary knowledge is a major predictor of reading comprehension (Davis, 1944, 1969).” (p. 311)

• **2000 - National Reading Panel**

“First, reading comprehension is a complex cognitive process that cannot be understood without a clear description of the role that vocabulary development and vocabulary instruction play in the understanding of what has been read.” (p. 13)

“The importance of vocabulary knowledge has long been recognized in the development of reading skills. As early as 1924, researchers noted that growth in reading power means continuous growth in word knowledge. Consequently, the larger the reader’s vocabulary (either oral or print), the easier it is to make sense of text.” (p. 13)

“The studies reviewed suggest that vocabulary instruction does lead to gains in comprehension, but that methods must be appropriate to the age and ability of the reader. Vocabulary also can be learned incidentally in the context of storybook reading or in listening to others. Learning words before reading a text also is helpful.” (p. 14)

“The findings on vocabulary yielded several specific implications for teaching reading. First, vocabulary should be taught both directly and indirectly. Repetition and multiple exposures to vocabulary items are important.” (p. 14)

“It is clear that vocabulary should be taught both directly and indirectly. Vocabulary instruction should be incorporated into reading instruction. There is a need for direct instruction of vocabulary items that are required for a specific text to be read as part of the lesson. Direct instruction was found to be highly effective for vocabulary

learning.” (p. 4-24)

•2000 - Nagy & Scott

“Not only are there too many words to teach them all to students one by one; there is too much to learn about each word to be covered by anything but exceptionally rich and multifaceted instruction. Hence, the complexity of word knowledge further bolsters the argument that much of students’ vocabulary knowledge must be gained through means other than explicit vocabulary instruction. In those cases when students are dependent upon instruction to learn a word, if they are to truly gain ownership of that word, the instruction must provide multiple and varied encounters with that word (Stahl & Fairbanks, 1986).” (p. 5)

“Average children learn words at a rate of something like 3,000 words a year. The high rates of vocabulary growth seen in many children occur only through immersion in massive amounts of rich written and oral language. Students who need help most in the area of vocabulary—those whose home experience has not given them a substantial foundation in the vocabulary of literate and academic English—need to acquire words at a pace even faster than that of their peers, but by no means do they always find this process easy or automatic.” (pp. 11-12)