Beyond Decoding: Synthesis of Research on Reading Comprehension

In their first few years of elementary school, most students acquire word attack skills and sight vocabularies that permit oral reading of basic texts. To improve comprehension skills, teachers commonly use workbook exercises and reading group discussions. Yet many children do not develop more advanced strategies for reading. They do not learn to integrate meaning from different sentences, to evaluate the author's message, or to make inferences from the information they read. Although there is no single cause or simple answer for this complicated problem, educational researchers have begun to identify several significant differences between skilled and less-skilled readers that may lead to better instruction in reading.

Reading comprehension is a complex process involving the coordination of multiple factors, such as text features, task demands, and personal characteristics. Proficient readers take these factors into account and adjust their reading accordingly; they are strategic readers. Good readers understand how different reading goals and various kinds of texts require particular strategies. They are selective in the strategies they use and discriminate, for example, between reading to study for a test and reading for pleasure. Young and less-skilled readers, however, show little awareness that different purposes for reading may require different strategies (Forrest and Waller, 1979; Myers and Paris, 1978).

In fact, flexible strategic reading remains a problem even for many high school students. Smith (1967) asked good and poor twelfth-grade readers to locate details or to gather general impressions. Poor readers did not adjust their behavior to fit the demands of the task, nor were they able to describe their own reading processes. Although flexible reading is important, both groups of students reported that they could not remember being taught how to read for different purposes. This article highlights two major factors underlying the development of strategic reading: knowledge about factors that affect reading and control over reading strategies. Research has shown that both factors are required for skill reading.

What Children Know About Reading

Children's knowledge about thinking and their control over their cognitive skills has generally been referred to as "metacognition" (Brown, Armbruster, and Baker, in press; Paris and Lindauer, 1982). This term calls attention to higher order awareness and management of cognitive skills such as those involved in reading. A number of studies report developmental and individual differences in children's metacognitive understanding of reading (Baker and Brown, in press; Myers and Paris, 1978). What children know can be divided into three types of knowledge: (1) declarative, or knowing that; (2) procedural, or knowing how; and (3) conditional, or knowing when and why (Paris, Wixson, and Lipson, 1983; Resnick, 1983).

Knowing that. Declarative knowledge, or knowing that, can include facts about the reading task (for example, its purpose) and the individual (for example, one's abilities). It includes information such as the length of the task, beliefs about one's abilities, and task goals. Interviews with children about their knowledge reveal vague and often inaccurate conceptions of reading. Their declarative knowledge is highly restricted and may even include confusion over knowing that letters comprise a "word" or knowing that you "read" the print, not the pictures (Clay, 1973; Reid, 1966). By the age of six, most children understand the conventions of print, such as knowing that in English one reads from left to right and from the

Scott G. Paris is Professor of Psychology and Education, and Evelyn R. Oka and Ann Marie DeBritto are doctoral candidates in the Combined Program in Education and Psychology, University of Michigan, Ann Arbor.

The authors acknowledge the support of the National Institute of Education (NIE 82-0019) for some of the research described in this article. The opinions expressed here are the responsibility of the authors, however, and are not necessarily endorsed by NIE.
top to the bottom of the page (Johns, 1980). Knowing that comprehension is the goal of reading, however, develops more slowly. Young and less-skilled readers believe that the task is completed once the words are decoded (Canney and Winograd, 1979).

Less-skilled readers may also be unaware of the structure of stories and the clues that signal text structure, such as topic sentences and headings (Brown, Armbruster, and Baker, in press). As a result, young and less-skilled readers have considerable difficulty picking out the most important information in prose passages (Brown and Smiley, 1977; Yussen, Mathews, Buss, and Kane, 1980).

Knowing which particular information is most important is critical in being able to discern main ideas from peripheral ones.

Good readers know there are different kinds of text—such as exposition, narration, and fiction—and that many factors contribute to text difficulty. Some of this information is acquired by practice and some by explicit instruction. But however it is learned, knowledge about text and task variables—from beginning concepts about print to complex notions of logical cohesion—is fundamental to advanced reading comprehension.

**Knowing why and when.** Knowing about text variables and understanding how strategies influence comprehension are not sufficient, though, to ensure effective reading skills. Good readers also know why strategies are effective and when they should be applied. These types of *conditional knowledge* tell good readers how to make appropriate plans (Paris, Wixson, and Lipson, 1983).

Effective reading requires both skill and will. Good plans coordinate one’s effort with the goals and nature of the task at hand so that the strategies fit the situation. This view is a highly personalized approach to reading that emphasizes the constructive aspects of comprehension. But because research has shown that declarative, procedural, and conditional knowledge improve with age, practice, and teaching, it is also a developmental and instructional approach.

What are the direct implications of this research for classroom instruction? How can we promote children’s knowledge about reading and their control over strategies that improve comprehension? Several explicit suggestions derived from recent studies can help translate research into practice.

**Steps to Better Reading**

1. **Consider reading goals and characteristics of the text.** Establishing a goal for reading is a prerequisite for making appropriate plans, directing attention to important information, and monitoring one’s reading progress. One of the first steps in Stauffer’s (1969) Directed Read-
before reading it, or the teacher may
provide relevant information. Good
readers are sensitive to the difficulty
of the text and its important ideas. They
can identify topic sentences and logical
sequences of action. The planned con-
sideration of reading goals, prior knowl-
edge, text features, and task demands is
critical for effective reading compre-
rehension.

2. Choose appropriate strategies. In
order to reach a declared goal such as
skimming, studying, or memorizing,
students need to select effective stra-
gies. Research indicates, for example,
that elementary school children often
do not understand how to skim or make
inferences. They need to be taught the
what, how, when, and why of good
strategies. This is critical when compre-
hension is difficult, because the child's
common response is simply to skip the
troublesome words or phrases. Strategic
behavior during reading depends on
being informed of the need to have a plan,
to evaluate one's progress, and to be
discriminating in the use of strategies.
Ryan (1981) characterizes poor readers
as deficient in the quality and quantity
of strategy use, suggesting that poor
readers fail to realize the value of being
strategic. In a study of good and poor
readers in fourth grade, students were
directed to read and remember passages
containing new vocabulary words (Paris
and Myers, 1981). They were provided
with pencils, paper, and a dictionary
told that they could ask questions.
Good readers asked more questions and
used other aids to comprehension,
while poor readers usually asked only
about how to pronounce the new words.

Whether a particular strategy is useful
or not depends on the specific condi-
tions of its use, the goals and capabilities
of the reader, and the strategy's cost
to the reader in terms of effort and under-
standing (Paris, Wixson, and Lipson,
1983). Good readers recognize, for ex-
ample, the conditions that make reread-
ing a paragraph essential and those that
make it optional or too costly. The value
of strategies is relative and requires the
deliberate weighing of factors to deter-
mine the appropriate response.

3. Connect ideas in text. Poor read-
ers often limit their attention to decod-
ing or reading sentences as isolated
strings of words. They fail to elaborate
the meaning of the text or to infer new
information. Many studies of children's
reading and listening have found that 7-
and 8-year-olds derive literal interpreta-
tions from information, while 11- and
12-year-olds infer additional informa-
tion from what they hear or read
(Mandler and Johnson, 1977; Paris and
Upton, 1976). It is essential to draw
inferences and connect ideas while
reading in order to link temporal events
or causes and effects in sequence. A
study in which children filled in the
missing words of a passage indicated that
the ability to use subsequent as well as
previous text information to promote
comprehension improves with age (Di-
Vesta, Hayward, and Orlando, 1979).
Young children appeared to rely primarily
on information that came before the
part of the text where they had difficulty,
whereas older children were able to
relate different parts of text to construct
meaning.

Teachers play a critical role in develop-
ing a constructive approach to mean-
ing. Children need to be explicitly en-
couraged to "weave" ideas in their
minds and discouraged from expecting
to apprehend meaning passively by sim-
ply pronouncing the words. Modeling
the formation and revision of hypoth-
eses for students can provide concrete
examples of integrating information ac-
tively. Instructional devices such as
clues about the topic or questions inters-
persed in the text help stimulate stu-
dents to connect ideas (Ausubel, 1968).
Occasional paraphrasing and summar-
zation are also effective.

4. Monitor comprehension. Good
readers stop periodically to check their
own understanding and evaluate the
truth and internal consistency of the
information they have read. Young
children and poor readers, though, are
surprisingly tolerant of incomprehensi-
able information in text. In one study
of comprehension monitoring, Markman
(1979) read stories that contained con-
tradictions to third-, fifth-, and sixth-
graders. Few children reported the
internal inconsistencies, although a later
study revealed that correct detection
improves when children are explicitly in-
structed to locate anomalies (Markman
and Gorin, 1981). Children also fail at a
surprisingly high rate to detect nonsense
words, scrambled phrases, and inconsist-
tent information that they read (Baker,
1979; Garner and Reis, 1981; Wagoner,
1983). Part of the difficulty may be that
decoding requires so much attention
"Reading comprehension is a complex process involving the coordination of multiple factors. Proficient readers take these factors into account."

and effort that the child has few resources left to apply to meaning. Alternatively, poor and beginning readers may not understand that reading requires active monitoring of meaning. Or it may be that students do not know how to repair failures of comprehension. When Myers and Paris (1978) asked second-graders, "What do you do if you come to a word or sentence that you don't understand?" the most common response was, "Skip it." Using context, looking back in text, rereading, or asking for help are routine "fix-up" strategies that young readers need to learn. Successful monitoring of comprehension thus requires detection of unknown or inconsistent information and repair of the anomaly. In the face of comprehension failures, readers must be able to respond in a flexible manner and generate alternative plans, hypotheses, and strategies. The "mental pulse-taking" involved in checking one's comprehension while reading remains difficult even for high school students, but it is an important part of reading that deserves more classroom instruction.

5. Develop positive attitudes toward reading. Reading is not purely solitary or cognitive; it is a social and motivated activity. Children's early reading instruction usually includes a lot of drill and practice on basic skills, and it is becoming increasingly clear that children's attitudes toward reading influence their future achievement. Although their attitudes are shaped by many forces, parents, teachers, and curriculum materials play major roles in sustaining children's enthusiasm to read. Some researchers have found that teachers often value reading little themselves and transmit negative attitudes toward reading to students (Mueller, 1973; Rieck, 1977). Teachers who value reading, though, tend to produce positive attitudes and high achievement in their students (Schofield, 1980).

Braun, Neilsen, and Dykstra (1976) emphasize that positive attitudes help children avoid feelings of frustration and hopelessness. The negative effects of repeated failure are illustrated well in a study by Butkowski and Willows (1980), who studied three groups of fifth-grade boys—good, average, and poor readers. The students were matched for age and IQ and given a set of puzzles and anagrams to solve. Half of the subjects in each reading group received solvable tasks, but the other half received puzzles that could not be solved. How did the boys react to failure? Poor readers had lower expectations for success from the start and persisted much less in the face of failure than the other boys. They also blamed their failures on low ability and attributed their successes to factors external to themselves. Good readers, on the other hand, took personal responsibility for their successes and persevered longer on insolvable tasks. Clearly, the attitudes children form about reading and about themselves as readers influence the effort they put forth and the likelihood of success.

Teaching Comprehension Skills Directly

At least two recent research projects were designed to improve children's comprehension skills by increasing their knowledge about reading and their control over reading strategies. Palmesar and Brown (1982) worked with seventh-graders who were poor comprehenders. They taught them four specific strategies—summarizing, questioning, clarifying, and predicting. Each of these activities is a method for monitoring, fostering, and improving comprehension while reading. The researchers used reciprocal dialogues in small groups.
“Lessons that make tests meaningful help students relate new information to prior knowledge.”

groups to teach these strategies. Explicit instruction about how to do each of the activities was provided, as were extensive modeling and practice. Ten students who participated in the project for several weeks all showed significant improvement in answering comprehension questions. In a subsequent study, teachers used these metacognitive training procedures to teach the strategies in their own classrooms and observed similar success. As a result, students’ abilities to summarize, question, clarify, and predict were improved, as were their standardized reading scores and their monitoring skills.

In the second project, we conducted a classroom intervention study designed to increase children’s knowledge about reading and their use of comprehension strategies (Paris, Lipson, Cross, Jacobs, Debritto, and Oka, 1982). Each week for four months we presented classroom lessons on reading to 100 third- and fifth-graders. The lessons used metaphors such as “Be a Reading Detective” and “Road Signs for Reading” to make children aware of particular strategies. Bulletin boards, worksheets, and teachers’ instruction reinforced the importance of these strategies by using the metaphors as vehicles for communication. Thinking became public as children scrutinized their reading. We taught them how to use such strategies as skimming, but we also taught them why these strategies were helpful and when to apply them. This type of informed training was critical because it improved children’s reading strategies as well as their motivation to read. We found that children enjoyed learning about the specific tasks of reading, and they learned a great deal from class discussions about the effort and skills needed to read better. Pre- and post-tests on a dozen different measures revealed significant reading improvement for children who participated in the experimental curriculum.

Conclusion
Recent research has shown that beginning and poor readers have little knowledge about reading strategies and text variables. They do not usually recruit and use good strategies for comprehension but focus instead on decoding words and deriving literal interpretations of sentences. Research suggests that classroom instruction can promote comprehension by making students more aware of the factors that influence effective reading. Moreover, lessons that make tests meaningful help students relate new information to prior knowledge. Instruction should also foster closer evaluation by the reader of the characteristics of the text and the goals of the reading task. Learning how to monitor one’s own comprehension, including detecting errors and using repair strategies, is critical for self-guided learning. Finally, positive attitudes toward reading by both teachers and students increase achievement and willingness to learn.

References
Johns, J. L. “First Graders’ Concepts About Print.” Reading Research Quarterly
Just published—

"the Goodlad report"—
a bold agenda for educational reform in the 1980s

Educators, politicians, and the general public have been unanimous in their condemnation of the quality of public schooling in America today. But few voices are heard that can furnish solutions. Now John Goodlad, one of the country's most astute experienced educators, offers a detailed, realistic program for reform.

In this landmark book, based on his widely publicized research project "A Study of Schooling," Dr. Goodlad provides an agenda that totally redesignes our elementary and high school systems. His in-depth investigation, involving more than 27,000 interviews over eight years, reveals deeply entrenched problems that suggest far-reaching restructuring.

Among his observations:
- children should begin formal schooling earlier
- the "tracking" system fosters mediocrity among average students
- the school should be smaller, or divided into units
- poor and minority-group students are often short-changed for life by today's vocational programs
- team systems can solve the flatness problem in the teaching profession

Every aspect of schooling is considered by Dr. Goodlad in this brilliant, positive work—already being adopted for education courses. His recommendations include many controversial proposals: "rolling admissions," "head teachers," high school graduation at 16, less "teacher-talk." As an educator, you may not agree with all his ideas. But it is essential that you read this report, and be aware of what is surely the most stimulating and provocative study in decades.

A PLACE CALLED SCHOOL
Promise for the Future

by John I. Goodlad, former Dean, Graduate School of Education, University of California at Los Angeles

416 pp., $18.95

At your bookstore, or use this coupon

McGraw-Hill Book Company
PO Box 400
Hightstown, NJ 08520

Please send me copies of John Goodlad's A PLACE CALLED SCHOOL (023626-7) at $18.95 plus local tax, postage, and handling. I will either pay within 15 days or return the book(s) postpaid.

Name

Address Apt.

City-State-Zip

Order subject to acceptance by McGraw-Hill. Offer good only in the U.S.

I have enclosed payment (plus any tax) — McGraw-Hill pays all regular postage and handling charges. I may return book(s) within 15 days for full refund.

23-E253-4253-3