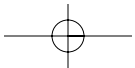
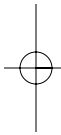
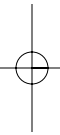
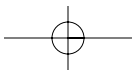
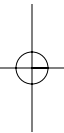
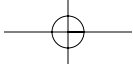


Part One

**New Directions
in Comprehension
Instruction**





Introduction

Improving Comprehension Instruction: An Urgent Priority

*Linda B. Gambrell,
Cathy Collins Block,
and Michael Pressley*

The message is clear—the most important thing about reading is comprehension. We also know much more about how to prevent reading comprehension failure. We introduce this book by defining reading comprehension, briefly chronicling the development of the knowledge base related to comprehension development, describing recent theoretical and research findings relevant to effective reading comprehension instruction, and making suggestions for the future of reading comprehension instruction. In doing so, we hope that classroom teachers, reading specialists, and reading researchers will gain a comprehensive picture of meaning-enhanced literacy instruction for preschool, elementary, middle, and high school students so that all children fulfill their potential to become good readers.

What is a good reader? We can draw some insights about what constitutes a good reader from the work of the National Assessment of Educational Progress (NAEP). NAEP is a large-scale assessment and survey of fourth, eighth, and twelfth grades from across the United States. For over three decades, NAEP has provided educators and policymakers with information about the status of student reading performance and the factors associated with achievement. The NAEP results include not only students' scores on the reading assessment but also information regarding the background and instructional experience of students.

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The publication *Reading Framework for the National Assessment of Educational Progress: 1992–1998* (1998) and the report of the RAND Reading Study Group (2001) identified several important characteristics that distinguish good readers from less proficient readers.

1. Good readers have positive habits and attitudes about reading.
2. Good readers are fluent enough to focus on the meaning of what they read.
3. Good readers use what they know to understand what they read.
4. Good readers form an understanding of what they read by extending, elaborating, and critically evaluating the meaning of the text.
5. Good readers use a variety of effective strategies to enhance and monitor their understanding of text.
6. Good readers can read a variety of texts and can read for a variety of purposes (NAEP, 1998, p. 9).

It is interesting to note that all six characteristics of good readers that NAEP identified are directly related to comprehension. Four years later the RAND Reading Study Group (2001) verified and amplified this message. Throughout the chapters of this book, the research base related to these characteristics is applied to classroom settings to provide insights and recommendations for improving comprehension instruction for all students.

Looking to the future, the RAND Reading Study Group (2001) recently formulated a proposal concerning the research that most urgently needs to be conducted over the next ten to fifteen years. The primary agenda of the RAND report is the promotion of skillful reading or reading with good comprehension. The primary message is that we need to increase our knowledge base concerning reading comprehension instruction.

What Is Reading Comprehension?

In this volume we define *reading comprehension* as acquiring meaning from written text—with *text* being defined as a range of material from traditional books to the computer screen. In this meaning-

making process, the reader interacts with the print and is involved in making sense of the message. Readers comprehend text by acquiring meaning, confirming meaning, and creating meaning. In sum, reading comprehension is the process of meaning making.

For many students, good reading comprehension comes easily. For many others, it is a difficult and often confusing process. Teaching students to become better comprehenders is also a difficult and challenging task because reading is such a complex process. We know that students who are good comprehenders use specific strategies, become deeply engaged in what they are reading, monitor and evaluate what they are reading, and are able to apply what they read to their own lives.

Reading comprehension is an interactive process involving the reader, the text, and the context. This relationship is an ever-changing one. During the reading process, the reader may attend to the text-based information. At other times the reader may relate to the text in terms of his or her own experiences; as Pearson has so aptly put it, “we reach out to the text, grabbing whatever meaning we can before the text has a chance to fully assert its own” (Pearson, 2001, p. 79). In the first case the text dominates, while in the second the reader dominates. In both instances the social context influences what one reads, how one reads, and why one reads. That is, on different occasions, the comprehending reader may come away from a text with a very different understanding, sometimes reflecting more literally the text, sometimes filled with reader interpretations, and sometimes strongly biased by the surrounding social environment (for example, an unfavorable reading of a review of the movie version of *Lord of the Rings* while sitting in a class on Tolkien’s writing).

Tracing the Development of Reading Instruction

When we trace the development of contemporary understandings of reading instruction from the nineteenth century, we witness a shift at the end of the century away from a predominant emphasis on decoding and recitation. During the first fifty years of the twentieth century, researchers and practitioners agreed that comprehension was the ultimate goal of reading and that instruction

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needed to engage students more deeply in the meaning-making process. Educators invented a number of different approaches to foster reader comprehension development. The most prevalent, the directed-reading activity, was developed by E. A. Betts in 1946 and soon became the almost universal means of comprehension instruction in U.S. schools. In addition, from the 1950s to the 1980s, the use of literal-level questions to develop students' understanding of text prevailed in basal manuals and elementary classroom reading instruction. During this era *reading* was implicitly defined as the ability to recall structural elements of a story and the ability to answer questions following reading. Approximately 70 percent of the questions that teachers asked students during reading instruction called for literal-level responses (Durkin, 1978–1979; Guszak, 1967).

Since the early 1980s, researchers and teachers have worked to extend this definition and expand the student's repertoire of comprehension skills. For example, in the late 1980s the National Assessment of Educational Progress (Applebee, Langer, & Mullis, 1987) suggested that reading instruction needed to emphasize thinking skills and strategies that provide the foundation for higher-level interpretative and reasoning abilities. Interest in comprehension instruction, or the lack thereof, increased during the 1980s. This interest was sparked to a large extent by the classic Durkin study (1978–1979), "What Classroom Observations Reveal About Reading Comprehension Instruction." Durkin observed that very little comprehension instruction was taking place in elementary classrooms and that teachers primarily "mentioned" or "assessed" comprehension, as opposed to teaching students to independently use strategies for enhancing comprehension. Following Durkin's study, reading researchers began to focus on comprehension-strategy instruction that resulted in increasing students' understanding of text. They made many studies of imagery, self-questioning, and summarization, in part stimulated by the awareness that little comprehension instruction was occurring in schools but that there were cognitive processes associated with greater understanding of text. Cognitive psychologists, in particular, felt that if child readers could only be taught to carry out the processes that good readers use on their own, reading comprehension would improve. That comprehension did improve when chil-

dren learned to execute strategies like imagery, self-questioning, and summarization provided some validation for this perspective (Pressley, 2000).

The Priorities of Meaning-Enhanced Comprehension Instruction

Skilled comprehenders come to the reading process with rich exposure to literacy, well-developed oral language ability, well-developed world knowledge, competence in social interactions with others about text, efficient word identification skills, and effective comprehension strategies. Lack of attention to any of these factors will increase the likelihood that reading comprehension development will be impeded (Pressley, 2000). Thus, research on comprehension instruction broadened, including studies of vocabulary instruction, teaching or comprehension strategies in small groups, and enrichment of world knowledge to improve comprehension. Currently, research is emphasizing that in order to increase comprehension, educators must develop a motivational context for reading, provide interesting and appropriate texts, and teach research-based comprehension strategies. That is why these broad themes emerge throughout the chapters in this book.

Creating a Motivational Context for Comprehension Instruction

Motivation to read plays a crucial role in the development of comprehension skills (Gambrell, 2001). An important goal of reading instruction is to foster an intrinsic desire to read. Effective comprehenders must possess both the skill and the will to read, yet evidence suggests that as grade level increases, children tend to have less positive attitudes toward reading (McKenna, Ellsworth, & Kear, 1995; Mazzoni, Gambrell, & Korkeamaki, 2000). A robust finding in the motivation research is that students in kindergarten are the most motivated and those in high school the least motivated (Eccles & Midgley, 1989; Harter, 1990).

Not surprisingly, motivation and achievement are linked (Dweck, 1986; Elley, 1992; Flippo, 1998; Morrow & Gambrell, 1998; Guthrie et al., 1996). Why? As individuals read more, they read better and learn more about the world. The result is better

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comprehension—better achievement (Anderson, Wilson, & Fielding, 1988; Morrow, 1992; Taylor, Frye, & Maruyama, 1990).

Effective comprehension instruction increases students' motivation to read in several ways (Block & Pressley, 2001). Comprehension instruction can support the development of motivated readers by rewarding improvement and emphasizing effort.

Rewarding Improvement

Researchers have found that classroom competition reduces student motivation rather than increasing it (Ames, 1984; Nicholls, 1989). Particularly for struggling learners, competition undermines motivation: these students, who are not winners in competitions, typically give up. On the other hand, even proficient learners can suffer reduced motivation in competitive endeavors because it may take relatively little effort for these students to win.

Educators can structure comprehension instruction around recognizing and rewarding improvement in performance. When instruction centers on the goal of getting better versus the goal of doing better than others, students are more likely to attempt to understand at a deep level what they are reading (Nolen, 1988; Pressley, 2000).

Emphasizing Effort

Research supports the notion that academic motivation is undermined when students attribute success and failure to ability (Weiner, 1979). Less proficient learners often attribute failure to “being stupid” or if they are successful, to “luck.” These attributions play a significant role in undermining motivation to learn. If students believe that ability explains achievement, then they are less likely to exert effort to learn. If, however, the student sees that success is related to effort, then there is an increased probability that the student will exert greater effort to learn (Carr & Borkowski, 1989; Deshler & Schumaker, 1988).

Educators can design comprehension instruction to reward student effort. Teaching students to recognize that effort pays off can positively influence their motivation to learn. Furthermore, instruction that supports students in recognizing the role of effort in learning is especially effective if combined with comprehension strategy instruction (Borkowski, Carr, Rellinger, & Pressley, 1990; Carr & Borkowski, 1989; Deshler & Schumaker, 1988).

Providing Interesting and Appropriate Texts for Comprehension Instruction

Students are more motivated to sustain their engagement in reading when they find interesting and appropriate texts readily available (Gambrell, Wilson, & Gantt, 1981). The availability of interesting and appropriate texts increases the time spent reading and related literacy behaviors (Morrow, 1992; Morrow & Sharkey, 1993). During in-depth interviews with elementary-age students, Palmer, Codling, and Gambrell (1994) were able to identify a number of factors related to reading engagement. During these interviews students reported the positive influence of prior experiences with books and the role of choice. Students talked about how experiences such as hearing a peer talk about a book and hearing the teacher read a book aloud motivated them to read. In addition, these students reported that they were more motivated to read books they chose to read for themselves rather than books that teachers assigned to them.

The availability of interesting and appropriate narrative and informational text is a critical factor in comprehension. Beyond having a chance to read such texts, students need to develop strategies for comprehending both narrative and informational text. In fact, students of all ages, from elementary to high school, have difficulty comprehending the structure of informational text (McGee, 1982; Meyer, Brandt, & Bluth, 1980; Taylor, 1980). In the past young children have lacked sufficient exposure to informational text, which may account for the difficulties that child readers have when they do have to deal with expository materials. Given the dominance of narrative text in the early elementary grades (Duke, 2000), we cannot assume that students can or will transfer their ability to read narrative to the reading of informational text. Duke cautions that we should not, however, pit narrative against informational text, as such an approach would be self-defeating. Rather, we should balance instructional texts so that our students develop comprehension strategies that are effective and appropriate for high-level understanding of both genres.

Comprehension of informational text is becoming increasingly important in this century. Another important reason for increasing elementary students' exposure to informational text is that these texts can serve as a catalyst for literacy motivation. Some

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students are very interested in the topics that informational texts present. These nonfiction texts can capitalize on students' interests in these topics and can nurture motivation to read. Some kids like facts more than stories!

Teaching Research-Based Comprehension Strategies

Although the development of competent comprehenders requires much more than strategy instruction, researchers have identified many strategies that educators can teach readers in order to increase understanding and memory of texts. One of the goals of this book is to demonstrate how we can teach students a repertoire of comprehension strategies that they can apply at critical points during text reading (Anderson, 1992; Brown, Pressley, Van Meter, & Schuder, 1996; Collins, 1991). Providing comprehension-strategy instruction empowers readers to independently increase their understanding of text.

Among the first researchers to focus on teaching students a repertoire of comprehension strategies were Palincsar and Brown (1984). Their work on reciprocal teaching involved teaching groups of students to predict, question, clarify, and summarize. Instruction in reciprocal teaching included teacher modeling and explanation with eventual transfer to students who then would assume the role of leading the reading group in the use of the strategies. Reciprocal teaching resulted in positive effects on students' reading comprehension and independent application of strategies. Building on this work, Duffy and his associates (1987) proposed that strategy instruction should begin with direct explanation and modeling of strategies for students.

Pressley and his colleagues (1992) explored strategy instruction in three school settings that built on the work of Palincsar and Brown (1984) and Duffy and associates (1987). The features of instruction that Pressley and his colleagues (1992) identified in classrooms where effective strategy instruction was occurring included the following:

- Teachers taught students a small repertoire of comprehension strategies.
- They instructed students in how to use the strategies.
- Students practiced the strategies.

- Students modeled and explained strategy use for one another.
- Teachers conveyed to students information about when and where to use strategies.
- Teachers often used strategy vocabulary (clarification, summaries, and so on).
- Flexibility in students' use of strategies was apparent.
- Teachers continually sent the message that student thinking mattered.

Because the teachers in these classrooms responded to student needs for instruction, Pressley and his colleagues (1992) referred to this type of teaching as transactional strategies instruction. Qualitative and quantitative studies have documented the positive effects that teaching students transactional strategies can have on their comprehension competence (Anderson, 1992; Anderson & Roit, 1993; Brown, Pressley, Van Meter, & Schuder, 1996).

Block (1993) conducted a study with elementary-age children that focused on instruction designed to increase students' strategic knowledge and comprehension. Comprehension strategies that students learned included clarifying ideas, summarizing, making inferences, interpreting, evaluating, solving problems, and thinking creatively. Researchers randomly assigned classrooms of students to experimental or control treatment groups. In the comprehension-strategy instruction group, students participated in lessons twice weekly for thirty-two weeks. The lessons were conducted in two parts: (1) the teacher explained and modeled a thinking and reading comprehension strategy (for example, predicting, summarizing), and (2) the students selected literature and applied the strategy to it. In the control group, students received traditional instruction that did not emphasize these comprehension strategies. The comprehension-strategy instruction group outperformed the control group on the reading comprehension, vocabulary, and total battery sections of the Iowa Test of Basic Skills. Students in the comprehension-strategy instruction group also outperformed control students in the ability to transfer cognitive strategies to applications outside school and to measures of self-esteem and critical and creative thinking.

Next, Dole, Brown, and Trathen (1996) investigated the effects of strategy instruction on the comprehension performance of at-risk fifth- and sixth-graders. Researchers randomly assigned

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the students to one of three treatment conditions: strategy instruction, story content instruction, and basal control instruction. Immediate posttest and seven-week delayed posttest data revealed that the comprehension strategy group performed as well as the story content and basal control groups when students read texts after receiving instruction. However, the strategy group outperformed the other two groups when students were asked to read selections independently.

Subsequently, Baumann and Ivey (1997) conducted a qualitative study that explored what students learned about reading, writing, and literature in a program of strategy instruction integrated within a literature-based classroom environment. During the year-long study, Baumann was the full-time classroom teacher, and Ivey was a participant-observer in the classroom. Data sources included both researchers' personal journals; interviews with individual students, parents, and caregivers; videotapes of regular classroom literacy activities; and the teacher's daily plan book. A content analysis of the data sources revealed that students grew in overall reading performance and came to view reading as a natural component of the school experience. Most notably, students demonstrated high levels of engagement with books and developed skill in word identification, fluency, and comprehension, as well as written-comprehension abilities. Immersion in literature with ongoing strategy instruction enhanced students' reading and writing abilities.

In summary, both qualitative and quantitative studies provide evidence that teaching comprehension strategies based on reading research benefits and increases students' comprehension. Across these studies, strategy instruction increased students' willingness to read difficult material, discover meaning in text, and react to and elaborate on text meaning.

Summary

Learning to read with good comprehension is an enormously complex task. Since the 1970s, researchers have made much progress in understanding the components of reading comprehension and the role that instruction plays in helping students acquire strong comprehension skills. Good comprehension is more than understanding at the word, phrase, or sentence level, as thirty-nine researchers report in the recently published text *Comprehension*

Instruction: Research-Based Best Practices (Block & Pressley, 2001). According to all prior work, as Pressley (2000) succinctly stated, effective comprehension instruction enables students to also understand the gist—the big ideas in the text.

In this book the chapter authors propose specific methods by which to develop students' motivation, their repertoire of comprehension strategies, and their independent meaning-making abilities. They also provide substantial evidence that comprehension instruction makes a difference. Students can learn to comprehend at higher levels—to efficiently and independently use comprehension strategies such as predicting, questioning, mental imagining, and summarizing. During the 1980s and 1990s, researchers' quest to identify comprehension instruction that made a difference was a great adventure. We also believe that great adventures still lie ahead. Each chapter of this book concludes with a section on recommendations for comprehension instruction in the future.

There is still much to do, and much that we need to know, in order to assure that all students become competent comprehenders. We welcome you to our book. We want our book to assist you to become a catalyst so that every student becomes a good comprehender who is able to read with joy, ease, and rich understanding. We want this book to assist you in developing new research programs and instructional methods that empower all readers to gain meaning from the newly evolving technologically driven and text-based resources of the future. The great adventure continues!

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Chapter One

Reconceptualizing Reading Comprehension

Anne P. Sweet and Catherine Snow

In this chapter we discuss reading comprehension from a perspective that reflects the work of the RAND Reading Study Group (RRSG). This study group was formed in the year 2000, after the U.S. Department of Education's Office of Educational Research and Improvement (OERI) asked RAND to examine ways in which OERI might improve the quality and relevance of the education research funded by the agency. In response to this call, RAND convened study groups in the areas of reading and mathematics education to develop long-term programs of research in the two fields. The RRSG sets forth a framework for a program of research in reading comprehension that serves as a starting point for a major discussion among researchers, practitioners, and policymakers of needed research and development related to reading comprehension. We view the report as a "living document" that should be regularly revised over the course of the program.

In its revised report (RAND Reading Study Group, 2002), the study group formulates a proposal concerning the research issues that the community of reading researchers most urgently needs to address over the next ten to fifteen years. The proposal is an invitation to join a conversation about an area of great practical importance: reading development and reading instruction. It attempts to map the fields of knowledge relevant to a major educational goal—improving reading outcomes—and to identify some key areas in which research would help us reach that goal.

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The proposed research agenda builds upon a number of recent efforts to summarize the knowledge base in the field of reading. These efforts include the National Research Council report titled *Preventing Reading Difficulties in Young Children* (Snow, Burns, & Griffin, 1998), the National Reading Panel (NRP) report *Teaching Children to Read* (2000), and the recently published edition of the *Handbook of Reading Research* (Kamil, Mosenthal, Pearson, & Barr, 2000). Given the availability of these and older sources, the RRSg did not attempt an exhaustive synthesis of the knowledge base concerning reading and its implications for instruction and assessment of the general population; in many cases the study group exemplifies its claims rather than documenting them comprehensively. The study group argues that major challenges in the area of reading include understanding how children become good comprehenders, how to design and deliver instruction that promotes comprehension, how to assess comprehension, and how to prevent comprehension failure.

The RRSg is composed of fourteen experts representing a range of disciplinary and methodological perspectives on the field of reading. This group functioned as an expert panel over two years (2000–2001) to establish a convergent perspective on what is known about reading, what the most urgent tasks in developing an integrated research base are, and what needs to be done to improve reading outcomes. The study group decided early in its deliberations to concentrate on the issue of promoting proficient reading, with a focus on the development of comprehension and the capacity to acquire knowledge through reading. This is a field in which the accumulated knowledge base is limited to particular areas and to particular populations of students. The RRSg recognizes the need to develop a more coherent model of reading comprehension. It began this task by attempting to lay out where the most urgent gaps in our knowledge are. The study group also recognizes two needs: (1) to develop networks of communication among researchers currently working in several different research traditions relevant to comprehension and (2) to work with teachers and teacher educators to build rigorous knowledge bases about both research and practice that are mutually accessible and usable. It laid the groundwork for this process by initiating a

conversation with researcher and practitioner communities about its preliminary draft report published on the RAND Web site (<http://www.rand.org/multi/achievementforall.org>) and by presenting at numerous professional association conferences during 2000 and 2001.

What is the core problem within the field of research on proficient reading? At one level the core problem is the construction of a unifying theory of reading comprehension that acknowledges its complexity and is informed by the multiple perspectives (including educational, cognitive, linguistic, sociolinguistic, discourse analytic, and cultural) that have been brought to bear in the design and conduct of literacy research. Considerable research has been directed at issues of reading comprehension, but these research efforts have been neither systematic nor interrelated. At another level the core problem presents itself in a practical form when a sixth-grade teacher turns to research with the question “What should I do with my students who don’t understand their history texts or can’t learn from reading science texts?” Teachers with such questions encounter only a partial knowledge base. That knowledge base typically does not sufficiently acknowledge the exigencies of the classroom, does not attend simultaneously to the demands of reading to learn during content area instruction while the student is still learning to read, and may not be relevant to the reading profiles of many students in a diverse class. Given the enormous educational importance of promoting reading comprehension and learning among elementary and secondary students, we need to organize what we know about these topics, define what we need to know, and pursue the research that will help the most in improving teacher preparation, classroom instruction, and student achievement.

The purpose of the RRSG, then, has been to summarize the state of research and research-based practice in the field of reading comprehension, in order to generate a well-motivated agenda for future research that will inform practice in this area. Because the study group did not undertake the kind of extensive, expensive, exhaustive review that informed both *Preventing Reading Difficulties in Young Children* (Snow, Burns, & Griffin, 1998) and *Teaching Children to Read* (NRP, 2000), relying instead on consensus and on the

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distributed knowledge base of its members, the reader should see the study group report as a stimulus to discussion rather than a summative statement.

Issues Motivating the Report

The proposed research agenda is motivated by a number of overarching issues of concern to the research and practice communities.

The demand for literacy skills is high and increasing. Higher levels of literacy are associated with a wide range of outcomes, including higher levels of health, leisure reading, political participation, and reading to children (Smith, 1998). Moreover, ensuring advanced literacy achievement for all students is no longer a luxury but an economic necessity.

The level of reading skills is remaining stagnant. Reading scores of high school students, as reported by the National Assessment of Educational Progress, have not improved between 1970 and 2000.

There are multiple sources of difference in the reading comprehension process and outcomes. Comprehension is affected by differences in the construction and context of the reading task, often socially and culturally influenced, by differences in reader capacities, in texts, and in the reading activity.

Reading comprehension instruction is often minimal or ineffective. Materials in middle school and secondary classrooms are often too difficult or uninteresting for many students to read. Moreover, comprehension instruction tends to be emphasized less in subject-matter classrooms, where teachers focus on content.

The achievement gap between children of different demographic groups persists. The large and persistent gap in reading achievement in the later elementary and secondary grades relates to differences in achievement in other content areas and to differences in high school dropout and college entrance rates.

High stakes tests are affecting reading comprehension instruction in unknown ways. There are very few data on the impact of high stakes tests on student achievement overall; in particular, we do not know how poorer comprehenders deal with the test demands.

The preparation of teachers does not adequately address children's needs for reading comprehension instruction. Teacher preparation and professional development programs are inadequate in the crucial domain of reading comprehension, in part because the solid, systematic research base that should undergird teacher preparation does not exist.

Making good on the federal investment in education requires more knowledge about reading comprehension. The fourth-grade slump in reading achievement is a well-documented phenomenon (Chall, Jacobs, & Baldwin 1990). The recent federal investment through the Reading Excellence Act and its successor programs, Reading First and Early Reading First (totaling more than \$5 billion over the next five years), in improving early reading achievement will not ensure long-term gains without further development of our knowledge base concerning reading comprehension.

What We Know

Although these various overarching issues may make the task of developing a research agenda that would contribute to the improvement of practice seem formidable, we are encouraged by the recognition that we already know a good deal about addressing the practical challenges of improving reading comprehension outcomes.

First, we know some of the prerequisites to successful reading comprehension. We know, for example, that reading comprehension capacity builds on successful initial reading instruction and that children who can read words accurately and rapidly have a good foundation for progressing well in comprehension. We know that children with good oral language skills (large oral vocabularies, good listening comprehension) and with well-developed stores

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of world knowledge are likely to become good comprehenders. We know that social interaction in homes and classrooms as well as communities and the larger sociocultural context influence motivation and participation in literate communities and help construct students' identities as readers, thus influencing their access to text. We know that children who have had rich exposure to literacy experiences are more likely to succeed. We know about several instructional practices that are related to good reading outcomes, although such knowledge is much more extensive for initial than for later reading. Finally, we know that instruction based on an appropriate and well-articulated alignment between curriculum and assessment can improve performance in reading as well as other areas.

We also know several approaches to education and to reading instruction that do not work. We know, for example, that many approaches to compensatory education for socially, economically, and educationally disadvantaged groups do not promote success in reading comprehension. We know as well that identifying children as learning disabled, without tailoring specific instructional treatments to their individual needs, fails to generate reading comprehension gains. We know that current approaches to teaching second-language learners, whether in English as a second language (ESL), bilingual, or all-English settings, often do not address the particular challenges of reading comprehension. We know that the enormous complexities of teaching and the brevity of teacher education programs have the unfortunate consequence that the majority of novice teachers are ill prepared to engage in practice that reflects the existing knowledge base about reading. We know this situation is particularly critical for special education, ESL, and bilingual teachers who, although they need an even deeper understanding of reading, language, curricula, and instructional practices than the mainstream teacher, in fact have even fewer opportunities in their preparation programs to acquire this expertise. We know that preservice preparation and professional development in the domain of early reading instruction are improving, increasingly incorporating information from research about the characteristics of good instruction, but that such is not the case for reading comprehension instruction in the later elementary grades. We know that a frequent consequence of failure

on high stakes assessment—namely, retention in grade—does not improve long-term reading achievement without specialized instruction. Finally, although we have a fairly long list of instructional strategies that are effective in targeted interventions or experimental settings, we need to know how to implement these teaching approaches on a large scale, into a coherent reading program that spans the elementary, middle, and high school grades.

The Need for a Definition of Reading Comprehension

The larger agenda that concerns us and the RRSG is the promotion of proficient reading. We see achieving reading proficiency as a long-term developmental process; “reading well” is different at different points along the individual’s developmental trajectory. The endpoint, proficient adult reading, encompasses the capacity to read with ease and interest a wide variety of different kinds of materials for varying purposes and to read with comprehension even when the material is neither easy nor intrinsically interesting. Adult reading involves reading for purposes of pleasure, learning, and analysis, and it is a prerequisite to many forms of employment, to informed participation in the democratic process, and to gaining access to cultural capital.

Our focus is on reading comprehension as it is traditionally conceived within educational settings. Teachers think of reading comprehension as what students are taught to do in reading instruction during the early school years and the capacities they are expected to display throughout the middle and high school years. Reading comprehension is usually a focus of instruction in the postprimary grades, after students have largely mastered word recognition skills, though comprehension of text should be an integral part of reading instruction with beginning readers as well; and instruction in oral language, vocabulary, and listening comprehension should be a focus starting in preschool and throughout the elementary grades.

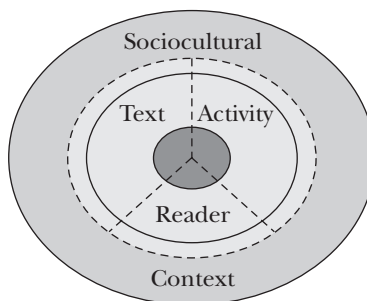
The first task in formulating this research agenda was to define reading comprehension. A useful definition would generate a map of what we know and what we need to know about the process and development of skilled reading comprehension. We define *reading comprehension* as the process of extracting and constructing

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meaning through interaction and involvement with written language. The reading comprehension process includes three dimensions: the reader, the text, and the activity. These three dimensions define a phenomenon that occurs within a larger sociocultural context (see Figure 1.1), which shapes and is shaped by the reader, and which infuses each of the three elements, influencing the texts that are available and valued, the activities that are engaged in with those texts, and the identities and the profile of capacities of the readers. The sociocultural context mediates students' experiences, just as students' experiences influence the context.

We turn now to a more formal presentation of a definition for reading comprehension. Then we consider dimensions of variability in each of the elements; we include a discussion on variability in part to elaborate and exemplify how we and the study group think about these elements and in part to focus attention on the enormous and unwarranted degree of variability in comprehension outcomes associated with variation in reader preparation and instructional activities. Though the RRSG identifies three pressing components of a long-term research agenda—improving reading comprehension through attention to (1) classroom instruction, (2) teacher preparation and professional development, and (3) appropriate assessment of reading comprehension—in this chapter we limit our discussion to classroom instruction. We

Figure 1.1. Heuristic for Thinking About Reading Comprehension.



refer the reader to the RAND Reading Study Group report (2001) for a discussion of the other two components.

Defining Comprehension

Comprehension is extracting and constructing meaning from text. *Text* is broadly construed to include any printed text or electronic text. Comprehension entails three elements:

- The reader
- The text
- The activity

These three elements of comprehension interact within a broad sociocultural context that affects the elements and the nature of their interactions. We will elaborate each of these elements in more detail.

These three elements are interrelated in dynamic ways that vary across prereading, reading, and postreading. We consider each of these three “microperiods” in reading because it is important to distinguish between what the reader brings to reading and what a reader takes from reading. Each act of reading is potentially a microdevelopmental process.

The process of comprehension also has a macrodevelopmental aspect. It changes over time with experience and instruction. We focus on the potential impacts of instruction, particularly classroom instruction, in attempting to outline the research agenda needed to improve comprehension outcomes.

The interrelationship among these elements and the various phases of the reading process can be seen in Figure 1.1.

Reader

To comprehend, a reader must have a wide range of capacities and abilities. These include cognitive capacities; motivation; and types of knowledge like vocabulary, as well as other types of knowledge, including domain and topic knowledge, and linguistic and discourse knowledge; purpose; interest; and abilities like attention, memory, critical analytic ability, inferencing, and visualization

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ability. Of course, the specific cognitive and motivational capacities that any act of reading comprehension calls upon depend on the texts in use and the specific activity in which the reader is engaging.

Fluency is also important to reading comprehension. Good comprehenders are fluent—they have good word identification skills and can read orally with speed, accuracy, and appropriate expression. Fluency is distinct from comprehension. However, fluency does appear to be a prerequisite for good comprehension.

As the reader begins to read and completes whatever activity is at hand, some of the knowledge and capabilities of the reader change. For example, a reader might increase domain knowledge during reading. Similarly, vocabulary, linguistic, or discourse knowledge might also increase. Fluency could also increase as a function of the additional practice in reading. Furthermore, motivational factors such as student interest in reading or self-concept might change as well, either positively or negatively, during a successful or unsuccessful reading experience (Sweet, Guthrie, & Ng, 1998).

Another important source of changes in knowledge and capacities is the instruction a reader might receive. Appropriate instruction will foster reading comprehension; inappropriate instruction might interfere with learning to comprehend.

Text

The features of text have a large impact on comprehension. The proliferation of computers and electronic text has led us to broaden the definition of *text* to include electronic text and multimedia documents in addition to conventional print publications. Comprehension does not occur by simply extracting meaning from text. During reading the reader constructs different representations of the text that are important for comprehension. These representations include at least the *surface code*, consisting of the exact wording of the text and the *text base*, idea units representing the meaning.

Texts can be difficult or easy, depending on factors inherent in them, on the relation between the text and the knowledge and abilities of the reader, and on the activities in which the reader is engaged. For example, the content presented in the text has a crit-

ical bearing on reading comprehension, and a reader's domain knowledge interacts with that content to affect ease of comprehension. In addition, the vocabulary load of the text, its linguistic structure, discourse style, and genre also interact with the reader's knowledge. Text characteristics must match reader knowledge and abilities for optimal comprehension to occur. Furthermore, various activities are better suited to some texts than others. Electronic texts introduce some complications in defining comprehension because they require skills and abilities beyond those required for comprehension of conventional print.

The challenge of teaching reading comprehension is heightened because in the current educational era all students are expected to read more text and more complex texts. Schools can no longer track students so that only those with highly developed reading skills take the more reading-intensive courses. All students now need to read well to pass the high stakes exams and to make themselves employable.

Activity

Reading does not occur in a vacuum. It is done for a purpose, to accomplish some task. Activity refers to this dimension of reading. A reading activity involves one or more purposes, some operations to process the text at hand, and the consequences of performing the activity. Prior to reading, a reader has a purpose, which can be either externally imposed (for example, a class assignment) or internally generated (playing a video game). The purpose is influenced by a cluster of motivational variables, including interest, preference, and prior knowledge. These initial purposes can change as the reader reads. That is, the information a reader encounters might raise new questions that make the original purpose either incomplete or irrelevant.

When the purpose is externally mandated, as in instruction, the reader might accept the purpose and complete the activity; for example, if the assignment is to read a paragraph in order to write a summary, the compliant student will accept that purpose and engage in reading operations to address it. If the reader does not fully accept the mandated purpose, internally generated purposes may conflict. Such conflicts may lead to incomplete comprehension.

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For example, this may occur in instructional activities when students fail to see the relevance of an assignment and do not read purposively to comprehend.

One important set of reading activities occurs in the context of instruction. In this context, instruction shapes the reader's purposes, operations, and consequences. The activities should be designed to promote learning how to comprehend across a wide variety of situations, texts, and contexts.

Context

From a sociocultural perspective, both the *process*, how instruction is delivered and the social interactions that contextualize the learning experience, and the *content*, focus of instruction, are of major importance. Learning and literacy are viewed as cultural and historical activities not just because they are acquired through social interactions but also because they represent how a specific cultural group or discourse community interprets the world and transmits this information. As adults, we belong to multiple discourse communities. However, the first discourse community into which children are socialized is their home and surrounding neighborhood. That community helps to shape the young reader's capacities, skills, and motivations, as well as to define appropriate texts and appropriate reading activities.

When discourse communities differ in their view of the world and in social practices that guide their children's instruction, conflicts are bound to occur. A sociocultural perspective is often invoked to help explain poorer literacy performance of students from groups traditionally not well served in U.S. schools, but in fact every act of comprehension is the expression of a particular cultural meaning. Reading research informed by a sociocultural perspective helps us to identify and deal with the various tensions that impact the reading comprehension development, engagement, and performance of both younger and older students.

The effects of contextual factors can be seen in oral language practices, in students' self-concepts, in the types of activities in which individuals engage, and in instructional history. The classroom learning environment (for example, organizational grouping, inclusion of technology, or availability of materials) is an important aspect of the context that can affect comprehension.

Variability

Variability in Reading Comprehension

There are multiple dimensions of difference in comprehension. These include differences in the construction of the reading activity that may be culturally or instructionally influenced, differences in the kinds of texts that people value and read, and differences in the capacities children bring to reading. We will now elaborate our definition of reading comprehension by giving examples of variation for the elements of reader, text, and activity. Of course, none of these elements operates independently of the other two in any authentic act of comprehension. However, we consider each in turn because each has an internal structure that deserves further consideration and that may clarify how the RRSR conceptualizes these elements of reading comprehension and the interface among them.

Variability in Readers

Proficient reading assumes a set of variables defining capabilities and dispositions that readers bring to the task of reading. Reader differences in capabilities such as fluency in word recognition, oral language ability, and domain knowledge, along with differences in dispositions such as the reader's motivation, goals, and purposes, are all important sources of variability in reading comprehension. Such variables interact with each other and with the text to which the reader is exposed (for example, narrative, expository, and so on) as determinants of performance on a given reading task (for example, acquiring knowledge in a domain, comparative analysis, problem solving). However, the capabilities and dispositions the reader brings to the task of reading, his or her engagement with and responses to given texts, and the quality of the outcomes produced by the act of reading for some purpose all take place within a broad sociocultural context and are themselves shaped by related factors such as cultural and subcultural influences, socioeconomic status, home and family background, peer influences, classroom culture, and instructional history. These multiple and interacting influences contribute to inter- and intra-individual differences in reading proficiency (for example, see Tabors &

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Snow, 2001, for a review of language and literacy development in second-language learners). Any research agenda focused on reading comprehension will have to attend to the dimension of reader differences or perhaps more precisely to sources of variation in how outcomes relate to a purposive act of reading.

Variability in Text

Scholars have long recognized that texts should become more complex as reader capacities grow and also that the characteristics of various genres and subject matters create varying challenges for readers. Here, we consider the sources of varying challenge within text.

The texts that people read today are substantially more diverse than those in use thirty years ago. In the mid-twentieth century, children were assigned specific readings that were crafted for instructional purposes, or they were exposed to a select group of books in the narrative, descriptive, expository, or persuasive genres. The reading materials that made it into the canon did not even come close to representing a broad array of cultures and socioeconomic classes. U.S. society is experiencing an explosion of alternative texts that vary in content, readability levels, and genre; that incorporate multimedia and electronic options; and that pertain to a wider variety of cultures and groups. This will make it much more difficult for teachers to coordinate the selection and availability of texts for individual readers.

The study group's starting point in understanding variability in text is to map the large space in which texts that are potentially available to the readers are located. This space includes the following dimensions and categories:

- Discourse genre, such as narration, description, exposition, and persuasion
- Discourse structure, including rhetorical composition and coherence
- Media forms, such as textbooks, multimedia, advertisements, hypertext, and the Web

Sentence difficulty, including vocabulary, syntax, and the propositional text base

Content, including different types of mental models, cultures, and socioeconomic strata, as well as age-appropriate selection of subject matter and the practices that are prominent in the culture

Texts with varying degrees of engagement for particular classes of readers

The assignment of texts to specific readers becomes more difficult as alternative texts grow in volume and diversity. Teachers will need computer technologies to meet the level of complexity that will be expected in schools of the future. The assignment of texts should provide a strategic balance among student interest in the subject matter, the student's level of development, particular challenges that the student faces, pedagogical goals in the curriculum, and availability of texts.

One salient challenge is the assignment of texts to children at different grade levels when curricula are developed on a broader institutional scale. We know that the assignments need to be diverse, but beyond that widespread consensus an incisive plan must reflect scientific and pedagogical agendas rather than a purely political agenda. The large gap between the available electronic and multimedia materials and teachers' understanding of how they should integrate these with the reading curriculum needs to be filled. Few textbooks are well written or promote understanding at a deep conceptual level, going beyond the shallow knowledge that has pervaded our school systems. The selected texts for a child need to be sufficiently challenging and engaging in addition to expanding comprehension proficiency. Otherwise, the children will not be intrinsically motivated to continue literacy development throughout their lifetimes.

Variability in Activity

A major issue of concern in U.S. schooling is how infrequent and ineffective instructional activities focused on teaching comprehension are (Durkin, 1978–1979). We know, though, that many

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instructional activities can improve comprehension. In the following section, we consider the nature of excellent comprehension instruction in order to develop a research agenda for improving comprehension outcomes.

We discuss instruction under the heading of activity even though activity is a larger category than instruction. *Activity* refers to the acts that a reader engages in with a text, and it is defined as encompassing purpose, operations, and consequences. Nonetheless, given the RRSg's focus on research to improve reading outcomes, we concentrate on instructional contexts for reading activity in this chapter.

The study group considered variation in activity generated by various purposes for reading (for example, reading for pleasure versus reading in order learn specific subject matter) as well as by focus on various operations while reading (for example, attention, fluency, monitoring comprehension). It considered, in particular, (1) the issue of how teacher-generated purposes conform or conflict with likely learner purposes and (2) the factors that influence teacher-imposed purposes. It also reviewed what scholars know about variability in attention, word reading, fluency, syntactic parsing, constructing a propositional text base, constructing mental models, generating inferences, monitoring comprehension, and using deep comprehension strategies. Each of these operations reflects specific reader capacities, and each at the same time is facilitated or impeded by features of the text being read.

Of course, it is variation in consequences that is of the greatest ultimate importance. Some classroom-structured reading activities generate important changes in the reader's capacity to comprehend an array of texts, whereas others may be limited to improving comprehension only of the text under consideration, and still others may have no long-term consequences at all (see Tierney & Cunningham, 1984, for a related distinction between learning to comprehend across texts versus comprehending a given text).

In sum, numerous dimensions of variability can be associated primarily with the reader, including sociocultural influences, group differences, interindividual differences, and intra-individual dif-

ferences. Research evidence available on variability deriving from text or from activity, in comparison, is less apparent. Although previously articulated models of reading (Jenkins, 1976) have certainly pointed to reader, task, and text as three elements of interest (see Alexander & Jetton, 2000; Graves & Graves, 1994; Graves, Graves, & Braaten, 1996, for discussions of the tetrahedral model), research has nonetheless focused primarily on the reader, locating explanations for failure and targeting procedures for improvement there. The study group would argue that thinking creatively about the activity, in particular those activities in which readers are engaged with the purpose of improving their capacities to read with comprehension, and about the texts is equally important. The role and challenge of the text expands, furthermore, as novel electronic and multimedia texts become an increasingly important domain for reading.

Variability in Context

According to our model, contextual factors ranging from economic circumstances to social group membership to classroom organization can influence reading comprehension. We underscore that contextual factors operate at many levels to influence the reader, the text, and the activity in profound ways. For example, availability and variability of resources matter greatly; consider how the larger community, the school district, the school building, and the classroom vary singularly and in combination as a function of context. One of the more glaring aspects of the variability in context is the degree to which the quality of instruction in reading varies from schools serving economically secure, English-speaking, European American families and those serving economically marginalized families and those from other ethnic and linguistic groups. Not surprisingly, outcomes vary as radically. Reading comprehension, like instruction and learning, are inextricably linked to and infused by the larger context that defines them. Understanding the full complexity of reading comprehension requires understanding that it is a cognitive, linguistic, and cultural activity that is confounded with a range of contextual factors such as poverty.

What a Reader Looks Like and How We Know She's Reading

According to our model, each reader is a bundle of complexity. Moreover, no two readers are necessarily the same bundle of complexity, although they are likely similar in essential ways. Put another way, a reader is like a fingerprint—each is unique but similar to others. Each is influenced by individual characteristics of the reader herself, the text, the activity, and the context. Teachers are challenged in many ways when teaching students to read with understanding and to learn from content text. The first part of the challenge is assessing each reader and the particular circumstances that influence the reader's disposition toward reading success. The second part of the challenge for teachers is providing sound reading instruction for all students—carefully structuring reading activities, selecting instructional texts, employing research-based instructional practices, and gauging students' reading progress along the way.

Teachers' making formative as well as summative assessments of how well students are reading is important. Some of these assessments can be informal, especially formative ones; others can be formal, most likely summative ones. At this point the tools available to teachers for use in assessing how well students read and understand what they read are wanting. Because knowledge, application, and engagement are crucial consequences of reading with comprehension, assessments that reflect all three of these are needed. Current thinking about the nature of reading comprehension, as illustrated in Figure 1.1, creates a demand for new kinds of assessment strategies and instruments that more robustly reflect the dynamic developmental nature of comprehension and represent adequately the interactions among the dimensions of reader, activity, text, and context.

Next, we turn to a more explicit consideration of the proposed research agenda. The overarching goal of this agenda is improving reading comprehension outcomes. We limit our discussion to the subtopic of instruction and classroom practices, leaving the reader to examine the RRSR report (2001) for the study group's discussion on teacher preparation and professional development and the assessment of reading comprehension.

A Research Agenda for Improving Reading Comprehension Instruction

Good instruction is the most powerful means of promoting the development of proficient comprehenders and preventing reading comprehension problems. Narrowly, the purpose of comprehension instruction is to promote the ability of a reader to learn from text. More broadly, comprehension instruction provides students access to culturally important domains of knowledge and a means of pursuing affective and intellectual goals.

Effective comprehension instruction is the process of enacting practices that reflect the orchestration of knowledge about readers, texts, purposeful activity, and contexts for the purpose of advancing students' thoughtful, competent, and motivated reading. This definition suggests that instructional decision making is a dynamic and highly interactive process. Drawing upon the literature that the study group uses to describe the many reader variables that are integral to proficient reading comprehension (see RRSB, 2001), we suggest that students can be characterized along a continuum from low need to high need of the instructional support they will require to become proficient comprehenders. However, this characterization of the reader must also take into account the nature of the text the student is reading, as well as the nature of the criterial task. We argue that any reader can be a high-need reader as a function of the degree of challenge of the text (that is, the text is poorly written, dense, contains a number of unfamiliar ideas) and as a function of how the reader is to demonstrate understanding of the text (for example, recall, reasoning, application, evaluation). Finally, the teacher must consider the broad range of contextual factors that will influence instructional opportunities for particular learners.

These contextual factors include but are not limited to community- and schoolwide factors, the culture of the classroom, the specific curriculum and instructional activities in which students are engaged, and the nature of the interaction between teacher and student as well as among students. Similarly, a student who may appear to be a high-need reader when we examine the reader variables in isolation may in fact be very successful in an instructional setting in which the teacher attends to this student's needs

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by selecting texts, designing criterial tasks, and making decisions about how to structure the context in a fashion that maximally supports the student's participation and learning.

One implication of this definition is that instructional researchers, regardless of the method they employ, need to attend to each of these features, if the research is going to yield usable knowledge. Careful descriptions of the participants need to be accompanied by careful descriptions of the texts used in the research and the specific nature of the task(s) for which students are using reading in the specific context of instruction. The context, in the case of classroom-based research, includes but is not limited to general classroom conditions (see Allington, 2000) that set the stage for effective instruction; the specific nature of the instructional activity (or activities) in which the learner is engaged; and the specific nature of the support provided by teachers, peers, and instructional tools (for example, computers).

What We Know

Although we prioritize research on comprehension instruction in this agenda, suggestions for future research are built on a knowledge base that is in some cases fairly well articulated.

PRINCIPLE 1: Instruction that is designed to enhance students' reading fluency leads to fairly significant gains in word recognition and fluency and only moderate gains in comprehension.

Most fluency instruction has consisted of repeated reading of the same text, using a variety of techniques. The NRP (2000) examined the wide-ranging literature on repeated reading and found that repeated reading was effective for normal readers through the fourth grade (there were no studies of normal readers beyond that grade) and for students with reading problems throughout high school. Most studies have found that reading connected text is necessary for effective fluency instruction, but one study (Tan & Nicholson, 1997) has indicated that reading isolated word lists also leads to increased fluency.

In addition to repeated reading techniques, another approach to promoting fluency involves ensuring that proficiency and flu-

ency are acquired during instruction in all components of reading, starting with letter knowledge and phonemic awareness and moving to decoding and word recognition (Berninger, Abbott, Billingsley, & Nagy, 2001; Wolf & Katzir-Cohen, 2001). Both sets of investigators have developed intervention programs that address specific component skills, foster linkages among all relevant systems—orthographic, phonological, semantic, and morphological—and emphasize fluency at each step. These programs are very new, and no data on their success in promoting fluency exists yet.

PRINCIPLE 2: Instruction has been shown to be effective in providing students a repertoire of strategies that promote comprehension monitoring and foster comprehension.

Due to the experimental studies that the NRP (2000) reviewed, we know that the activity of engaging students in identifying the big ideas in a text and graphically depicting the relationships among these ideas improves readers' recall and comprehension of text. We also know that in grades three to five, question answering in the context of engagement in elaborative conversations improves students' comprehension of the text used in instruction and improves comprehension of a novel text as well. Teaching students in grades three to nine to self-question while reading text enhances their understanding of the text used in the instruction and of novel texts as well. Summarization studies conducted in the upper elementary grades indicate that learning to paraphrase text, identify the gist of text, and identify and integrate the "big ideas" enhanced students' recall of the text being taught and their capacity to understand novel text. Teaching students in grades three through six to identify and represent story structure improves their comprehension of stories. With this strategy, researchers found no evidence of transfer to new stories, and improvement was more marked for low-achieving readers.

PRINCIPLE 3: The explicitness with which teachers teach these strategies makes a difference in learner outcomes, especially for students who are low achieving and who profit from greater explicitness.

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Results on the immediate impact of instructional programs have been quite positive, but we have less positive evidence that students continue to use the strategies in the classroom and outside of school after the conclusion of the instruction (Keeny, Cannizzo, & Flavell, 1967; Ringel & Springer, 1980) or that they transfer the strategies to new situations. Recent studies have underscored the importance of teacher preparation when the goal is to deliver effective instruction in reading comprehension strategies (Duffy et al., 1987; Brown, Pressley, Van Meter, & Schuder, 1996). This is especially important when the students are low performing. Implementation of a direct approach to cognitive strategy instruction in the context of the actual classroom has proved problematic. Proficient reading involves much more than using individual strategies. It involves a constant ongoing adaptation of many cognitive processes. Successful teachers of reading comprehension must respond flexibly and opportunistically to students' needs for instructive feedback as they read. Intensive teacher preparation has been shown to be effective in teaching teachers to deliver successful strategy instruction, and this has resulted in improved student outcomes on reading comprehension tests.

PRINCIPLE 4: Researchers have a number of working hypotheses about the role of instruction in explaining and addressing the problems of poor comprehenders.

Research has indicated that specific instruction, for example, prereading, can improve poor comprehenders' understanding of a difficult text. Researchers have used instructional scripts that provide students with essential background knowledge, key concepts, and vocabulary (Graves, Cooke, & LaBerge, 1983), or they have activated students' background knowledge through extended discussions (Langer, 1984). Researchers have also used such activities as story structures or graphic organizers to provide scaffolding for improved comprehension of a selected text (NRP, 2000). They have also used pre- and postwriting activities as effective instructional activities to promote comprehension for low-achieving readers. These instructional activities effectively address the problem of low-achieving readers' poor comprehension by providing instructional scaffolds to help them comprehend text.

The nature of the strategy taught seems less significant than the role that strategy instruction plays in engaging the reader in active interaction with the text (Chan & Cole, 1986). A synthesis of the research literature regarding the teaching of comprehension strategies to students with learning problems (Gersten, Fuchs, Williams, & Baker, 2001) indicates that successful comprehension instruction for the poor comprehender is characterized by explicit modeling by the teacher, the inclusion of additional opportunities for practice with feedback, skillful adjustments to the learner's level, and the reader's mindful engagement with the purposes for reading.

PRINCIPLE 5: The role of vocabulary instruction in enhancing comprehension is complex.

Vocabulary knowledge is strongly linked to reading comprehension (Freebody & Anderson, 1983), and vocabulary knowledge is an especially important factor in explaining the reading problems of second-language learners (García, 1991; Laufer & Sim, 1985). However, this relationship is extremely complex, confounded by the complexity of relationships among vocabulary knowledge, conceptual and cultural knowledge, and instructional opportunities.

The research in this area is vast, so we touch only upon a few key points. The NRP (2000) found that direct instruction of vocabulary improved students' reading comprehension. The effects of wide reading on vocabulary growth are, however, debatable. The NRP did not find compelling evidence that programs that are designed to increase independent reading, such as sustained silent reading, promoted vocabulary growth. Nevertheless, a powerful correlation exists between volume of reading and vocabulary growth among first-language learners (Stanovich & Cunningham, 1992), and book-flood studies with second-language learners have had powerful effects (Elley, 1991). Furthermore, a wealth of evidence relates children's oral language experiences to subsequent vocabulary growth (Dickinson & Tabors, 2001). Much of this evidence has been derived from studies of the effects of home and preschool on language development. Researchers know less about the effects of school-based oral language activities and vocabulary

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learning and growth, although researchers including Meichenbaum and Biemiller (1998) have argued that the fourth-grade slump we mentioned earlier in this chapter is caused at least in part by the failure of schools to promote oral language development while children are still working on the mechanics of reading.

Although scholars can make some generalizations about the characteristics of effective vocabulary instruction (Stahl & Fairbanks, 1986), the number of studies that have directly examined the effects of vocabulary instruction on reading comprehension is still relatively small. Some of the strongest demonstrations of the effects of vocabulary instruction on reading comprehension—the work of Isabel Beck and her colleagues (for example, Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Pople, 1985)—used rather artificial texts heavily loaded with unfamiliar words. Little research addresses the question of the conditions—which types of texts, words, readers, and outcomes—constrain whether vocabulary instruction can actually improve comprehension.

PRINCIPLE 6: Teachers who provide comprehension strategy instruction deeply connected within the context of subject matter learning, such as history and science, foster comprehension development.

Teaching reading strategies, such as questioning, summarizing, monitoring comprehension, and using graphic organizers facilitate reading comprehension (NRP, 2000). Several quasi-experimental investigations show that when the strategy instruction is fully embedded in in-depth learning of content, students learn the strategies to a high level of competence (Guthrie, Van Meter, Hancock, Alao, Anderson, & McCann, 1998). If students learn that strategies are tools for understanding conceptual content of text, then the strategies become purposeful and integral to reading activities. Students' connection of cognitive strategies to their growing knowledge of an area of content enables them to increase their awareness and make deliberate use of the strategies as means for learning (Brown, 1997) in microgenetic analyses of instruction. Without the close linkage of strategies with knowledge and understanding in a content area, students do not learn strate-

gies fully, do not perceive them as valuable tools, and are less likely to use them in new learning situations with new text.

Teachers can help students learn that gaining new ideas, increased understanding, and literary experience is an aim of reading and that strategies are a powerful way to accomplish that aim. This helps students to use strategies when they are appropriate. If educators teach comprehension strategies with an array of content and a range of texts that are too wide, then students do not fully learn the strategies. If educators teach strategies with too narrow a base of content or text, then students do not have a chance to learn how to transfer them to new reading situations (Rosenshine & Meister, 1994). The optimal balance enables students to learn that strategies are an important means for understanding but are not the main point of reading activities. The main purposes for reading are gaining meaning and knowledge.

An important aim of strategy development is to enable students to initiate the strategies independently (Alexander & Murphy, 1998). Students who spontaneously apply a strategy, such as questioning, when it is sensible will improve their comprehension. Thus, students must have motivation, self-efficacy, and ownership regarding their purposes for reading and strategies to be effective comprehenders.

PRINCIPLE 7: The use of various genres of text (that is, narrative and informational text) leads to important differences in instructional opportunities, as assessed by teacher and student discourse.

Knowledge of text structure is an important factor in fostering comprehension. Readers who are unaware of structure do not approach a text with any particular plan of action (Meyer, Brandt, & Bluth, 1980). Consequently, they tend to retrieve information in a seemingly random way. Students aware of text structure organize the text as they read, and they recognize and retain the important information it contains.

Simple exposure to stories is helpful, but explicit instruction is valuable. Children are taught to ask themselves generic questions that focus on the principal components of a story, which aid in the

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identification of the relevant and important information in stories (Mandler & Johnson, 1977; Stein & Glenn, 1979; Williams, 1993). In addition to the value of the questions as an organizational guide to the text structure, the questions also enhance active processing of the text, thus qualifying as comprehension-monitoring instruction. Such instruction improves the student's ability to see relationships in stories, answer comprehension questions, and retell in a focused fashion. Although stories form the bulk of reading material for instruction in early grades, scholars have made a case for greater inclusion of other text genres in instruction (Duke, 2000; Pappas & Barry, 1997). Such inclusion would allow for instruction that more closely matched the demands of reading in later grades.

The demands placed on readers change as they progress through school. At about the fourth grade, they are expected to read expository material in content instruction. Because expository text is often so dense with information and unfamiliar technical vocabulary, students must perform complex cognitive tasks to extract and synthesize its content (Lapp, Flood, & Ranck-Buhr, 1995). Expository text involves relatively long passages, less familiar content, and more complex and varied structures (Armbruster & Anderson, 1984) than narrative text. Explicit teaching about structure enables students to differentiate between common structures and to identify the important information in a text in a coherent, organized way (Armbruster & Armstrong, 1993). Researchers have used a variety of instructional techniques to aid in students' comprehension of expository text, including teaching children to self-question using generic questions (Wong & Jones, 1982), to analyze the text using mapping (Swanson, Kozleski, & Stegink, 1987; Boyle & Weishaar, 1997), to summarize (Nelson, Smith, & Dodd, 1992), and other simple strategies. These interventions have proved effective.

PRINCIPLE 8: Teachers who provide opportunities for student choices, challenging tasks, and collaborative learning increase motivation for reading and comprehension of text.

For students from grade one to grade twelve, classroom activities that enable and encourage students to take responsibility for

their reading increase their reading achievement. For example, extensive observations of classroom instruction for primary students show that when teachers provide challenging passages for reading, students exert effort and persistence. Simultaneously, when students have a limited but meaningful choice about the learning activity, such as which part of a text to read, they invest higher energy in learning than if the teacher always prescribes the tasks (Turner, 1995). With elementary and middle school students, scholars have widely documented that teachers who provide meaningful choices and autonomy support increased motivation for reading and effortful attention to gaining knowledge from text (Reeve, Bolt, & Cai, 1999). The explanation for the benefit of autonomy support for reading comprehension is that students become more active learners when they have a minimal but meaningful choice in the topics, texts, activities, and strategies for learning.

Many investigators have documented the roles of motivation and engagement as a link between instruction and achievement (Skinner, Wellborn, & Connell, 1990; see Guthrie & Wigfield, 2000, for a review of empirical research). In brief, they have shown that engagement is a mediator of the effects of instruction on reading achievement. If instruction increases students' engagement, then students' achievement increases. In this literature *engagement* refers to a combination of the following: (1) students' use of cognitive strategies, (2) the presence of intrinsic motivation to read, (3) the use of background knowledge to understand text, and (4) the social interchanges in reading, such as discussing the meaning of a paragraph or the theme of a narrative. Therefore, instruction affects reading comprehension outcomes through the avenue of active engagement in frequent, thoughtful reading for understanding.

PRINCIPLE 9: Teachers nominated as effective teachers enact a wide range of instructional practices that they use in a thoughtful and dynamic fashion.

Effective teachers of reading engage in a diverse array of instructional practices (NRP, 2000; Pressley et al., 2001; Taylor, Pearson, Clark, & Walpole, 1999). This panoply of practices results in a complex environment that fosters comprehension. Effective

teachers used a variety of instructional practices related specifically to reading comprehension. For example, effective teachers asked high-level comprehension questions, requiring students to make inferences and to think beyond the text. Effective teachers helped readers make connections between texts they read and their personal lives and experiences. Effective teachers used small group instruction to meet the individual needs of their readers. Effective teachers provided their readers with reading materials at their appropriate reading level. Effective teachers of young readers monitored progress in reading through the use of informal assessments.

One critically important but thorny aspect of teaching reading in general and comprehension in particular is the appropriate balance between the teaching of skills and the use of literature. Since the late 1970s, the reading field has vacillated between the two—with fierce opposition between the camps. However, the choice does not seem to be a concern to most teachers. In a survey of teacher practices, Baumann, Hoffman, Moon, and Duffy-Hester (1998) reported that teachers believed both to be essential for good teaching. In fact, teachers reported that they taught skills and that they made extensive use of literature as well.

PRINCIPLE 10: Despite the well-developed knowledge base regarding the value of instruction designed to enhance comprehension, typical classroom teaching spends inadequate time and attention on comprehension instruction in the primary and upper elementary grades.

In the late 1970s, research revealed that teachers devoted only 2 percent of the classroom time designated for reading instruction to actually teaching students how to comprehend what they read (Durkin, 1978–1979). Over twenty years later, not much has changed in the upper elementary (Pressley, 2000) or primary grades (Taylor, Pearson, Clark, & Walpole, 1999). For example, Taylor and colleagues documented the limited opportunities that children in grades K–3 had to develop knowledge and thinking even in the context of schools that were effectively beating the odds—that is, schools that were realizing higher early reading achievement gains than would be predicted, given the

demographics of their student populations. Using survey and classroom observation data, they reported that only 16 percent of the teachers in the entire sample were reported to emphasize comprehension.

Despite the reputed role that inexperience with informational text plays in the fourth-grade slump (Chall, Jacobs, & Baldwin, 1990) and despite evidence that some young children prefer to read informational text (Pappas & Barry, 1997), primary-grade classrooms have a significant dearth of informational text (Duke, 2000). Beginning in grade four and throughout their formal education, students will spend the majority of their time reading expository text, yet their instruction in grades one to three has been primarily in narrative text. Recently a plethora of engaging informational texts, written for primary-grade students, has become available through publishers of school texts. However, these books are not yet in sufficient supply in primary classrooms, thus primary-grade teachers have not placed an emphasis on teaching students how to read informational text as compared to narrative text.

Other Topics

Although we do not broach the topic of teacher education and professional development in this chapter, as does the RRSR in its report (2001), we recognize that the teacher is central to discussions of how to improve comprehension instruction in schools today. Recent studies have underscored the importance of teacher preparation when the goal is to deliver effective instruction in reading comprehension strategies (for example, see Pressley, 1998). This is especially important when students are low performing. The question becomes, how can we bring about increased teacher quality and expertise in teaching reading comprehension? The report defines *increased teacher quality and expertise* as teachers who have a deep knowledge about the reading process and reading comprehension and who have the knowledge and skills to implement research-based instructional strategies in their teaching. For a discussion of this topic, we refer you to the report.

We also acknowledge the importance of assessments in the field of reading comprehension. A satisfactory assessment system is a prerequisite to making progress with all aspects of the proposed

research agenda, and thus the RRSB (2001) argues that investment in improved assessments has very high priority. Of particular relevance in this chapter is the recognition that assessing the impact of changes in instruction depends on having valid, reliable, and sensitive assessments. The impact of assessment on instruction is a question that constitutes a research agenda of its own, particularly in this era of education reform, which is so highly oriented to accountability. For a discussion on assessment as it relates to a program of research on reading comprehension, see the RRSB report.

Finally, we submit that particular strategies for developing a research program on reading comprehension are also important. These strategies include establishing priorities in terms of mapping the territory for what new research directions constitute the best bets for improving comprehension instruction and reading outcomes. Additional and equally important considerations include ensuring programmatic efforts, developing a community of researchers, and making both research- and practice-based knowledge optimally usable for all. Our view, which is representative of the RRSB's view, is that researchers and practitioners must develop and nurture mechanisms for distinguishing excellence from mediocre practice, for reviewing and accumulating the knowledge of effective practitioners, and for incorporating effective practitioner expertise into the research process.

Three Recommendations for the Future

Our chapter portrays the design for a federally funded research effort on reading comprehension. A major premise behind this design is to promote a targeted research agenda that is sustainable, sizable, and cumulative. By *sustainable*, we mean that any research agenda on reading comprehension should continue uninterrupted over a long period of time. By *sizable*, we mean that research projects should be large in size and scope and should be supported by ample dollars. By *cumulative*, we mean that research studies should focus on particular problems, with each building on the findings of previous studies; that the program of research should unfold systematically over the long term; and creating a much-needed mechanism for regularly reviewing and synthesizing newly acquired knowledge.

The major goal of such a program, then, is to build new knowledge that will be helpful to all concerned with reading education—practitioners, teacher educators, policymakers, and parents. Given this charge, we conceive of three recommendations for the future in the form of three research questions that merit study.

What specific issues of educational urgency exist, and what are the most promising research directions for addressing them? Although the critical questions for a long-term research agenda in reading comprehension are many, we provide three examples of the most salient.

QUESTION 1: What instructional conditions should accompany strategy instruction to promote generative use of a strategic approach to learning across texts and tasks in diverse contexts and at different age levels? What specific instructional activities, materials, and practices are related to effective comprehension and engagement of students from various cultural and linguistic backgrounds at varying grade levels?

Much research shows that from the upper elementary grades onward students can learn to use strategies to advance their ability and inclination to independently learn from text (NRP, 2000). Despite this robust knowledge base, scholars have never described the appropriate embedding of strategy instruction into a larger program of reading comprehension instruction nor evaluated the effectiveness of strategy instruction across a variety of types of learners.

QUESTION 2: How should teachers of poor comprehenders in the general education setting allocate time and instructional emphasis among (1) promoting fluency, (2) teaching vocabulary, (3) instructing strategies, (4) providing extensive reading of informational and literary text, (5) encouraging writing based on reading, (6) using multimedia to support content learning, and (7) using computer programs to improve reading skills?

Teachers working in high-poverty schools need guidance about how to combine and prioritize various instructional approaches in the classroom and in particular about how to teach comprehension while attending to the often poor word-reading skills their

students bring to the middle and later elementary grades. Guidance of this kind is absent in the available research literature.

QUESTION 3: For students who are learning ESL, what variations maximize their opportunities to acquire the knowledge, skills, and dispositions of successful comprehenders?

Teachers of English-language learners, like teachers of poor reading comprehenders, are challenged by selecting among various instructional practices for particular students and groups of students and by devoting appropriate amounts of time to them. Current published research offers little guidance.

Conclusion

In this chapter we have summarized a view of reading comprehension from the RRSR report (2001). This report is designed explicitly to serve as a foundation for conversation and consultation in the field of reading researchers, in order to generate a broad base of input to any federally funded research effort. Interested parties extensively commented on the first draft during 2000–2001, through solicited reviews, reactions posted to the Web site, and questions and comments during various conference presentations. The current draft, which has undergone extensive revision and is available on-line and in hard copy from RAND, reflects a deep rethinking of the issues that those many comments stimulated. Nonetheless, the draft is far from a final statement on these issues. Knowledge continues to accumulate; conclusions continue to be subject to revision; and hypotheses are designed to be disproven. Thus, neither we nor the study group wish to portray our proposals as a final product, but rather as a somewhat more advanced progress report.

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