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AUTHOR Collins, David; Collins, Ann
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ABSTRACT

This book is intended to provide the content and structure for a group study of reading and instructional practices that advance reading achievement. The book includes concise summaries of research that reflect sound practices in reading instruction and the most current understanding of the process of reading. It pulls together much of what has been learned in recent years about reading and the teaching of reading. In the book, teachers engage in discussions about this content--the best way to gain the most from it is to join together and organize joint study of the research findings and plan and conduct "experiments" to try out useful ideas. Activities in the book for collectively studying reading are designed to build a professional culture of collaboration among those who participate in the study. The book finds this "professional learning community" highly beneficial in implementing new practices and developing the school's capacity to become self-diagnosing and self-renewing. The dual purposes of the book are: to make the best available research on effective reading instruction accessible to teachers and administrators; and to guide and support teachers and administrators as they form a professional learning community through the study and application of effective reading instruction. Includes a glossary of relevant terms. An Appendix contains: Recommended Study-Team Session Structure; Discussion Questions; Follow-Up and Collective Action Activities; Designing Action Research Projects; Refining Lessons through Reteaching: The Plan-Teach-Revise Reteach Cycle; Analysis of Reciprocal Teaching Script; and Assigning Action Responsibilities. Contains an extensive, focused bibliography. (NKA)

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Advancing Reading Achievement

Becoming Effective Teachers of Reading through Collective Study

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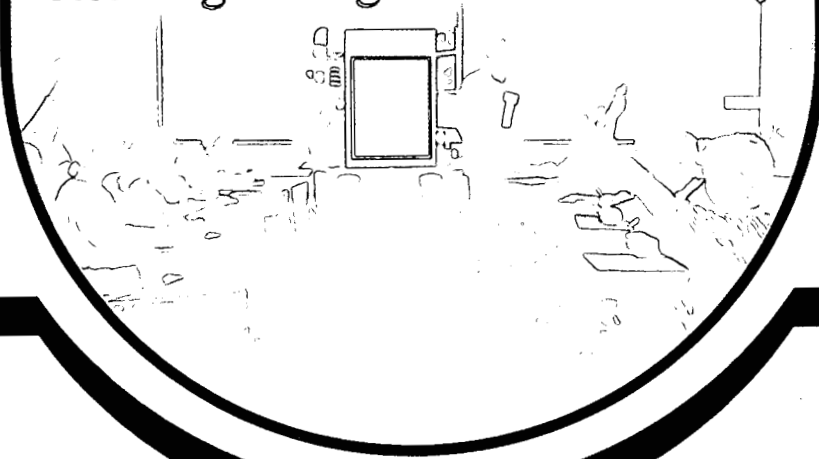
SERVE
Improving Learning through Research & Development

Advancing Reading Achievement

Becoming Effective Teachers of Reading through Collective Study



The REGIONAL EDUCATIONAL LABORATORY at SERVE

Written for SERVE by:
David Collins and Ann Collins

Edited by:
Donna Nalley, Publications Director, SERVE
Karen DeMeester, Senior Program Specialist, SERVE
Christy Casbon, Assistant Program Specialist, SERVE

Designed by:
Jeremy McClellan, Graphic Designer, SERVE

List of Reviewers for *Advancing Reading Achievement*
Mary Apodaca, SERVE Program Director, Tallahassee, FL
Jody Bolla, Miami-Dade County Schools Reading Coordinator, Miami, FL
Diana Bowman, SERVE Project Director, Greensboro, NC
Gloria C. Correro, Professor and Associate Dean Emerita
and Member of the National Reading Panel, Mississippi State University, Starkville, MS
Richard Culyer, Professor of Education, Coker College, Hartsville, SC
Paula Egelson, SERVE Project Director, Greensboro, NC
Betty Fry, Higher Education Leadership Coordinator, SREB, Atlanta, GA
Pamela Kahlich, Reading Consultant, Bloomington, IN
Wendy McColskey, SERVE Program Director, Greensboro, NC
Nancy McMunn, SERVE Senior Program Specialist, Greensboro, NC
Rebecca Rhoden Ogletree, SERVE Project Director, Tallahassee, FL
Annemarie Palincsar, Professor, School of Education, University of Michigan, Ann Arbor, MI
Denver Raney, District Reading Manager, Marion County Schools, FL
Joyce Speas, SERVE Project Director, Greensboro, NC
Brad Walker, Associate Professor at UNC-Wilmington, Wilmington, NC
Jan Williamson, Reading Consultant, Greensboro, NC
Jodi Bolla, Reading Coordinator, Miami-Dade County Public Schools, Miami, FL

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About SERVE

SERVE, directed by Dr. John R. Sanders, is an education organization with the mission to promote and support the continuous improvement of educational opportunities for all learners in the Southeast. The organization's commitment to continuous improvement is manifest in an applied research-to-practice model that drives all of its work. Building on theory and craft knowledge, SERVE staff members develop tools and processes designed to assist practitioners and policymakers with their work, ultimately, to raise the level of student achievement in the region. Evaluation of the impact of these activities combined with input from affected stakeholders expands SERVE's knowledge base and informs future research.

This vigorous and practical approach to research and development is supported by an experienced staff strategically located throughout the region. This staff is highly skilled in providing needs-assessment services, conducting applied research in schools, and developing processes, products, and programs that inform educators and increase student achievement. In the last three years, in addition to its basic research and development work with over 170 southeastern schools, SERVE staff provided technical assistance and training to more than 18,000 teachers and administrators across the region.

SERVE is governed by a board of directors that includes the governors, chief state school officers, educators, legislators, and private sector leaders from Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina.

At the core of SERVE's business is the operation of the Regional Educational Laboratory. Funded by the U.S. Department of Education's Office of Educational Research and Improvement, the Regional Educational Laboratory for the Southeast is one of ten programs providing research-based information and services to all 50 states and territories. These Laboratories form a nationwide education knowledge network, building a bank of information and resources shared nationally and disseminated regionally to improve student achievement locally. SERVE's National Leadership Area, Expanded Learning Opportunities, focuses on improving student outcomes through the use of exemplary pre-K and extended-day programs.

In addition to the Lab, SERVE operates the Southeast Eisenhower Regional Consortium for Mathematics and Science Education and the SouthEast Initiatives Regional Technology in Education Consortium (SEIR◆TEC). SERVE also administers a subcontract for the Region IV Comprehensive Center and has additional funding from the Department to provide services in migrant education and to operate the National Center for Homeless Education.

Together, these various elements of SERVE's portfolio provide resources, services, and products for responding to regional and national needs. Program areas include

- Assessment, Accountability, and Standards
- Children, Families, and Communities
- Education Leadership
- Education Policy
- Improvement of Science and Mathematics Education
- School Development and Reform
- Technology in Learning

In addition to the program areas, the SERVE Evaluation Unit supports the evaluation activities of the major grants and contracts and provides contracted evaluation services to state and local education agencies in the region. The Technology Support Group provides SERVE staff and their constituents with IT support, technical assistance, and software applications. Through its Publications Unit, SERVE publishes a variety of studies, training materials, policy briefs, and program products. Among the many products developed at SERVE, two receiving national recognition include Achieving Your Vision of Professional Development, honored by the National Staff Development Council, and Study Guide for Classroom Assessment: Linking Instruction and Assessment, honored by Division H of AERA. Through its programmatic, technology, evaluation, and publishing activities, SERVE provides contracted staff development and technical assistance in specialized areas to assist education agencies in achieving their school improvement goals.

SERVE's main office is at the University of North Carolina at Greensboro, with major staff groups located in Tallahassee, Florida, and Atlanta, Georgia, as well as satellite offices in Bonita Springs, Florida; Durham, North Carolina; and Shelby, Mississippi. Unique among the ten Regional Educational Laboratories, SERVE employs a full-time policy analyst to assist the chief state school officer at the state education agencies in each of the states in the SERVE region. These analysts act as SERVE's primary liaisons to the state departments of education, providing research-based policy services to state-level education policymakers and informing SERVE about key state education issues and legislation.

Introduction

What will this book do for me as a reading teacher?

This book is intended to provide the content and structure for a group study of reading and instructional practices that advance reading achievement. It includes concise summaries of research that reflect sound practices in reading instruction and the most current understanding of the process of reading.

Advancing Reading Achievement pulls together a good deal of what has been learned in recent years about reading and the teaching of reading. The real power of this book emerges when teachers engage in discussions about this content. The best way to gain the most from this book is to

- Join together with other teachers and spend time talking about what you read here and in other sources (a set of questions that can be used to guide your discussion on any of the topics in this book appears in the appendix).
- Organize your joint study of the research findings it contains so the responsibility for learning is shared.
- Plan and conduct "experiments" in which you try the ideas you find useful (suggestions for follow-up activities and collective action can be found in the appendix).
- Talk with your fellow teachers about the results your study and experimentation are producing for students.

The activities for collectively studying reading are designed to build a professional culture of collaboration among those who participate in the study. This type of professional culture, frequently referred to as a professional learning community, is highly beneficial in implementing new practices and developing the school's capacity to become self-diagnosing and self-renewing.

The following two objectives summarize the dual purposes of this book:

- To make the best available research on effective reading instruction accessible to teachers and administrators
- To guide and support teachers and administrators as they form a professional learning community through the study and application of effective reading instruction

Why study reading?

The following eight points from *Preventing Reading Difficulties in Young Children*, a recently published review of research and practices related to reading instruction, highlight the need for teachers and administrators to engage in the in-depth study of reading:

1. Reading is essential to success in school and in an information-driven society.
2. A significant number of young children experience difficulties in learning to read. The proportion of students in American schools who are identified as learning disabled is increasing, and the most common characteristic of these children is difficulty in reading.
3. The debate over reading instruction continues to be heated and divisive. This debate does not appear, however, to engage teachers in collective inquiry into instructional practices.
4. Teachers would benefit from a deeper, while still practical, understanding of how children actually learn to read and develop as readers.
5. Knowledge of how teachers can use what they know about individual children, their family environments, and the larger community in which the children live to predict and prevent reading difficulties is available but not typically accessible to teachers.

6. When teachers are teaching, they are engaged in two time-intensive activities—teaching students and managing the classroom—so their time outside of teaching must be used wisely and efficiently. It is difficult, however, to find materials that present research on complex, multi-dimensional strategies (many of which are designed to be used in conjunction with other complex, multi-dimensional strategies) in a form that is practical, usable, and quickly and easily understood.
7. Useful assessments of reading instruction are of critical importance to teachers trying to design effective instructional practices or to modify existing ones.
8. The ability to analyze instructional materials and to "fill in the gaps" with features that support young readers is a critical skill for teachers.

Two conclusions can be drawn from these points. First, even as reading is becoming of greater and greater importance in our information-driven society, an alarming number of young children are having difficulty learning to read. Students who do not develop into skilled readers face significant challenges as they make their way through school and out into the world, because a great deal of the ever-increasing volume of information individuals must process is communicated through print. Those who cannot read fluently and with strong comprehension will find their options limited by their inability to process written information quickly and accurately.

Second, the advances in our understanding of reading and reading instruction have not been made readily accessible to teachers. Every day, teachers throughout America take on the extremely complex task of teaching young people to read (the American Federation of Teachers appropriately titled its recent paper on reading instruction, "Teaching Reading IS Rocket Science"). Statistics on reading performance suggest, however, that many of these teachers have not been provided with the tools needed to advance reading achievement. The content of this book provides both the knowledge teachers need to become more effective reading teachers and a structure for acquiring and applying that knowledge through collaborative professional relationships.

Why become a professional learning community?

Four major points comprise the rationale for working toward a professional culture that is structured as a professional learning community.

1. **Change takes place more readily when the professional culture provides a collaborative structure.**

   Changing how students read will involve changing instructional practices. Part of bringing about real change is creating a context or climate in which change is less difficult. According to Roland Barth (1990), a school that has a strong context for change resembles a "community of learners": "a place where all participants—teachers, principals, parents, and students—engage in learning and teaching." Barth reminds us that "school is not a place for important people who do not need to learn and unimportant people who do. Instead it is a place where students discover, and adults rediscover, the joys, difficulties, and the satisfactions of learning" (p. 43).

2. **Teachers learn through active engagement, in other words, by getting involved with what they are studying and with their colleagues.**

   Teachers "learn by doing, reading, and reflecting (just as students do); by collaborating with other teachers; by looking closely at students and their work; and by sharing what they see" (Darling-Hammond & McLaughlin, 1995). This description of how teachers learn is supported by the findings of a study by Smylie and Denny (1989) that listed the following as the top four ways teachers improve their teaching skills:

   - Direct experience as a teacher (learning by doing)
   - Consultation with other teachers about teaching and learning (collaborating with other teachers)

- Study and research pursued on one's own (reading and reflecting)
- Observation of other teachers (sharing what they see)

These activities are all essential elements of a professional learning community.

3. **Continuous assistance is a requirement for strong teacher learning.**

   A professional learning community is a powerful vehicle for providing the continuous assistance teachers need to implement new practices. For the majority of teachers, the first year of using a new practice is a time of trial and experimentation (Guskey, 1990). Support during this period of experimentation is essential. Without it, Guskey (1986) reports, many teachers will not be able to see the potential benefits of a new strategy or program and are less likely to stay with the new strategy long enough to refine their use of it. They "will abandon their efforts and return to the old familiar strategies they have used in the past." Joyce and Showers (1988) claim that learning a new strategy "will require 20 or 25 trials and the assistance of someone who can help us analyze the students' responses and enable us to stick with the process until we have executive control over our new skill."

4. **Teaching—especially the teaching of reading—is a complex act that requires high levels of analysis, synthesis, and application. Teachers will be more successful in performing at these higher levels of thinking when they have collegial support and engagement.**

   Judith Warren Little (1996) sums up this justification for building a professional learning community in this way: "The need for ongoing learning, problem-solving, collaboration, and experimentation results not from the deficiency of the teacher, but from the inherent complexity of teaching. And further, it assumes that good teaching and more uniformly high levels of student achievement cannot be accomplished by teachers working alone."

How is Advancing Reading Achievement *organized?*

Advancing Reading Achievement is divided into five sections. The brief initial section provides sound advice on getting started as a study team as well as a vignette that describes how a study team might resolve questions about getting started. The first of the content sections, *Establishing a Common Frame of Reference*, provides an overview of the process of reading. It takes a closer look at the two components of reading: word recognition and comprehension. Discussion of the content of this section will begin to dig deeper into what you know and what you believe about reading.

Helping Children Become Readers is the title of the major content section of *Advancing Reading Achievement*. It begins with the concept of print awareness and proceeds through key elements of learning to read, such as phonemic awareness, the alphabetic principle, and strategies for learning new sight words. The next section is entitled *Building Comprehension Skills*. It begins with an in-depth look at comprehension and goes on to cover topics such as fluency, vocabulary development, and sources of comprehension difficulty.

The final section is a combination of research findings on creating a professional learning community and a "tool kit" of activities and examples to help you build a professional culture that enhances and sustains continuous learning. This section is a good resource for study teams that want to strengthen their effectiveness in studying reading and in other areas of professional collaboration. These activities are followed by suggestions for drafting a vision of reading instruction and developing a set of guiding principles that can help you turn your vision into reality.

A glossary is included to provide definitions of the key terms introduced throughout the content sections. The appendix that follows the glossary includes materials for studying the content sections and experimenting with new strategies and practices through action research.

Note: To avoid the awkwardness of using "he or she" to refer to individual readers and teachers, a decision was made to use "he" to refer to a reader and "she" to an individual teacher, throughout the text.

How can teachers study Advancing Reading Achievement *as a team?*

Although teachers are adept at structuring students' learning experiences, there may be some initial uncertainty about planning their own learning. Here is a set of ideas that can help you organize your study team's work:

1. Give each member of your study team an opportunity to browse through *Advancing Reading Achievement* so that he or she becomes familiar with its structure and content. This will help the group determine the "path of study" that will be most effective.
2. Get together and answer these questions:
   a. What is our purpose in studying *Advancing Reading Achievement*? What do we hope to gain from studying about reading and reading instruction?
   b. How often should we meet?
   c. How much time should we set aside for each session?
   d. How will we allocate that time between talking about what we have read and planning how we can apply those ideas in helping our students become better readers?
   e. How will we assign or share responsibility for planning and leading each session?
   f. What ground rules will we need to help us work together effectively and efficiently?
   g. What type of documentation should we keep so that others can know what we have learned and how our study has impacted student learning?
3. Choose a path of study that is right for your study team. Study teams may consider taking one of three "paths" through this book:
   a. A topical study in which study team members select topics of interest and explore them using the sections of the book that address those topics as the basic content of the study.
   b. A "problem-centered" study in which critical questions about teaching reading are investigated by integrating ideas and strategies from various sections.
   c. An overview study in which study team members work through the entire book as a yearlong professional development activity.
4. Determine the topic of your first session and select the most appropriate format. Here are two suggestions:
   a. Use the Discussion Questions in the appendix or create your own questions to guide the group's discussion of the content of this section.
   b. Select one or more of your study team members to develop a mini-lesson that highlights the most important aspects of the section you will be studying. Follow their presentation with a discussion of the key ideas.
5. Choose the best way to apply what you learned from each section of *Advancing Reading Achievement* and from the discussion with your study team members.
   a. Use the Follow-Up and Collective Action Activities in the appendix to enrich the group's understanding of the content.
   b. Design an Action Research Project to explore how the content can be used to improve the reading achievement of your students.
   c. Use the Plan-Teach-Revise-Reteach Cycle described in the appendix to experiment with the ideas and strategies.

(The vignette on the following page describes how a study team might handle getting their study of *Advancing Reading Achievement* up and running.)

Getting Ourselves Started

Grace: We're all here, so let's get started. We agreed that we wanted to work through this book as a yearlong professional development activity, but we really didn't finalize what we wanted to achieve through this study. What is our main purpose?

Velma: I really want to understand what is going on when my students have difficulty applying what I've taught them.

Ruth: I agree, but I also want to know why the teacher's guide says to do this or that. It doesn't always explain things enough for me to know what I'm really looking for from my students.

Grace: That's sort of what I'm looking for too. I want to know how to select the right strategy for meeting each student's specific needs.

John: So, if we focus on getting a clearer understanding of the process of reading and on what we can do that makes a difference for students, then we'll learn what we need to meet their needs.

Grace: That sounds good. Now, do we want to meet once a week or once a month?

Ruth: Once a month won't be enough. I think once a week is better.

Velma: I agree. We can meet on Tuesdays, from 2:30 to 3:30 and not interfere with our faculty meetings or other inservice sessions on Wednesdays. But, is an hour long enough?

Ruth: If we all come prepared. I think the reading and other things can be done on our own, but we need to agree to get our homework done so we can make the best use of that hour.

Velma: I saw discussion questions in the appendix. Can we use them to structure our meetings?

Grace: I think that would be good, but we need to set aside some time to plan how we're going to try out some of these ideas.

Ruth: Let's set aside the first half hour for discussion of what we've read and then the last half hour for planning or talking about how things are going with our students.

Velma: Do we want to have someone be "in charge"?

Grace: I'd like to take turns. I'll go first and we can meet in my room.

John: That's great, Grace. I want you to take the session on phonemic awareness when we get to that because I really like how you teach that through oral games.

Grace: Thanks, John.

Velma: We have to keep a log to get inservice points for our sessions. Can we combine that with a journal of some kind so we can keep track of what we've learned?

Ruth: Maybe we could take turns keeping minutes rather than a journal. That way we're sharing the responsibility rather than each of us doing it on our own.

Learning About Reading

Establishing a Common Frame of Reference

What is Reading?

> *There are a number of ways to define reading, hence the confusion about the goals of reading programs. Proponents of different instructional models tend to view the concept of reading in different ways. For example, some people tend to view reading purely in terms of decoding, whereas whole language theorists tend to view reading in terms of responding to and appreciating literature. These differing views have led to the acrimonious debates that have typified our field. When we talk about reading, in whatever context, it is important to state exactly what aspect of reading we are talking about.*
>
> —Stahl and Murray, 1998

Reading is a mental process. Although the eyes are involved in sending information about print to the brain, the brain performs the real act of reading. The mental process we call "reading" has two parts: word recognition and comprehension (Gough, Hoover, & Peterson, 1996). To perform the act of reading is to recognize words in print and to comprehend their collective meaning. One without the other is not reading. When a student correctly pronounces the words of a sentence in print but does not understand anything about their collective meaning, he has fallen short of reading. Similarly, if an adult reads a story to a young child and the child understands the collective meaning of the words read to him, we can say that he has performed a type of comprehension but has stopped short of reading. The child's comprehension was based on listening, not on word recognition.

In everyday classroom situations, the term *reading* may be applied to tasks that do not meet the definition of reading. For example, a child may be asked to read a list of words that do not form a meaningful, connected text. That is to say, the words do not have a collective meaning as words in a sentence do. Is this reading? According to the above definition, the child is not reading because reading words in isolation requires word recognition but not comprehension.

Our goal as reading teachers is to advance children beyond the recognition of single words to rapid, effortless recognition of words in connected texts. Effortless recognition frees the brain to devote its energy to comprehension, which is understanding the collective meaning of those words. We want the student to be able to recognize a great many words quickly and to hold the meanings of those words together in his brain so he is able to use what he already knows to think about their collective meaning until it is understood. With this goal in mind, reading may be defined as recognizing words in print, combining the meanings of those words with relevant prior knowledge, and thinking about the collective meaning of this information until it is understood.

Before beginning a more in-depth discussion of reading, it will be helpful to examine some basic assumptions about print, word recognition, and comprehension.

What is print?

Print is a term used to refer to any form of written language. It can be used to describe a single written word, one or more written sentences, or longer passages. Print includes handwritten words as well as words that appear in a typeface or font. Print provides a means for the writer to convey a message apart from spoken language. It enables the writer to encode his ideas into symbols (the letters of the alphabet) that the reader can use to access the same or similar meanings from within the reader's mental dictionary. The code lies in the sequence of letters. That code is what makes a change in the sequence of letters produce a change in the meaning and pronunciation of a word. For instance, the letters *c*, *a*, and *t*, in this sequence, form *cat* and refer to a feline animal, but in a different sequence, they form *act* and refer to a single segment of a theatrical play, a law, etc. When multiple meanings are associated with the same sequence of letters, such as in the case of *act*, the single printed word does not carry enough information to allow the reader to distinguish which of those various meanings the word represents; consequently, the reader must rely on the context—the

meanings of other words in the sentence, paragraph, or passage—or information outside the printed text to select the most appropriate meaning. For example, the single word *frame* may mean "a structure for holding a picture or painting" or "to cause someone to be blamed for something he or she did not do." Apart from the context of a sentence, it is not possible to know which meaning the writer intended.

What is word recognition?

Word recognition occurs when a reader sees a sequence of letters (a word) in print and matches that sequence of letters with a pronunciation and meaning(s) located in his or her brain where information about words is stored. The information about the word—its pronunciation, meaning, and typical role in a sentence—is then transmitted to the reader's working memory. The storehouse of information or *oral vocabulary* is built by language experience (learning new words by hearing them used or explained) and by reading (discovering new words by reading or inferring their meanings).

There are several ways that word recognition can occur, and these are explored in greater detail later. At this point, however, it is important to know that all forms of word recognition involve processing words in print, accessing their pronunciation and an appropriate meaning from within the reader's brain, and moving this information to the reader's working memory.

What is comprehension?

The clouds gathered above, dark and full of rain....

The clouds gathered above, dark and full of rain, as the farmer and his wife danced with joy at the end of the long drought.

Comprehension requires the reader to combine the meanings of a number of words in his working memory until he can think about their collective meaning. To illustrate this idea, read the sentence fragment in the first textbox, then read the entire sentence as it appears in the second textbox. The relevant prior knowledge that is brought together with the literal meaning of the words in the first textbox may lead to several different interpretations. Without the missing words, it is impossible to fully comprehend the meaning of the entire sentence. Reading the complete sentence shows that accurate comprehension can occur only when the reader has all of the meanings held in working memory.

The process of reading needs to be considered in the broader context of education. Reading is an essential skill, perhaps the most important skill, taught in schools. Generations ago, people did not have a great need to be highly competent readers. The amount and types of information needed to function adequately in the society of that day could be communicated orally. People had little need for print, and very little print was available to the average person. Citizens of contemporary society, however, are bombarded with information, and they need a great deal of information to accomplish their responsibilities. Much of this information is accessed in the form of print. People need to read (recognize the words and understand their collective meaning) for nearly every task they perform. Those who can read well have many opportunities to be successful. Those who cannot read well will most likely have many disappointments and failures.

Our role as reading teachers goes beyond teaching young people the processes of word recognition and strategies for comprehension in order to prepare them for a test. We are equipping them with an essential skill and developing in them a positive attitude toward their use of that skill so that they are able to build a secure and fulfilling future for themselves and others.

The Process of Reading: Word Recognition

We say a reader *recognizes* a word when he sees the word and makes a connection between the sequence of letters in print and an appropriate meaning and pronunciation in his brain. This connection allows him to bring information about the word to his *working memory*, the place in the brain where comprehension takes place. This information can include the word's pronunciation, one or more meanings, and its function in a sentence (a noun, verb, modifier, or article). Developing skill in word recognition is essential to becoming a skilled reader. Becoming a skilled reader means to attain the ability to recognize printed words rapidly and effortlessly so that more of the reader's attention can be given to arriving at an understanding of their meaning (Adams, 1990).

Terms and concepts in this section:

- **Alphabetic principle**
- **Analogizing**
- **Contextual guessing**
- **Decoding**
- **Oral vocabulary**
- **Phonemes**
- **Processing spelling patterns**
- **Sight**

Definitions appear in the glossary.

One of the primary goals of reading instruction is to equip readers with strong connections between words in print and information about those words stored in their brains. Stronger connections mean the reader is able to bring information about the word to his working memory faster and with less mental effort and to use the additional working memory to comprehend the collective meaning of the words that are being read.

Linnea Ehri (1998) identifies five ways in which words are recognized and connections are made: sight, decoding, analogizing, processing spelling patterns, and contextual guessing. These methods of recognizing words in print differ in terms of how the reader makes the connection between the word in print and information about the word stored in his brain. Each one of these methods can be thought of as a bridge. These bridges represent five different routes that connect print to meaning. A skilled reader will be able to use all five bridges and determine which is the best one for each situation. A skilled reading teacher will understand what happens in the mind of the reader who is using a particular bridge, so she can support the reader with clear and accurate instruction. By understanding what goes on in the brain of the reader as he uses each type of bridge, the teacher can help him improve his ability to select the right bridge for a particular situation and to use each of these bridges effectively. Building the capacity of young readers to select the right bridge and use it to connect print with meaning is at the heart of teaching word recognition.

The following descriptions of the five methods of word recognition focus on three things:

1. When each type of connection is appropriate
2. How each connection works (what goes on in the mind of a reader when he is using a particular bridge)
3. How teachers can help readers strengthen their use of each type of bridge

Recognizing words by sight

Words are read by *sight* when the connection between the words in print and information about each word is made instantaneously and without conscious effort. Enabling readers to access information about words by sight is an important goal of reading instruction. Information about words read by sight is brought to the reader's working memory very quickly. Imagine this "sight bridge" as a six-lane, super-highway bridge over which traffic flows rapidly, even at rush hour. In the mind of a skilled reader, information is accessed so rapidly that he is not fully aware that the information had to be retrieved from storage in his oral vocabulary. The reader sees the word in print, and the information just seems to appear in his working memory. No conscious effort to retrieve the information is needed.

There is an obvious advantage to having as many words as possible in the reader's sight-word vocabulary (the number of words he can recognize by sight). If information such as a word's spelling, pronunciation, meaning, and function in a sentence can be brought to the reader's working memory without effort, a much greater percentage of the reader's working memory can be devoted to understanding the collective meaning of all of the words in the sentence. Conversely, if more effort is required to access information about the words being read and the reader must use one of the other four bridges, then less working memory can be dedicated to understanding their meaning and comprehension may suffer.

Teachers can increase a student's sight-word vocabulary through strategies that include repetitive encounters with words and clear and explicit information about those words. Words become part of the reader's sight vocabulary when repetition has formed an easy access route for retrieving information about those words. This repetition may occur when the words appear frequently in texts or in the reader's environment, or it may come about from rereading a text that includes the words.

What happens when reading by sight is not possible? Even the most skilled and experienced reader occasionally comes across an unknown or unfamiliar word. For the adult reader, this may occur when an extremely rare word or a highly technical term is encountered. In these

situations, the problem may involve a word that is not even in the reader's oral vocabulary. For younger readers, an unknown or unfamiliar word is likely to be part of his speaking vocabulary but not recognizable to him in print. In other words, important information about the word, such as its pronunciation and meaning, may be stored in the reader's brain, but visually processing the sequence of letters does not automatically bring that information to his working memory. In such a case, the reader must cross one of the other bridges to get that information. These other bridges can be though of as "toll bridges," because the reader must exert a conscious effort before he is able to make the connection between the word in print and information about the word in the brain. What distinguishes these bridges from one another is the process the reader uses to get across each bridge. One such "toll bridge" is decoding.

The Mind of a Fluent Reader

Action	Explanation
Visual information about the word in print is processed. The reader looks at each letter of the word.	The skilled reader processes virtually every letter of every word. Longer words are also broken down into syllables using subconscious rules developed through experience with spelling patterns. Skilled readers know which letters are likely to begin and end a syllable, even though they might not be able to tell you explicitly how they know. As each letter is processed, the reader's brain creates an expectation of what the next letter might be based on experience. For example, the letter *d* is followed by the letter *r* 40 times more often than by the letter *n*. When the reader visually processes a letter, he anticipates the next letter and either confirms or rejects that prediction as he visually processes the next letter. These learned associations speed the visual recognition of words.
Phonological information about the word (its pronunciation) is brought to the surface.	The sequence of letters is recognized as a known word and this information is sent to the site of phonological processing—where sounds are mapped onto letters to allow the reader to hear the word—and to the reader's mental dictionary. Because the word is familiar, a connection already exists between the visual information (the sequence of letters) and the word's pronunciation. This connection is reinforced and can be accessed more rapidly through repetition.
The word's meaning (in some cases, multiple meanings) is located through its connection to the word's pronunciation and its sequence of letters.	Spelling to sound translations help the reader identify less familiar words when at least some part(s) of the word match known spelling patterns and can be used to make an estimate of the word's pronunciation. It is perfectly acceptable (in fact, it can be helpful) for readers to *say* the words they are reading in their minds as they read. The selected meaning is held in memory until all of the words of the sentence (or clause or phrase if it is an especially long sentence) are read, then their meanings are assembled and the skilled reader attempts to make sense of them.
The selected meaning is held in memory until all of the words of the sentence (or clause or phrase if it is an especially long sentence) are read, then their meanings are assembled and the skilled reader attempts to make sense of them.	The reader's mental dictionary contains meanings and shades of meanings for an incredible quantity of words. The word's pronunciation and spelling information may bring up several possible meanings because these meanings are linked together in the reader's mind. The skilled reader uses information from contextual processing (comprehension) to confirm the selection of the appropriate meaning. Reading speed is essential to comprehension. Readers who cannot get to the end of a sentence before the words they read at the beginning of the sentence have faded or leaked out of memory have a difficult time comprehending what they have read.

Recognizing unfamiliar words by decoding

Before looking at the technical aspects of how decoding occurs, it is important to understand why the term *decoding* is used to describe this process. The explanation begins thousands of years ago.

Spoken language existed long before a system of writing was developed. When the need to be able to communicate in writing arose, people in different parts of the world developed different ways to meet that need. Some cultures developed a *character-based* writing system. Chinese and Japanese are examples of this type of writing system. For other languages, like English, an alphabetic system of writing was developed. Those who developed the English writing system created the letters of the English alphabet to represent the sounds of spoken English. They put spoken language into a *code* composed of letters used in different sequences to represent the sounds of different words. Therefore, writing is thought of as *encoding*, putting a message into a code. Print encodes the sounds and meanings of spoken language into letters, so the process of getting pronunciations and meanings from printed letters is described as decoding.

Decoding is appropriate when a reader encounters an unknown or unfamiliar word. That is, when no immediate connection is made between the sequence of letters that make up the word and information about the word in the reader's brain. Decoding is typically a three-step process. When a reader uses decoding to recognize an unfamiliar word, he begins by identifying the small units of speech sounds (phonemes) represented by each letter or cluster of letters. It is this part of the process that teachers typically refer to when they encourage students to "sound it out." The result of this first step is a sequence of separate or segmented speech sounds. Before the reader can use these sounds to access other information about the word, he must blend the sounds of the letters.

This blending of individual sounds to create a single word is a critical part of the process of decoding. To match up the sequence of sounds the reader has gleaned out of the unfamiliar word with a word in his oral vocabulary, he will need to blend them into a single word and to pronounce them as a relatively seamless unit.

Once the reader creates a trial pronunciation through the blending of individual phonemes, he uses it to search his oral vocabulary for a word that has the same or similar pronunciation. When a match is made, the reader confirms the word's identity by checking to see if it makes sense in the context of the sentence. If it does, the reader returns to reading by sight. If it does not make sense, it is possible that the initial attempt to pronounce the word was flawed. The reader then reviews the individual phonemes he identified earlier to make sure that they are correct, and he assembles them again into an alternate pronunciation and searches his oral vocabulary for a match.

A final word on understanding the process of decoding: Decoding requires use of the alphabetic principle. The reader must understand that letters in printed words relate to the sounds that make up spoken words in a systematic (although not completely consistent) way.

Recognizing unfamiliar words by analogizing

An analogy is a comparison that uses an understanding of one thing to enhance understanding of another. In literature, analogies are used to help the reader to understand the meaning of an idea or thing by explaining it as if it were something else, something more clearly understood by the reader. For example, an analogy was made previously for the different methods of word recognition by comparing them to bridges. The concept of analogy as a way to understand an unfamiliar idea in terms of its similarity to a familiar one is similar to how a reader uses analogizing to recognize an unfamiliar word by identifying its similarity to a known word.

When the reader encounters an unfamiliar word, he may recognize part of the word as similar to or containing the same chunk of letters as a known word. For example, a young reader who comes across the word *mouse* for the first time in print may recognize its similarity to *house*, a word he already knows by sight. If he is able to see that the last four letters of *mouse* are the same as the last four letters of *house*, he can generate an accurate pronunciation by substituting the initial phoneme /h/ with the phoneme /m/ and blending the two parts to produce the word mouse. The reader can then check to see if the word *mouse* makes sense in the sentence. After confirming his guess by determining it makes sense, he returns to reading by sight.

Skill in analogizing is developed primarily through teacher modeling and guided practice. When teachers introduce new vocabulary words that share chunks of letters with a word that has been introduced previously, it is a good opportunity to show students how to use parts of the known word to identify the new word. One way the teacher might do this type of modeling is to lead students in modeling the strategy for each other, as follows:

The teacher writes the word yield on the board.

Teacher: Let's look closely at this new word. Can you see a part of this word that is similar to a part of a word we've already learned? Ron?

Ron: The last four letters are the same as the last four letters in the word *field*.

Teacher: That's correct, Ron. So, how could we use that to figure out how to pronounce this new word? Shelly?

Shelly: If we drop off the first sound of *field* and replace it with /y/, we would have the word *yield*.

Teacher: Good. Did everyone see what Ron and Shelly did? Ron saw that part of the new word was the same cluster of letters in a word he already knew. Then, Shelly told us how we could come up with a pronunciation for our new word by using the sound of the letter that is different together with the sound of the part that is the same.

Recognizing unfamiliar words by processing spelling patterns

A spelling pattern is a sequence of letters that appears in a number of words. For example, the letters *ack* make up a spelling pattern because there are a number of words that include this cluster of letters *(back, hack, jack, knack, lack, pack, quack, rack, sack, track,* and *whack).* A group of words that contain the same spelling pattern is referred to as a *word family* because all the words in the group resemble one another.

A reader can recognize an unfamiliar word more easily if he detects that it belongs to a word family that contains words he already knows. If a reader encounters the word *attack* and is not able to read it by sight, he might notice that it contains the *ack* spelling pattern. This insight would enable him to construct a pronunciation for *attack* by blending the phonemes represented by the first three letters with the known pronunciation of the *ack* spelling pattern.

Processing spelling patterns and analogizing are very similar. They differ, however, in that when the reader analogizes, he matches a part of the unknown word with a part of a known word, but when he processes spelling patterns, he matches a part of the unknown word with a cluster of letters from a family of words.

Teachers should introduce students to word families when teaching them how to recognize unfamiliar words by processing spelling patterns. The following is a list of useful spelling patterns:

ack	**ail**	**ain**	**ake**
ale	**all**	**ame**	**an**
ank	**ap**	**ash**	**at**
at	**ate**	**aw**	**ay**
eak	**eat**	**ed**	**eet**
ell	**est**	**ice**	**ick**
ide	**ight**	**ike**	**ill**
in	**ine**	**ing**	**ink**
ip	**it**	**iver**	**ock**
ole	**one**	**ool**	**ooth**
op	**ough**	**out**	**uff**
ug	**ump**	**unch**	**unk**

Recognizing unfamiliar words by contextual guessing

Studies of young readers report that when they encounter an unknown word, they often substitute a word that makes sense in the text they have read up to that point. This strategy indicates that these readers have an expectation of what they will read next based on what they read just prior to encountering the unknown word. The process of predicting the identity of an unknown word by using the meaning of what has been read so far is called *contextual guessing*. Because it produces the correct pronunciation only 25 to 30 percent of the time (Nicholson, 1991), contextual guessing is not adequate as the sole basis for identifying unknown words in skilled reading.

Although contextual guessing is the least reliable method for identifying unknown words, it can play an important role in supporting the skilled reader's use of the other four methods of recognizing unfamiliar words. In *Reading Ability*, Perfetti (1985) describes an interactive model of skilled reading in which the other methods provide confirmation for the word identification made through sight-reading. For example, when a reader identifies a word by sight, context clues may be used to confirm its pronunciation. In other words, a skilled reader will confirm that the identified word makes sense in the sentence. Such confirmation can ensure accuracy and provide efficient self-monitoring and auto-correction of errors that could erode comprehension.

Teachers can help their students to build skill in the use of contextual guessing through modeling, especially "think aloud" strategies for modeling, and through practice with text that replaces selected words with a blank space. Text that includes blank spaces can be designed in two ways. One type selects words at random for omission, for instance every tenth word or every twentieth word. A more difficult type of omission occurs when key words are left blank. These meaning-bearing words are even more difficult for the reader to guess than randomly selected words because they contain the very clues the reader needs to predict their identity.

Conclusion

The five methods of recognizing words described in this section represent tools that should be mastered by skilled readers. A primary goal of reading instruction (and of providing opportunities for young readers to read many books) is to enable readers to develop a large sight-word vocabulary, that is, a large volume of words that can be read by sight. A large sight vocabulary reduces the amount of the reader's memory needed for word recognition and allows more of it to be devoted to comprehension. Readers who are reading widely, however, will still inevitably encounter unfamiliar words, so they must have fallback strategies for recognizing these words in print. The other four methods or bridges are necessary and effective for recognizing words that are not part of the reader's sight vocabulary. Therefore, it is important that teachers understand all five methods, how to equip readers to use them when it is appropriate, and how to use them effectively and efficiently.

The Process of Reading: Comprehension

Terms and concepts in this section:

- **Comprehension monitoring**
- **Inferences**
- **Prior knowledge**
- **Word knowledge**
- **Word recognition**
- **Working memory**

Definitions appear in the glossary.

Comprehension is when the reader constructs meaning by combining the ideas from the text with his own background knowledge. The reader must hold the meanings of the words he has recognized in his brain—in the space known as working memory—until he can think about and understand their collective meaning. Although this definition makes comprehension seem simple, it is not. If we think more carefully about what is going on in the mind of the reader, we will realize how challenging comprehension of text can be.

The process of word recognition brings information about the words in print to the reader's working memory at a rapid pace. As this information begins to pile up, the reader must sort through it and begin to make sense of it. This requires

1. Keeping the meanings of the words in the sequence in which they were read. This is what enables the reader to distinguish between "George called to Martha" and "Martha called to George."
2. Recognizing functions of words that do not carry meaning—words like *the* and *of*.
3. Making sure that each word was identified correctly—checking to see that each word makes sense in terms of the other words in the sentence or paragraph.

The reader is trying to make sense of the collective, literal meaning of the words as well as infer meanings that were left unspecified by the writer. For example, the writer of this sentence intends his reader to go beyond the literal meaning of the words: "When this last lead proved as worthless as all of the others, he knew he'd reached a dead end." Yet, the author does not tell the reader specifically if the person in the sentence is on an actual dead end street. Instead, he leads the reader to infer that the character is investigating something and does not know how to proceed. Such inferences require the reader to apply the appropriate background knowledge.

This example highlights a central difficulty in teaching comprehension—it is a complex cognitive process that involves a variety of mental activities going on simultaneously in the mind of a reader. Furthermore, not as much is known about how comprehension takes place as about how word recognition does. The following section is intended to give a brief overview of comprehension so that you can combine it with what you have studied about word recognition in the previous section to get a complete picture of reading. A more extensive look at comprehension is found later in this book.

The process of word recognition can be described in fairly precise detail. We know what goes on in the minds of skilled readers as they identify familiar words and try to identify unfamiliar words. Our understanding of comprehension is not as complete. More is known about comprehension problems than about how comprehension actually occurs.

The following table describes important aspects of what takes place as a reader comprehends a sentence. A reader is reading the following sentence: *He picked up his bow and arrows and put them in the back of his truck along with the other things he was taking to his friend's garage sale.* On the following page, the thought process of the reader is explained as he progresses through the sentence.

How Comprehension Works	Examples of a Reader's Thoughts
1. Word recognition allows the reader to access the meaning or multiple meanings of words in a sentence. The functions of non-meaning bearing words (articles, prepositions, etc.) are also identified.	**1. *He picked up his bow...*** ● ***He***—refers to a male person ● ***picked***—could mean *selected, lifted,* or *pulled off,* like "*picked the apple from the tree*" ● ***up***—clarifies *picked,* now I know it means the same as *lifted* ● ***his***—belongs to the *he* ● ***bow***—could be for shooting arrows, for playing a stringed instrument, a type of necktie, or the front of a boat
2. As more word meanings are accumulated in the reader's short-term memory, the reader is able to sort through multiple meanings and select the appropriate one.	**2. *He picked up his bow and arrows and...*** ● ***bow***—for shooting arrows, not the other possible meanings
3. As the number of meanings held in short-term memory increases, the reader begins to form an expectation of the complete meaning of the sentence. This occurs as the reader assembles those meanings and connects them to prior knowledge.	**3. *He picked up his bow and arrows and put them in the back of his truck...*** ● **(literal)** He took his bow and arrows and placed them in the rear of his vehicle. ● **(inference)** He is going to shoot his arrows at a target range.
4. Only when all of the meanings have been assembled can the reader finally determine the meaning of the sentence.	**4. *He picked up his bow and arrows and put them in the back of his truck along with the other things he was taking to his friends' garage sale.*** ● **(corrected inference)** He is going to sell his bow and arrow.

A careful look at this example reveals several fundamental components of comprehension:

- Word recognition—the speed and accuracy with which the reader is able to recognize familiar and unfamiliar words
- Working memory—a measure of the mental capacity the reader can apply to the tasks of decoding and comprehension
- Word knowledge—knowledge of the meanings of individual words
- Prior knowledge—the concepts and organized structures that help the reader determine the literal meaning of the text as well as form inferences that go beyond what was actually stated in the text
- Inferences—assumptions or hypotheses the reader forms based on the text and his background knowledge that supply meaning that is not explicitly stated
- Comprehension monitoring—thinking about obstacles to constructing meaning (words, phrases, or ideas that do not make sense with the rest of the passage) and about how well the meaning that is being constructed makes sense and agrees with background knowledge and other passages in the text being read

Comprehension cannot occur without word recognition, because it is through word recognition that the reader accesses the meanings of words stored in his oral vocabulary. Readers who have poor word recognition skills will have difficulties with comprehension. The formal theory that supports this assumption is called *the verbal efficiency theory* (Perfetti, 1985). Stated simply, if a reader must devote too much working memory to decoding or word recognition, he will have too little working memory left for comprehension. Classroom

teachers see this problem with readers who take so long to recognize individual words that by the time they get to the end of a sentence, they have forgotten the meanings of the words they read in the beginning of the sentence. Without all the pieces of the sentence, the reader cannot construct a complete and meaningful picture.

As the reader adds the meanings of subsequent words to those already in his short-term memory, he is able to select the most appropriate meanings for words that have multiple meanings and to eliminate meanings that do not make sense in terms of other words that have been identified. The key elements of this process are word knowledge and prior or background knowledge (Perfetti, Marron, & Foltz, 1996). Comprehension may collapse if the reader does not know many of the words within a passage or text, and the meaning of a passage may be lost or even misconstrued if the reader does not understand the meaning of key words. Similarly, without adequate background knowledge, the reader may not be able to construct an adequate picture of what the writer is trying to communicate. This is especially true if the text relies heavily on the reader's use of inference.

Inferences are made at several levels. The simplest inferences are those that arise reasonably from the text when the reader combines the literal meaning of the passage with background knowledge. On a more complex level, the reader may infer the motives for an action being described, the viewpoint of the writer or subject of the passage, or the outcomes of events or actions described in the passage. Each of these is illustrated below.

Types of Inference	Sample Text
Motives for an action being described	***The young boy dashed past his mother, grabbing his lunch box from the counter and streaked out of the kitchen door. His strides lengthened as he saw the last child climb aboard.*** (Why was the boy in a hurry?)
Viewpoint of the writer or someone who is the subject of the passage	***Quality of life is measured by more than dollars and cents. The growth needed to build a tax base that can fund the initiatives being proposed will squeeze out much of what is valued by the people who came to live here while it was still a sleepy little town.*** (Is the writer for or against the proposed initiatives?)
Outcomes of events or actions described in the passage	***The home team's fans' cheers of encouragement and exhortation became less confident and less frequent as the numbers on the game clock moved closer and closer to zero. Why did those numbers move so steadily, while the numbers on the scoreboard remained unchanged?*** (Who is likely to win the game, the home team or the visitors?)

Comprehension monitoring refers to the reader's ability to detect problems with comprehension. This can be as simple as detecting a word that is misspelled, used incorrectly, or is beyond the reader's vocabulary. Monitoring involves the application of a standard that analyzes the meanings of individual words in terms of the mental picture the reader is forming. A more sophisticated level of monitoring comprehension takes place when the reader detects information that contradicts or is not consistent with the reader's background knowledge. This type of monitoring requires the use of a standard of external

consistency. Another type of monitoring involves detecting internal inconsistencies. The reader notices that one part of the writer's message does not agree with or support another part. Comprehension monitoring through the identification of internal and external inconsistencies is complex, and, therefore, younger or poorer readers do not use it as frequently (Baker, 1984).

Conclusion

Comprehension of connected text is the final outcome of the effective application of a complex set of mental processes: word recognition, the integration of the literal meaning of the text with appropriate background knowledge, and the verification of the meaning that is produced against standards of internal and external consistency. Considering the complexity of the process, it is no wonder many readers find comprehension a challenging endeavor. Fortunately, teachers who have a clear understanding of what is involved in the comprehension of meaningful, connected text and are equipped with strategies for teaching comprehension are entirely capable of bringing young readers to a high level of skill in comprehending what they read.

Helping Children Become Readers

Print Awareness: Introducing Young Children to Print

Terms and concepts in this section:

- **Big books**
- **Concepts about print**
- **Environmental print**
- **Fingerpoint reading**
- **Language experience**
- **Print awareness**
- **Word awareness**

Definitions appear in the glossary.

Print awareness is a term applied to a wide range of ideas young children need to understand as they begin formal reading instruction. Parents teach many of these ideas informally through unplanned, spontaneous conversations with their children or as they interact with their children in day-to-day routines. For instance, when parents are reading to their children and point out that they are reading the words on the page not the pictures, children begin to understand that the print carries the meaning and that it differs from pictures. Another example of such informal instruction occurs when the parent prints the child's name on a piece of paper and tells the child the name of each letter as he or she is writing it. These kinds of interactions begin to build awareness that print has specific forms and functions—it is something that grownups use and children need to learn.

Unfortunately, not all children come to school with fully developed print awareness. Because children learn informally what print is and what its purpose is, there may be gaps in what they know when they come to school. School is where instruction about print becomes systematic. Consequently, teachers should understand what is meant by print awareness, its importance in learning to read, and how it can be developed.

To benefit from formal instruction in reading, young readers must possess some measure of print awareness. They must be able to

- Understand the structure of print (how it is organized) and the function of print (to convey meaning).
- Recognize that printed words are made up of letters and that it is the words, not the pictures, in a book or in the environment that are read.
- Identify and distinguish the printed forms of individual letters.

Young children who have had significant exposure to print come to school with the understanding that print is different from pictures and that print has the same function even if it appears in a book, on a sign, or on a television. Many of them know that print contains information. They become aware that adults look at print and appear to draw meaning from it. With this exposure to print can come functional knowledge of print, such as the fact that it is read from left to right and from top to bottom. However, more and more children are arriving at school without these understandings. This is a critical point because awareness of print provides a strong motivation to learn to read and a framework within which learning to read and to write takes place (Adams, 1990).

The ability to conceive of words as individually speakable, printable, and understandable units is critical not just to learning spelling-sound correspondences but, even before that, to gaining any initial insight into how written language works.
—Marilyn Jager Adams

As young children enrich their understanding of print, they begin to look at words as individual units within the text on a page. Pointing out the space between words can help develop this word awareness. Talking with children about why different words are different lengths (why words that take longer to say have more letters) can also build word awareness. Word awareness is a step toward reading readiness (Rozin, Bressman, & Taft, 1974).

In addition to the concept of words as individual units of printed and spoken language, young children must also come to understand that words are made up of letters. A child who "knows his letters" is frequently more interested in the idea that letters are used in spelling words and that they represent segments of spoken language. Children who can name many of the letters of the alphabet find it easier to think of words as unique sequences of letters rather than shapes. This knowledge is necessary for rapid word recognition because skilled readers visually process every individual letter of every word as they read (Adams, 1990).

One of the more challenging problems with learning to recognize individual letters is that many of them look similar. Nevertheless, a reader must be able to recognize printed letters in different fonts, styles, and sizes as well as in diverse handwriting styles. To do this, the mind's eye, so to speak, looks beyond the overall shape of each letter to focus on the line segments and curves that make up the letter in order to determine the relative alignment, length, and completeness of these segments. For example, the eye detects the presence or absence of the short, horizontal line that differentiates the letters *C* and *G*, the location of the curved tip that distinguishes *f* and *t*, and the angle of the "legs" of the letters *A* and *H*. Research regarding children's reversal of letters now leads us to believe that many of these difficulties can be corrected by focusing their attention on the features that distinguish similar letters and providing adequate practice in comparing them. In other words, highlighting the physical differences between the letters and giving the child many opportunities to identify and analyze these differences can resolve many problems with letter reversals (see example in the textbox below).

Preventing Problems in Distinguishing Letter Shapes

Teacher: The teacher writes *A* and *H* on the board. Look at these two letters. Can you tell me their names?

Students: *A* and *H*

Teacher: Good. Now let's look closely at the legs of these two letters. The legs of the letter *A* are slanted inward and meet at the top. **The teacher points to the peak of the letter *A* on the board.** The legs of the letter *H* are straight up and down and there is a gap at the top, that is, they don't meet at the top like the legs of the letter *A*.

The teacher has students trace the shapes of the two letters on their desks. Then she asks them to copy the two letters exactly as she has written them on the board, again drawing attention to the key feature that distinguishes the letters—the legs meet in the letter *A* and do not meet at the top of the letter *H*.

Teacher: Now, put your finger on the part of the letter *A* where the legs meet. **The teacher moves quickly among students to see who has placed their finger correctly. While doing this, she reinforces the idea that this is the way students can tell the difference between these two letters.**

The teacher concludes this brief lesson by showing students these two letters in different print styles and how the key feature that distinguishes these two letters remains the same, even in different types of print.

If adults are asked to think back to how they learned the letters of the alphabet, most will respond with a version of the alphabet song. When young children use this rhythmic tune to memorize the names of the letters and their sequence, they are preparing a place in their long-term memory to connect the shapes of those letters and, later, the phonemes those letters represent. Learning these elements—especially the names and sounds of letters—at separate stages may alleviate confusion between the letters' names and the sounds they represent.

Classroom materials and activities

Marilyn Adams (1990) described five things children learn about print as they develop print awareness. They are listed below along with examples of activities that can be used to build understanding for children who have not yet acquired print awareness.

- Print is categorically different from other kinds of visual patterns and forms in the environment.
  - Point to individual words as they are read in big books to help the children to see that print differs from pictures in form and appearance. The functions of illustrations and text are similar; that is, messages can be conveyed through pictures, just as they can through words. It is the visual difference between print and pictures that should be emphasized.
- Print is print across a variety of physical media.
  - Locate examples of the same word in as many different forms and types of media as possible to develop this insight. Focusing attention on what is the same in these examples (the letters that make up the word) and what is different (the color, size, and texture of the letters; the background; and the presence or absence of pictures or graphic designs) is the key to helping children gain this understanding.
- Print seems to be all over the place.
  - Make a collage of pictures that contain text in different settings.
  - Have students brainstorm a list of places where they see print.
  - Point to print wherever it is seen around the school and ask children to do the same.
- Adults use different kinds of print in different ways.
  - Create a poster depicting different uses of print (grocery lists, letters to grandparents, phone messages, magazine articles, song lyrics, forms, ID cards, newspapers, directions, signs, labels, notes, menus, and books).
- Print can be produced by anyone.
  - Ask every adult that the children encounter at school during the day to share a sample of his or her writing, and turn this collection of print into a poster for the classroom. Add examples of writing done by students as well.

As children participate in these activities, help them to see clearly that print is used to represent language. This can be done through a variety of language experience activities as well. Furthermore, make sure they understand that print has a specific function: it allows a writer to communicate with any number of readers by *encoding* the message in print. These two basic concepts may not be fully developed in children who have not had wide exposure to print and its uses through observing adults who value reading.

An additional element of early print awareness is an understanding of books and how print is organized on the pages of books. Big books are ideal tools for getting the following facts about books across:

- A book has a cover, a title, a title page, an author, a binding that holds the pages together, and pages of text.
- The elements of a book (those listed above) can look different from one book to another.

- There are elements—such as pictures, a table of contents, page numbers, an index, a glossary, and chapters—that appear in some books but not all books.
- Print is read from left to right, beginning at the top and moving down the page.
- The extra spaces between words are "separators" that show the reader where one word ends and the next word begins.

Word awareness cannot be taken for granted. Although the idea that words are individual units of speech and print seems simple, experienced primary-grade teachers will tell you that some children are not sure what a word really is. One way to highlight the fact that words are individual units and that they are separated in print by extra spaces is to point to individual words as they are read and emphasize the beginning and ending of each word.

Another useful method of developing word awareness is illustrating the relationship between the lengths of spoken and printed words. The following activity can be used as both a diagnostic tool and a practice activity for building this concept.

Show students a pair of words made up of one long word and one short word. Say both words using the pattern provided in this example:

Print *dog* and *dangerous* on the board or a piece of paper. Then say, "One of these words is *dangerous*. The other is *dog*. Which word is *dangerous*?" Using these word pairs, repeat this pattern, varying which word is said first and which word you ask the child to point to.

- ***dangerous ..... dog***
- ***man ..... motorcycle***
- ***basketball ..... bag***
- ***cow ..... caterpillar***
- ***hand ..... helicopter***
- ***top ..... thunderstorm***
- ***celebration ..... city***
- ***rain ..... radiator***

Hall and Moats (1999) developed three highly effective games for helping young children learn the names of the letters of the alphabet. These games can be very helpful for children who come to school with little or no letter knowledge. The first game is a great way to introduce letters to young children.

Counting, Matching, and Naming Letters

Making the Game

- Obtain a set of plastic letters—uppercase letters work best.
- Trace the letters in an arc on an 11x17 piece of construction paper. You should end up with the traced outline of all 26 letters in a half-circle. (Optional—you may want to write the child's name in the center of the arc and then laminate the page to increase its durability.)

Playing the Game

- Ask the child to count how many letters there are. He may want to touch each outlined letter as he counts.

Continued

Counting, Matching, and Naming Letters

- Give the child a letter and tell him the letter's name. "This is the letter *A*." Let the child handle the letter to become familiar with its shape. Then repeat this process for the next letter.
- Give the child no more than four letters. When he can differentiate their shapes and repeat their names, let the child place each letter on its outline and repeat its name, saying, "Tell me the name of each letter and put it on your mat on the outline of the letter."

Most children can learn two to four letters at a time, but they will need frequent practice. The goal is rapid, accurate letter identification. For some children, this may take several weeks.

The second game is more advanced. It involves placing the letters of the alphabet in the correct sequence.

Learning the Sequence of the Alphabet

Making the Game

- Obtain a set of plastic letters—you can use the same ones you used in the Counting, Matching, and Naming game.
- Print the letters of the alphabet across the top of an 11x17 piece of construction paper (be sure to match the case and style of the plastic letters you will use).
- Draw an arc on the paper similar to the one you drew for the previous game, but this time you will trace the outline of only four of the letters on the arc.
- Trace the letter *A* on the left-hand starting point of the arc and the letter *Z* on the right-hand end. At the top of the arc, trace the letters *M* and *N*. These letters give the child an "anchor" for positioning the remaining letters. (Optional—you may want to write the child's name in the center of the arc and then laminate the page to increase its durability.)

Playing the Game

- Have the child place the plastic letters in the center of the paper under the arc.
- Then ask him to find the *A* and place it on the arc where it belongs. Repeat this for the letter *Z* and then for the *M* and *N*.
- The child then begins with the *B* and places the remaining letters on the arc in the correct sequence.
- The letters across the top can serve as reminders. As the child improves with practice, you may cover those letters until he has placed all of the letters on the arc.
- The goal should be for the child to put all of the letters in order within two minutes.

Several weeks of frequent practice may be necessary, but it is an enjoyable activity for children.

When a child is able to name the letters and place them on the arc in the correct sequence within the two-minute limit, he or she is ready to play a more difficult game. This game focuses the child's attention on the physical characteristics of the letters that distinguish them from one another.

Guess the Letter

Making the Game

- The same set of plastic letters can be used in this game, along with either of the two 11x17 mats used in the two games described previously.
- You'll also need a paper bag large enough to hold all of the letters.

Playing the Game

- Put all of the letters into the bag and ask the child to reach in and pick up one of the letters without taking it out of the bag.
- Then, ask the child to feel the shape of the letter and to try to guess its identity based on its shape.
- When the child has told you what letter he is holding, the child can pull the letter out of the bag to find out if he is correct. If the letter was identified correctly, the child can put the letter on the arc in its correct place. If it is not correctly identified, the letter is put back in the bag.

A Variation

This game can be played with two children, each child having a bag of letters and a mat.

- One child guesses the name of a letter from his bag, and if the guess is correct, that child continues until a mistake is made. At this point, the other child begins guessing until he makes an incorrect guess.
- The child who successfully identifies all of the letters and places them correctly on the arc is the winner.

Additional tips on teaching letters

Teachers should probably introduce children to either uppercase or lowercase letters but not both at the same time. Because it is easier to distinguish uppercase letters from one another, Adams (1990) recommends using uppercase letters with preschool and kindergarten students. She adds, however, that since lowercase letters are more useful in reading text, it is preferable to use lowercase letters when working with first-graders, even if they have limited letter knowledge.

Another good idea is to avoid introducing letters that children are likely to confuse if seen at the same time. For example, make sure that students can recognize and print the letter *b* before introducing the letter *d*. Introducing a few other letters in between these two will allow adequate time for students to establish the letter *b* before adding the letter *d* to their repertoire.

Phonemic Awareness

Terms and concepts in this section:

- **Alphabetic principle**
- **Onsets**
- **Phoneme**
- **Phonemic awareness**
- **Rimes**

Definitions appear in the glossary.

Even though the concept it describes is quite simple and straightforward, the term *phonemic awareness* is often used in ways that can create confusion. To read a language that uses an alphabet, a student must understand that spoken language is made up of segments of sound, the smallest of which is called a *phoneme*. These small segments of sound are difficult to hear in spoken language because natural speech blends them together to form words that sound as if they are whole units. For example, the word *cat* is made up of three phonemes /c/, /a/, and /t/. The word *though* has only two phonemes /th/ and /o/. These examples highlight the fact that phonemes refer to sounds, not to letters. In other words, there is not a one-to-one correspondence between phonemes and letters because some phonemes are represented by a combination or cluster of letters.

Teachers who help students learn to associate letters with sounds and to blend those sounds to form words during phonics instruction are providing a form of phonemic awareness training. Similarly, phonemic awareness is developed when spelling instruction involves teaching students to break words into their component sounds (phonemes) and match those sounds to letters. The National Reading Panel stated that although "teaching children to manipulate sounds in spoken words may be new, phonemic awareness training that involves segmenting and blending with letters is not. Only the label is new" (p. 34).

While for many years teachers have taught phonemic awareness through phonics and spelling instruction, it is important that research clarifying the role of phonemic awareness in learning to read be implemented into classroom instruction. The purpose of this section is to enrich and clarify the understanding of phonemic awareness and how it impacts learning to read.

Substantial evidence supports the importance of phonemic awareness in learning to read languages that are based on an alphabet, such as English, Spanish, and German (Wagner, Torgesen, & Rashotte, 1994). Phonemic awareness is also known to predict how well children will learn to read. Researchers were able to identify children who would learn to read easily and those who would have difficulty learning to read by measuring whether or not they had developed phonemic awareness (Share, Jorm, Maclean, & Matthews, 1984). More importantly, a number of studies have shown that teaching phonemic awareness to children who have not yet developed it significantly increases their later reading achievement (Cunningham, 1989; Lundberg, Frost, & Peterson, 1988). As a significant factor in learning to read and a strong predictor of reading success, phonemic awareness is a concept every reading teacher should understand and be able to teach (Adams, Foorman, Lundberg, & Beeler, 1998).

The following are three important questions about phonemic awareness that teachers need to be able to answer:

- What are phonemes and what is phonemic awareness?
- How does phonemic awareness help young children learn to read?
- How can teachers help students develop phonemic awareness?

What are phonemes and what is phonemic awareness?

Phonemes are the sounds that make up spoken words. They are the smallest segments of sounds within spoken language (larger segments of spoken language include syllables, words, and sentences). For example, the word *no* is made up of two phonemes /n/ and /o/. We hear them as a single word because our natural speech blends or fuses the individual phonemes into a unit. Phonemes are represented in written language by letters or *graphemes*. Graphemes may be single letters (*b, t, k, e,* or *n*) or clusters of letters that represent single sounds (*ch, sh, ee, igh,* or *ck*).

Phonemes are difficult to hear in normal speech because the individual sounds blend into one another. An adult who tries to distinguish or count the phonemes in a given word will probably rely on his or her knowledge of how many letters are used to spell the word (Ehri, 1984). This method is not completely reliable, however, because some phonemes are represented by a combination or cluster of letters. For example, there are three phonemes in the word *boil* and five in the word *straight*. A more reliable way to identify phonemes within a word is to stretch out the word's pronunciation and count the number of times the mouth, tongue, and lips change as they work to make the individual sounds.

Phonemic awareness is the understanding that spoken words are made up of separate units of sound that are blended together. It is demonstrated by the ability to "focus on and manipulate phonemes in spoken words" (National Reading Panel Report, 1998, p. 2-1).

The following five tasks represent different aspects of phonemic awareness (the tasks are ordered beginning with the easiest to learn and ending with the most difficult) (Schatschneider, Francis, Foorman, Fletcher, & Mehta, 1999):

1. Comparing first sounds—ask children to identify the names of pictures beginning with the same sound.
2. Blending onset-rime units to form real words—say single words with a pause between the onset and rime (*s—and*) and ask children to put them together into a real word (*sand*).
3. Blending phonemes to form real words—stretch out the pronunciation of a word and ask students to blend the individual phonemes into a known word. "What word is made from blending these sounds: /t/ /i/ /g/ /er/?"
4. Deleting a phoneme and saying the word that remains—ask children, "What word is left when we drop the /s/ from the word *spot*?"
5. Segmenting words into phonemes—break a word into its individual sounds by counting the sounds or by moving a marker for each sound. Tell children, "Show me how many phonemes are in the word *bake*."

Students who are able to perform one or more of these tasks with spoken words have developed a level of phonemic awareness.

How does phonemic awareness help young children learn to read?

Because the English spelling system is based on the representation of phonemes by graphemes (the letters of written words that represent the sounds of those words when spoken), students who have developed phonemic awareness have an easier time recognizing unfamiliar words in print. The following are three examples of how phonemic awareness plays a key role in several of the processes readers use to recognize unfamiliar words.

When a reader encounters a word in print that is not known by sight, the reader may apply one of a number of different strategies to guess the word's pronunciation. Decoding is one of these strategies. In decoding an unfamiliar word, the reader translates "graphemes into phonemes and then blends the phonemes to form words with recognizable meanings" (National Reading Panel Report, 1998, p. 2-11). In other words, the reader matches a sound with each of the letters or letter combinations that make up the word's spelling and then blends these sounds (in the correct sequence) into an estimate of the word's pronunciation. The reader then uses this pronunciation to locate the word's meaning in his oral vocabulary. If the meaning that is associated with the trial pronunciation makes sense in the sentence, the reader moves on to reading the remainder of the sentence. Without the phonemic awareness skill of blending separate phonemes into a single word, a reader cannot decode unfamiliar words.

Many readers are able to recognize unfamiliar words by matching part of the word—typically a rime or spelling pattern—with the same sequence of letters in a known word. Blending the onset of the unfamiliar word with the known rime creates a trial pronunciation. For instance, a reader who knows the word *make* may be able to read the unfamiliar word *shake* by blending the phoneme that makes up the onset /sh/ with the known rime *ake*. This process involves two phonemic awareness skills: segmenting phonemes (separating the onset and rime in both words) and blending (putting the onset from the new word together with the rime from the known word).

Words become sight words when the reader has formed a strong connection between the sequence of letters in the word's spelling and the word's pronunciation and meaning as they are stored in the reader's oral vocabulary. The ability to "segment pronunciations into phonemes that link to graphemes" is thought to strengthen these connections (National Reading Panel Report, 1998).

How can teachers help students develop phonemic awareness?

Even though it is likely that students will develop some phonemic awareness through phonics instruction (even if it does not explicitly deal with phonemes), "the extent of phonemic awareness needed to contribute maximally to children's reading development does not arise from incidental learning or instruction that is not focused on this objective" (National Reading Panel Report, 1998). Therefore, it is important that teachers understand how and how much to teach phonemic awareness. The following points highlight key ideas for teaching phonemic awareness:

- Teachers should assess the kinds of phonemic awareness tasks students are able to perform and plan instruction accordingly. Non-readers in kindergarten and first grade who have developed little or no phonemic awareness will benefit from explicit instruction that begins with the easier levels of phonemic awareness, such as identifying the initial sounds in spoken words. More mature readers may need instruction in segmenting, blending, and deleting phonemes. These more difficult levels of phonemic awareness are useful in a number of word recognition strategies.
- Phonemic awareness instruction that focuses on one or two skills at a time is more effective than trying to teach many different phonemic awareness skills at the same time.
- Teaching young readers to segment phonemes appears to be as effective in helping them learn to read as instruction in both segmenting *and* blending (Torgesen et al., 1992). While blending is an essential skill for use in decoding, Torgesen et al. found that a good deal of emphasis should be placed on segmenting words into phonemes.
- Using small groups to teach phonemic awareness seems to be more effective than other grouping patterns. Children may learn from listening to the responses of other children as well as from their own opportunities to practice phonemic awareness.
- Instruction in letters should accompany phonemic awareness instruction (Blachman et al., 1994). Teaching students to use letters to manipulate phonemes increases the application of phonemic awareness to reading and writing.
- By making it clear to students how phonemic awareness is connected to reading and writing, the teacher increases its impact on reading achievement (Cunningham, 1990). Isolated phonemic awareness training improves reading outcomes to a greater extent if its application to reading and writing is stressed.
- Manipulatives can be effective aids in teaching phonemic awareness. Having students move blank tiles or letters as they pronounced phonemes in given words was found to be a key activity in a program of phonemic awareness instruction that produced a significant transfer of learning to reading and spelling (Blachman et al., 1994).
- Focusing attention on the changes that take place in the mouth as words are pronounced is an effective way to identify phonemes. By helping students notice the position and movement of their lips and tongue, teachers can increase students' ability to identify, count, and segment phonemes. For example, when the word *foot* is spoken, the lower lip is held against the teeth as air is forced out to pronounce the phoneme /f/. Then, the mouth forms a circle as the /o/ is pronounced. Finally, the tongue touches the roof of the mouth to make the /t/ (Lindamood & Lindamood, 1975).
- Working with children to spell words by listening for individual phonemes and identifying the letters that represent those phonemes helps to teach segmenting and improves children's ability to recognize unfamiliar words. It is helpful to encourage children to think about how their mouths change as they repeat the word they are trying to spell, because this helps them to segment and identify individual phonemes.

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Many excellent phonemic-awareness training programs are available. Teachers should be aware of the key features that make phonemic-awareness training effective so that they are able to evaluate the different programs and select the one that best suits the needs of their students. Teachers should then use the materials provided in that program in a manner that is consistent with the research findings cited above.

A final word on phonemic awareness

Phonemic awareness is a critical component of learning to read, but phonemic awareness by itself is not a complete program of reading instruction. It is only a means by which children come to understand how sounds match up with letters in written words. It is important, therefore, that children learn the letters of the alphabet and the letter-sound relationships that are taught through phonics instruction. Together, phonemic awareness and phonics instruction provide a sound foundation for using the alphabetic principle to learn to read.

Discovering the Alphabetic Principle: Teaching Phonics Effectively

Terms and concepts in this section:

- **Alphabetic principle**
- **Onsets**
- **Phonemes**
- **Phonemic awareness**
- **Phonological awareness**
- **Rimes**

Definitions appear in the glossary.

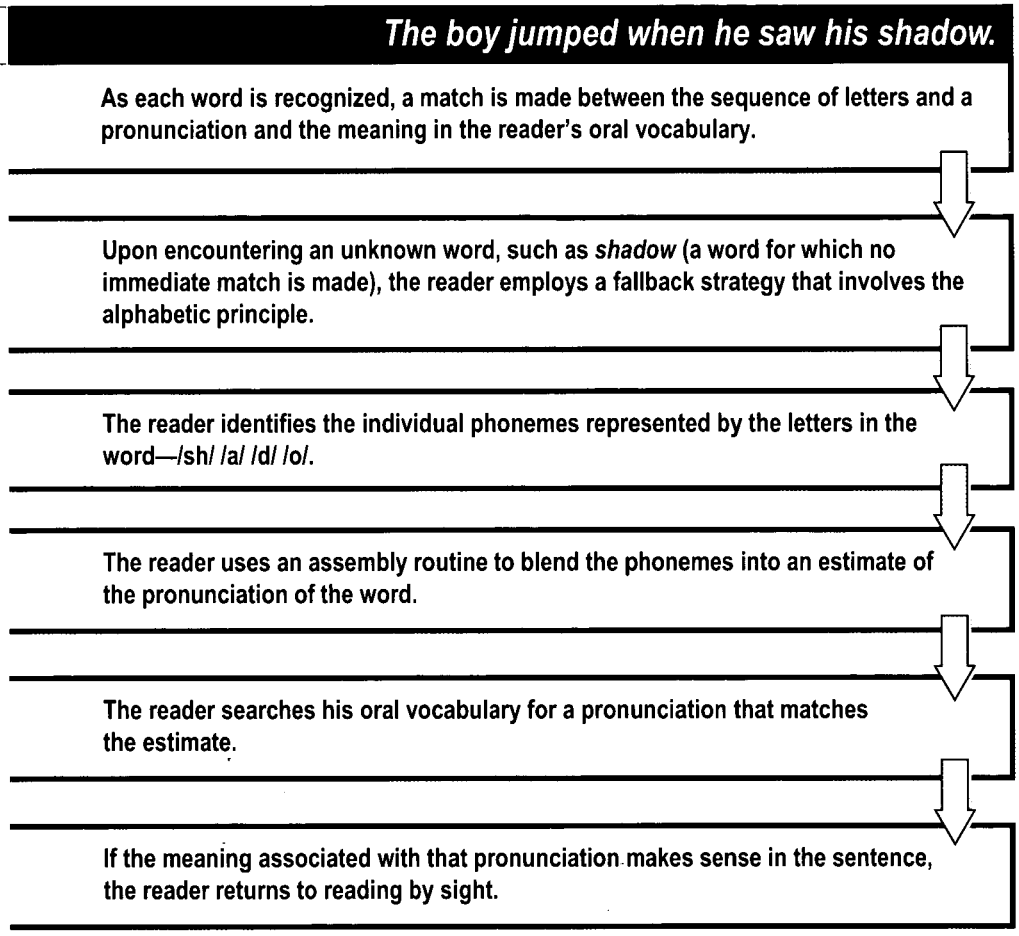
The alphabetic principle provides a somewhat technical explanation for how written language or print represents spoken language. According to the alphabetic principle, the sounds of spoken language are represented in print by letters of the alphabet. A single letter represents most speech sounds; for example, the letter *m* represents the first sound in the word *money*. Some speech sounds, however, require more than one letter; for example, the letters *ch* are needed to represent the first sound in the word *chalk*.

Adult readers use the alphabetic principle to recognize rare or unfamiliar words without thinking about it. The idea that letters represent the sounds of speech seems so obvious to them that they do not need to consciously apply it as they read. In fact, many adult readers probably could not explain the alphabetic principle very clearly, even though they use it well in their own reading. Teachers, however, need to understand and be able to explain the alphabetic principle. Young children can learn the alphabetic principle incidentally through exposure to print over a long period of time, but they can learn it much faster if their experiences with print are accompanied by clear explanations of how print represents the sounds of spoken language. The critical role of the teacher is to provide meaningful experiences with print along with clear explanations of how letters in written words are used to represent the sounds of spoken words.

Young children learn to speak the language of their family without being taught the arbitrary rules that govern that language. They learn to use correct grammar and appropriate sentence structure without being taught the technical aspects of subject-verb agreement and other rules. Learning to read that language, however, does require explicit instruction (Liberman, Shankweiler, & Liberman, 1989), instruction that should include the alphabetic principle as a tool for unlocking the mystery of print. Readers have acquired the alphabetic principle when they are able to identify unknown words by using the knowledge that letters can represent phonemes and that whenever a particular phoneme occurs in a word, the same letter can represent it.

Diagram of the alphabetic principle in action

The process that readers use in applying the alphabetic principle is explained in the diagram below.



The alphabetic principle is the first step in creating the estimated pronunciation. What is necessary, however, to reliably apply the alphabetic principle? The reader who can use the alphabetic principle must know three things:

1. The letter-sound associations for each letter in the words he will read (what phoneme is represented by each letter or combination of letters)
2. That the phonemes represented by those letters are separate segments of those words
3. That the phonemes can and do occur in other words and in other positions within words

Research examining how young children acquire the alphabetic principle indicates that learning that phonemes can and do occur in other words and in other positions is more difficult than learning the other two concepts (Byrne & Fielding-Barnsley, 1989). However, explicit instruction is needed in all three concepts. The instructional approach that appears to be the most effective in teaching letter-sound associations is systematic phonics instruction.

Although differences exist, the hallmark of systematic phonics programs is that they delineate a planned, sequential set of phonic elements and they teach these elements explicitly and systematically.
—National Reading Panel, 1998

Systematic phonics instruction

The research supporting systematic phonics instruction extends back to the work of Jeanne Chall (1967). Chall's extensive review of the theory and practical application of beginning reading instruction concluded that systematic phonics instruction initiated early in children's school experiences seemed to produce stronger reading achievement than instruction initiated later and in a less systematic manner. Even though "phonics instruction has become entangled with politics and ideology" (National Reading Panel Report, 1998), the evidence to support the use of systematic phonics instruction has continued to grow (see Adams, 1990, for a review of this research).

Two categories of systematic phonics instruction have been the focus of considerable study:

- Synthetic phonics—students are taught to sound out words by matching phonemes to graphemes (sounds to letters) and then blending the sounds to create a trial pronunciation.
- Larger-unit phonics—students are taught to detect and blend word parts (units) that are larger than phonemes, such as onsets and rimes, phonograms, and spelling patterns.

Both categories produced results that reflected a moderate but statistically significant impact on reading achievement (National Reading Panel Report, 1998).

The following findings are included in the National Reading Panel's Report (1998) on the efficacy of systematic phonics instruction:

- Systematic phonics instruction was shown to produce improvement in reading and spelling in kindergarten through sixth grade, even with some children who were struggling with learning to read. The contribution of systematic phonics instruction to reading achievement was greater than the contributions of programs that provide unsystematic phonics instruction and programs that include no phonics instruction.
- Positive results were much larger with younger students (kindergarten students and first-graders), which indicates that beginning systematic phonics instruction early is helpful.
- Systematic phonics instruction produced gains when used in one-on-one tutoring, with small groups, and in whole-class instruction.
- Gains in reading were demonstrated by children from all socioeconomic levels.
- Systematic phonics instruction showed greater impact on word-reading outcomes than on text-comprehension outcomes.

This last finding serves as a reminder that a strong reading program must include more than systematic phonics instruction. The National Reading Panel addressed the importance of placing systematic phonics instruction within a "balanced reading program" by stating the following:

> Finally, it is important to emphasize that systematic phonics instruction should be integrated with other reading instruction to create a balanced reading program. Phonics instruction is never a total reading program. In first grade, teachers can provide controlled vocabulary texts that allow students to practice decoding, and they can also read quality literature to students to build a sense of story and to develop vocabulary and comprehension. Phonics should not become the dominant component in a reading program, neither in the amount of time devoted to it nor in the significance attached. It is important to evaluate children's reading competence in many ways, not only by their phonics skills but also by their interest in books and their ability to understand information that is read to them. By emphasizing all of the processes that contribute to growth in reading, teachers will have the best chance of making every child a reader. (p. 2-97)

Whole language and systematic phonics instruction

Whole language teachers provide instruction in letter-sound correspondences within the context of meaningful reading and writing experiences. They deal with these relationships as the need arises rather than through a systematic sequence. This approach integrates the phonics instruction they do provide into a range of reading and writing activities. Whole language proponents believe that as students read and write, they will acquire what they need to know about letter-sound correspondences and the alphabetic principle. They see the teacher's role as responding with relevant instruction to the immediate needs of students as they read and write.

Elements of systematic phonics instruction that are absent from most forms of whole language instruction include teaching vowels (Stahl, Duffy-Hester, & Stahl, 1998) and "teaching children to say the sounds of letters and blend them to decode unfamiliar words" (National Reading Panel Report, 1998). Systematic phonics programs also specify the letter-sound relationships to be taught. In contrast, whole language programs typically allow the selection of letter-sound relationships for instruction to be made as students demonstrate a need for them as they grow as readers and writers.

Note: *For a more expansive discussion of how whole language compares to systematic phonics instruction, see Hall and Moats (1998). These authors clearly, intelligently, and succinctly explain the aspects of whole language instruction that can lead to the omission of key elements of a sound reading program.*

Questions and answers in teaching the alphabetic principle

Three questions arise when designing instruction to teach the alphabetic principle, and they correspond to the three key elements identified previously as necessary to understand and apply the principle.

1. How can letter-sound associations be made clear to students?

   Contrary to the practice utilized by popular primary-grade reading materials, letter-sound correspondence should be taught by moving from sound to letter(s) rather than from letter(s) to sound (Hall, 1998). Written language was developed to represent an already established spoken language, so beginning with speech sounds rather than letters corresponds to the natural development of language. Furthermore, when instruction is based on the letters of the alphabet rather than speech sounds, confusion can arise because there are many speech sounds that do not have a single corresponding letter.

   Hall (1998) shares an example of how beginning with letters can create confusion for young readers. "Word wall" displays, such as the one below, provide a way for young readers to recall words they are learning but cannot recognize by sight. While they are excellent teaching tools that can be used for a number of purposes, care should be used to avoid giving students misconceptions about the relationships between sounds and letters.

   For example, included in this display are six different sounds that can be represented by the letter *o*. Looking at this display on a bulletin board might lead students to believe that there is no systematic correspondence between letters and sounds.

Aa	*Ee*	*Ii*	*Oo*	*Uu*
apple	***egg***	***it***	***orange***	***under***
and	***eight***	***is***	***of***	***use***
away	***eat***	***in***	***on***	***us***
all	***end***	***I'm***	***out***	***united***
are			***once***	
			open	
			off	

A less confusing approach would be to introduce students to a phoneme (a segment of spoken words) and then illustrate the letter(s) or letter combination(s) that represent that sound. The following text box provides an example of what this type of instruction might sound like.

Teacher: We're going to begin working with a new sound today. I'm going to say five words that have this sound in them, and I want you to guess what the new sound is. You'll have to listen well because in these examples this new sound sometimes comes at the beginning of the word and sometimes it comes at the end of the word.

cup can lake week kite

What do you think the new sound is?

Students: /k/

Teacher: That's right! Now, I'm going to say those same five words, and I want you to listen for where the sound is in the word. If you hear it at the beginning of the word, put your thumbs up. If you hear it at the end of the word, put your thumbs down. **The teacher repeats the words, watching students' responses carefully to see who can differentiate the sound's position in the sample words.**

That's really good! Now, I'm going to say a word that has the /k/ at the beginning and the end.

- kick

Can you tell us a word that has this sound in it?

Students: (students provide additional examples)

Teacher: Before we look at the letters that can stand for this sound, I have a word that has the sound in the middle. Listen carefully.

- pocket

We know that this sound, the /k/, can be at the beginning, the end, or the middle of a word, and it sounds the same, no matter where we hear it in the word. But, there are several letters that can represent this sound. This means that we don't always use the same letters to spell this sound in words. Let's use the first five examples I gave you and look at how this sound is spelled. **The teacher lists the original words on the board and leads the children to discover the different letter combinations that can represent this sound. There are two other letter combinations that represent the phoneme /k/—*ch*, as in *school* or *schedule*, and *que*, as in *antique* or *oblique*. These spellings will be introduced later, after students have established the more common spellings for this phoneme.**

Orthographic or spelling conventions are a part of the type of instruction demonstrated above. Although they should be taught as generalizations rather than rules, they can be very helpful in making English spellings seem less irregular. For example, when a word ends with the phoneme /j/, it is spelled using *ge* or *dge*. Teaching patterns such as these can provide support for both reading and spelling.

2. How can students learn that the phonemes they hear are separate segments of words?

Students must first understand that spoken and written language can be divided into increasingly smaller segments. They must know that language consists of sentences that represent complete thoughts, that sentences are made up of words, that words have syllables, and that most syllables are made up of onsets and rimes. Once they know these concepts, they are ready to search for and manipulate phonemes.

Adams, Foorman, Lundberg, and Beeler's (1998) research recommends beginning with initial and final sounds. Help students to hear the first phoneme in a one-syllable word and to hear how it sounds when it is separated from the rest of the word: "Let's say *call* without the /k/." Provide practice with words that are still real words when the initial sound is removed (*gate* becomes *ate*, *stop* becomes *top*). Then, work with words that can be turned into new words by adding a new initial sound (*and* becomes *hand*, *pot* becomes *spot*).

The level of abstraction of phonemes makes it important to use as many concrete aids as possible in demonstrating them (see *Phonemic Awareness in Young Children*, Adams, Foorman, Lundberg, & Beeler, 1998, for several excellent examples). Also, have children put their hands over their lips as they say each phoneme so that the differences become not only what they hear but also what they feel when they create these sounds.

3. How can we help students understand that phonemes can occur in any part of a word?

Lessons, such as the one that appears in the text box on the previous page, go a long way toward helping students discover that phonemes can appear in any part of the word without changing their sound. Providing students with multiple examples of the same phoneme represented by the same letter but appearing in different parts of different words is the most effective approach to helping them develop this understanding. Asking students to provide additional examples of their own is also useful.

What else is needed to use the alphabetic principle to decode new or unknown words?

The alphabetic principle is a necessary condition for reading new or unknown words, but it is not sufficient. The young reader must also be able to

1. Blend the string of phonemes represented by the letters of the new or unknown words to form a guess at their pronunciation.
2. Match that pronunciation with those that exist in his oral vocabulary (this may require several attempts as the reader experiments with different pronunciations).
3. Determine if the meaning of the matched pronunciation makes sense in the sentence.

Phases of Learning New Words

Terms and concepts in this section:

- **Blending**
- **Consolidated-alphabetic phase**
- **Decoding**
- **Decoding sequence**
- **Full-alphabetic phase**
- **Onsets**
- **Oral vocabulary**
- **Partial-alphabetic phase**
- **Phoneme**
- **Phonological awareness**
- **Pre-alphabetic phase**
- **Rimes**
- **Spelling patterns**

Definitions appear in the glossary.

A reader's ability to make a strong mental connection between a word in print and its pronunciation and meaning(s) develops in phases. Each phase is marked by a different strategy for making these connections. It is important for teachers to know what these phases are, how new words are learned by students in each phase, and how to plan instruction and practice that moves children toward the more advanced phases.

As a way to begin thinking about these phases, read through the following descriptions of students applying different strategies for learning new words. They are listed here in the sequence that reflects the normal development of a skilled reader.

- Sharon looks at the sign taped to her teacher's chair. On the sign, her teacher has printed the word CHAIR in large block letters. She thinks to herself that the second letter looks like a chair, so she decides to use that mental picture to remember that the word is *chair*.
- Jimmy learned the word *March* when his teacher introduced it on the chalkboard at school. He learned to recognize the word by the first letter, an uppercase *M*. Unfortunately, it is now the month after April, and Jimmy is staring at the calendar on the wall. Is it March again so soon, he thinks to himself?
- When Terri learns a new word, she looks carefully at each letter. She has learned that many words look alike and that this makes it important to pay attention to all of the letters in a word. She knows that if you just look at some of the letters, you can make mistakes in recognizing words that share letters (*book—boo*, *patch—path*, *sick—sink*).

- LaToya is reading in a book she checked out from the Media Center, and she has encountered an unfamiliar word. It is not totally unfamiliar because one part of the word has a pattern of letters LaToya has seen in many other words. She guesses that this part of the word sounds like it does in other words. This gives her a head start in sounding the word out and in recognizing it faster when she sees it again.

A reader is said to have "learned" a word when he recognizes it immediately, when he knows it by sight. What are the types of strategies readers use to learn new words? In other words, how do they make connections between words in print and the pronunciations and meanings of those words in their oral vocabulary? Looking at these strategies as ways of making connections means thinking about cognitive processes, not methods of instruction. Learning new words is a connection-forming process that occurs in the reader's mind. Although this process has instructional implications that will be addressed in this section, our primary focus is on what takes place in a reader's mind as the initial connections or "access routes" are established for new words.

As stated earlier, the two goals of instruction regarding word recognition are for the child to know the greatest number of words by sight and to be able to identify unknown words as rapidly as possible. How do children learn to recognize words by sight? Ehri (1998) has refined her earlier description of phases of learning new words to reflect the different types of connections linking words in print to their pronunciations and meanings in the reader's oral vocabulary. When this connection is strong enough that the child recognizes the word immediately, the child has learned to recognize the word by sight.

The benefit of knowing words by sight is that words are recognized rapidly and automatically so that little working memory is needed for decoding or performing other processes to read unfamiliar words. As a result, maximum attention can be devoted to comprehending the meaning of the text.

It is the *letters* in words that are linked or connected with the pronunciations and meanings of those words. Ehri describes the usefulness of this important fact in this way:

> Consider the feat that skilled readers perform when they read words by sight. They are able to recognize in an instant any one of many thousands of words. They recognize one unique word and bypass many other similarly spelled words. For example, consider all the words that must be overlooked to read the word *stick* accurately: not only *stink*, *slick*, and *slink*, which have similar shapes as well as letters, but also *sting*, *sling*, *string*, as well as *sick*, *sing*, and *sink*. Moreover, skilled readers can remember how to read new sight words with very little practice. Memorizing arbitrary associations between the shapes and meanings of words cannot explain how skilled readers do what they do. Sight word reading must involve remembering letters in the words. **These are the distinctive cues that make one word different from all the others** (emphasis added).

One way to describe the development of strategies for learning new words is to distinguish the types of connections the reader makes in linking new words to pronunciations and meanings. The following four phases represent a clear description of how to differentiate these types of connections.

Pre-alphabetic phase

Younger readers make mental connections between strong visual features of words and their pronunciations and meanings. Examples include "seeing" two round eyes in the word *look* and using that mental picture to remember the word each time it is encountered in print, and remembering the word *camel* by picturing the letter *m* as two humps. Letter-sound relationships are not used to form connections in this phase, only visually distinctive cues, hence the label pre-alphabetic.

When a young child sees the logo of his favorite restaurant and calls out the restaurant's name but cannot recognize the name when it is printed in a different style on the receipt, the child is reading in the pre-alphabetic phase. Young readers in this phase at times may connect visual cues to meaning rather than pronunciations. This explains why pre-alphabetic readers in one study (Harste, Woodward, & Burke, 1982) responded with answers that were equivalent in meaning when asked to read environmental print. The readers replied with "brush teeth" or "toothpaste" when asked to read the word *Crest*.

Young children use pre-alphabetic strategies, such as associating meaning with strong visual features or the design of a logo surrounding a word, when they want to read but have not learned to employ a systematic relationship between letters and sounds. These visual cues are not reliable, however, because they do not allow readers to distinguish among visually similar words (i.e., *talk* and *tall*). Furthermore, the mental task of identifying visually distinct features for every word and committing them to memory is beyond the capacity of child or adult. Finally, pre-alphabetic readers cannot learn new words by translating the letters into phonemes and sounding the words out.

Hall and Moats (1999) identified the following instructional activities as appropriate for children who are in the pre-alphabetic phase:

Print awareness activities such as:

- Identifying the names of the letters of the alphabet
- Pointing to words in big books or on the board as they are read

Phonemic awareness activities such as:

- Identifying words that rhyme
- Counting syllables in a spoken word
- Matching initial consonants with spoken words
- Manipulating phonemes (adding, deleting, or substituting phonemes in various positions within the word)

Partial-alphabetic phase

As readers progress to this phase, they begin making connections between some of the letters in a word and the sounds of those letters within the word's pronunciation. The reader in this phase may use the initial and final consonants to connect a word with its pronunciation. For example, connecting the initial consonant *s* and the final consonant *l* with the pronunciation of the word *school* may allow a reader to recognize the word when he sees it again.

Readers in this phase may lack a working knowledge of vowels and may not be able to segment pronunciations into phonemes and then match the phonemes with individual letters. They may also mistake similar appearing words, such as *shall* or *stroll* for *school*, because the connection they have made involves only the initial and final consonants. Still, partial-alphabetic phase readers learn new words much faster than pre-alphabetic readers because the mental connections they form are supported by a systematic set of letter-sound associations rather than an arbitrary visual cue.

Activities that teach the alphabetic principle are helpful in moving students from the partial-alphabetic phase to the next two phases (Hall & Moats, 1999). Here are three examples of such activities:

- Building words from known letters (see example lesson script on page 38)
- Practicing separating words into their individual phonemes (teaching children to say each sound distinctly, for example saying cat as /c/ /a/ /t/)
- Blending individual phonemes into whole words

Full-alphabetic phase

As these readers learn new words, they now make connections between the *sequences* of letters in a word and the phonemes that make up their pronunciations. They know how letters or combinations of letters represent phonemes, and they utilize all of the letters in a word when making a connection or access route to its pronunciation and meaning. This approach produces far more accurate reading because the reader can now distinguish among words with similar spellings. Reaching this phase in reading development also has implications for learning new words as well as for recognizing known words. In a study by Ehri and Wilce (1987), readers who used full-alphabetic phase strategies were able to learn a list of similarly spelled words, such as *bend* and *blond*, *drip* and *dump*, *lap* and *lamp*, in only three trials. Readers who could apply only partial-alphabetic phase strategies could read only six of the fifteen words after seven trials.

Processing all of the letters in a word also enables the reader to generate pronunciations of entirely new words, something not possible for readers in previous phases. Blending the individual phonemes into a single unit creates an estimate of the word's pronunciation that can be matched against known pronunciations to locate the word's identity and meaning in the reader's oral vocabulary. Once the new word has been practiced frequently enough to establish a strong connection between the sequence of letters and the pronunciation and meaning, the word becomes part of the reader's sight vocabulary.

Another advantage readers gain when they move into the full-alphabetic phase is the use of analogizing to recognize unfamiliar words. One possible explanation for this increased ability to use known words to identify unknown words is that partial alphabetic readers, unlike full-alphabetic readers still have incomplete information about the words in their memory, and this information is not adequate to recognize similarities in spellings (Ehri & Robbins, 1992).

Activities that focus children's attention on the sequence of letters in words, such as using invented spelling, are helpful in developing important skills related to the full-alphabetic phase. The following are three examples of other activities that also increase these skills:

- Practicing actual decoding of unfamiliar words
- Giving students opportunities to read new words in a meaningful context
- Encouraging children to use new words they are learning in their own writing

Consolidated-alphabetic phase

As the reader's oral vocabulary grows, more and more spelling patterns are identified and consolidated. This consolidation occurs when the reader determines that a sequence of letters is used in many different words to represent the same blend of phonemes. These multi-letter sequences become *unified* in the reader's understanding of the spelling system. The reader who recognizes that *need*, *weed*, *speed*, and *freed* all contain the pattern *eed* is able to learn new words that contain that pattern, such as *deed*, *indeed*, *steed*, and *greed*, much easier and faster. Such consolidated units also allow faster access to pronunciations and meanings by speeding letter identification (Juel, 1983). The reader can now recognize the cluster of letters that makes up the spelling pattern as a familiar unit.

Consolidation allows the reader to learn new words through fewer connections. For example, a consolidated phase reader might be able to learn the word *spend* by making only two connections—the two patterns *sp* and *end*—rather than five separate letter-sound connections.

By the time students are nearing the end of second grade, their sight vocabulary should be great enough to allow this consolidation of spelling patterns (Leslie & Thimke, 1986). Therefore, it is usually at some time after second grade that readers who employ consolidated spelling patterns become faster readers.

Hall and Moats (1999) suggest the following activities for introducing the concept of spelling patterns or "word families" and teaching the most common ones.

- Model the use of analogizing to recognize unfamiliar words, and provide practice for students in using this strategy.
- Involve students in game-like practice activities in which they see who can build the most words using a single spelling pattern. For instance, ask students: "How many words can you make using the spelling pattern *ake*?"
- Introduce the idea of "meaningful word parts" by explaining the following:
  - Prefixes and suffixes that are consistent across a wide range of words and that impact meaning without changing spelling, such as *practical* and *impractical*, *believable* and *unbelievable*, or *taste* and *distasteful*
  - Plural and past tense endings, such as *s*, *es*, and *ed*
  - Word parts that retain a consistent spelling even when the pronunciation changes from one word form to another, such as *resign* and *resignation*, *define* and *definition*, *heal* and *health*

Instructional implications of the four phases of learning words

Letter knowledge is a key component of moving from pre-alphabetic phase reading to the more advanced phases. Activities that give younger readers opportunities to learn the names of the letters of the alphabet and how these letters represent phonemes within spoken words help students progress beyond the pre-alphabetic phase.

Readers must make the connection between individual letters or combinations of letters and the phonemes they represent. Children's spellings of words they have not been taught can give their teacher insight into how well they have made this connection. Analyzing students' writing gives the teacher a way to determine which letter-sound associations students have learned and which need to be learned. Phonics instruction helps to establish these letter-sound relationships.

Students who do not possess letter knowledge and phonemic awareness must be provided with intensive instruction in these concepts. Kindergarten students who may appear nearly identical in terms of spoken language ability may differ greatly in their knowledge of letters and their ability to connect letters to speech sounds. The classroom teacher must know where each child is in the development of these important skills. Phonemic awareness activities can be done with children individually or in small groups as a way of diagnosing the level of phonemic awareness of each child.

Beyond kindergarten, developing readers must be able to use letter-sound correspondences (with particular emphasis on vowels). Key subskills include being able to separate spoken words into their component phonemes (oral word games are a great way to develop and practice this ability), seeing printed words as a sequence of letters that can be segmented to represent specific phonemes, and understanding how letters represent phonemes in a systematic way.

Once children have begun to move into the full-alphabetic phase, direct instruction is necessary and successful in helping students to learn multiple strategies for recognizing unfamiliar words.

Strategies for recognizing unfamiliar words

The primary strategies good readers use in the advanced phases of learning new words are decoding, analogizing, and using spelling patterns. These strategies serve to build the reader's sight vocabulary by allowing him to recognize unfamiliar words quickly and to make strong connections between a word in print and information about that word in his oral vocabulary. These strong connections enable the reader to recognize the word by sight when it is encountered again.

Decoding

What is decoding?

Decoding is what teachers are referring to when they encourage readers to "sound out" words they do not recognize immediately. When words are printed on a page of a book or written on the chalkboard or on a piece of paper, the letters represent the sounds that make up the spoken versions of those words. When a reader spells a word, he encodes its pronunciation (the sound of the spoken word) into symbols called letters. If words in print have been encoded, then translating them back into sounds is decoding. Therefore, decoding is matching up the letters of a word in print with the sounds those letters represent and blending those sounds together to create the word's pronunciation. When a reader tries to recognize an unfamiliar word, it is the product of decoding (the reader's estimate of the word's pronunciation) that is used to search his oral vocabulary for other information about the word, such as its meaning and typical function in a sentence.

Rapid and accurate decoding is essential to skilled reading. A reader who is not proficient in decoding will bog down when reading a text in which more than five to ten percent of the words are unfamiliar. This slowdown affects comprehension, because as more working memory—the place in the brain where mental tasks are performed—is required for decoding, less is available for comprehension. When less working memory is available for comprehension, the meanings of words that appeared earlier in the sentence (prior to encountering the unfamiliar word) can be lost. Without holding all of the meanings of the words of the sentence in working memory, the reader cannot make sense of the sentence. In other words, comprehension suffers when the reader is so slow at decoding that the meanings of other words in the sentence disappear before the reader can combine them and analyze their collective meaning in the sentence. A strong decoder will be able to sound out unfamiliar words quickly and not have the meanings of other words drop out of working memory.

The foundation needed for developing decoding skill is quite broad. In fact, nearly all of what has been reviewed up to this point concerning word recognition is part of the foundation for learning to decode unfamiliar words: decoding skill is based on phonemic awareness, application of the alphabetic principle, and knowledge of how words are spelled or the rules and conventions of the English spelling system. The focus of this section, however, is the narrower topic of teaching the actual process of decoding. Insights into how to build decoding skill as readers develop more efficient methods of learning new words are combined with practical suggestions for teaching the steps of decoding.

Teaching decoding

There are a great many fundamental ideas and skills that children need to learn and master as they move toward the ability to sound out new words. Matching letters to sounds involves knowing the more common representations of the phonemes of the English language. With over 1,100 different ways to spell those 40+ sounds, this is quite a challenging task.

Segmenting and blending phonemes, another important part of decoding, requires explicit instruction and substantial practice for most young children (oral word games can be used to make this work fun for children).

The final piece of decoding is matching the trial pronunciation created by blending the separate phonemes to the pronunciations of known words in the reader's oral vocabulary. To accomplish this final piece of decoding, the student needs an ever-growing oral vocabulary. If no pronunciation and meaning exist in the reader's oral vocabulary, the reader will have nothing to match his trial pronunciation against. It would be as if he were decoding a word from a foreign language.

These foundational ideas and skills—strong phonemic awareness, extensive letter-sound associations, and a broad oral vocabulary—are necessary for effective decoding. However, they are not sufficient for most readers to develop and refine their skills in decoding. The reader must also have a substantial amount of practice and coaching.

The sample lesson script on page 39 illustrates just one example of how a teacher might present a lesson on decoding. The teacher is working with words that are not in context; that is, the words are presented in list form rather than in a sentence or passage of text. Without a context, the teacher has to focus on matching sounds with individual letters. Later, when teaching a more comprehensive lesson on the decoding sequence children should use in recognizing unfamiliar words in meaningful text, the teacher will demonstrate how to use the context to assist the children in this process.

Sample Lesson Script on Building Words

Teacher: We're going to practice using our "building block" letters—the letters we have already learned—to make new words. Get out your "building block" letters. Watch carefully how I build the first word.

The teacher puts a single card in a pocket on her chart pad. It contains the letter *b*

This is the letter *b*. What is its sound? Steve?

Steve: It says "buh."

Teacher: That's right, it says /b/.

The teacher puts a second card in the pocket so that it now holds *bi*.

What's the sound? Gerri?

Gerri: /i/

Teacher: Great, you used the short *i* sound! Let's blend these two sounds:
The teacher sweeps her hand below the letters from left to right as she models the blending of these two sounds.

Let's add another letter.

The teacher adds a card with the letter *g*

What is this sound—just the sound of this letter? Lynn?

Lynn: /g/

Teacher: Yes, now, let's blend all three sounds.

The teacher sweeps her hand below the three letters from left to right as she models the blending of these sounds. Her pronunciation is exaggerated, but students recognize the word *big*. The students build the word *big* with their letter cubes and practice blending the individual phonemes into a single word as they place the letters side by side in the correct sequence. After they have built several new words, the teacher calls on individual students to use one or more of the words in a sentence. To conclude the lesson, the students practice writing simple sentences that include one or more of the words.

Activities that strengthen students' phonemic awareness and skill in blending individual phonemes into whole words are the main strategies teachers use to build skill in decoding. Here are some examples of how teachers provide this type of instruction:

- Phoneme identification instruction in which the teacher isolates a specific phoneme for students and teaches the letter(s) that represent the phoneme. (See the example of this type of instruction above.)

- Oral segmentation tasks, such as
  - Saying words by syllables—"Listen to the word *paper*. Say it syllable by syllable: *pa-per*."
  - Dividing syllables into onsets and rimes—"Listen to the word *man*. Now, say the first sound and then the rest of the word: /m/...*an*."
  - Segmenting words phoneme by phoneme—"Listen to the word *beach*. Now, say it one sound at a time: /b/ /e/ /ch/."
- Oral blending tasks that are the reverse of the segmentation tasks, such as
  - Going from syllables to a whole word—"Listen to these word parts, *ta-ble*. Now, say them as one word: *table*."
  - Putting onsets and rimes together—"Listen to the parts of this one-syllable word, /m/...*an*. Now, say them as one word: *man*."
  - Blending individual phonemes—"Listen to these sounds /b/ /e/ /ch/. Now, slide them into one another as you blend them into one word: *beach*."

Blending individual phonemes into a whole word is a skill that requires modeling and practice. The use of hand gestures, such as sweeping from left to right as you blend the individual sounds, can reinforce the idea that readers blend the sounds together from left to right in the sequence in which the letters appear in the printed word. Some teachers model blending in three stages: (1) saying the isolated phonemes in the proper sequence, (2) blending them "halfway" so students can still hear not only the individual sounds but also how they are becoming more like a whole word, and (3) blending them completely so that the sounds are pronounced as a seamless unit just as they are in natural speech.

Building a decoding sequence

What does the teacher expect children to do when they are told to "sound the word out"? A well-thought-out decoding sequence provides children with concrete steps to perform this task. Elementary teachers from several schools in Orange County, Florida, constructed the following decoding sequence. It represents their collective thinking on what they want children to do when they encounter an unfamiliar word. Each step of the process is accompanied by an explanation of the rationale for including that step. Other groups of teachers might create a different decoding sequence. For example, some teachers feel that using the context of the sentence or passage should be emphasized. Others believe that context should be used only when the child has used letter-sound correspondences to narrow the field of words that might make sense in the sentence.

What do we tell children to do when they come to an unfamiliar or unknown word?

Strategy or Step	Rationale (Why do we want readers to do this?)
Look at each letter in the word.	Words are processed as a sequence of letters. Focusing students' attention on the sequence (the entire sequence) of letters may lead to word recognition. That is, the correct pronunciation may "pop out."
Say the first sound (the first sound may be made by one or more letters—*b*, *c*, *d*, *f*, *g*, *h* or *th*, *sh*, *ch*, etc.).	With some readers and some words, identifying the initial sound may be combined with contextual clues and lead to word recognition. For example, in the sentence "The sun was shining," a reader might recognize the word *shining* by thinking, "What word that starts with /sh/ would make sense in this sentence?"

Continued

What do we tell children to do when they come to an unfamiliar or unknown word?	
Strategy or Step	**Rationale (Why do we want readers to do this?)**
Look for parts of the word that you recognize. In the word *planet* readers might recognize *plan* and/or *net*. Sound out the other parts by matching a sound to each letter or combination of letters (spelling patterns). Add what you sounded out to the parts you know. If you have enough of the word figured out, try to pronounce it by blending the sounds.	This strategy becomes more useful as students consolidate spelling patterns, such as *ake*, *ell*, *ook*, *ace*, and *eed*.
If you still do not recognize the word, say the sound made by each letter and then blend them into a single word.	Blending segmented sounds (phonemes) is the second of the two core elements of decoding. It must be practiced so that readers learn to make an estimate of the pronunciation, search their oral vocabulary for a match, and reformulate the pronunciation if no match is found.
If there is no word that you know that sounds like your guess, look at the letters again and come up with a different pronunciation.	Because vowels are less predictable in their pronunciation, it may be helpful to encourage students to focus on the vowels in reformulating their original pronunciation.

Rime analogies and spelling patterns

What are rime analogies?

Syllables can be thought of as having one or two parts. Every syllable has a rime. The rime is the vowel or vowel and following consonant(s) within a syllable. When a syllable has an initial consonant or consonant cluster preceding the rime, this part of the syllable is called *the onset*.

A rime analogy occurs when two or more words contain syllables with rimes that share the same cluster of letters. For example, the words *beak*, *leak*, *streak*, and *teak* share the letters *eak*. Because the rime of each of these one-syllable words contains the same cluster of letters, these words represent rime analogies. Rime analogies are the foundation for word families. Word families are groups of words that share common letters in the rimes of a syllable (usually the final syllable).

As readers become more skilled in decoding, the introduction of rime analogies can have significant benefits in terms of word recognition and comprehension (White & Cunningham, 1990, as cited in Goswami, 1998). By recognizing the similarity between the rime of a known word and that of an unfamiliar word, the reader is able to analogize part of the unfamiliar word's pronunciation. Analogizing is an efficient way to decode unfamiliar words.

This section explains how the consistency in pronunciation of rimes makes them powerful tools for learning new words. It also shows how this concept can be explained and modeled for students.

Teaching rime analogies

A reader can apply the alphabetic principle when he understands the idea that spoken language (sounds) can be represented by written language (letters and words). This makes learning to read a fairly straightforward matter in languages where there is a high level of consistency in letter-sound relationships—where each letter represents only one sound and each sound is represented by only one letter. Part of what makes learning to read in English more difficult than learning to read in some other languages is that letter-sound relationships in English are not completely consistent. There are words with similar spellings but different pronunciations, such as *heal* and *health*, *sign* and *signal*, as well as different spellings that produce similar pronunciations, such as *hear* and *here*, *sail* and *sale*.

Nonetheless, there are consistencies that can be helpful in teaching reading. In a study of consonant-vowel-consonant (CVC) pattern words and syllables, the initial and final consonants were found to be predictable in their pronunciation. In other words, when the initial consonant was the same in two different words or syllables, it was pronounced the same 96% of the time. Final consonants were pronounced the same in 91% of the comparisons.

Examples

All of these initial consonants are pronounced the same. The letter *b* represents the same phoneme /b/ in all of these words and syllables.

bat ***back*** ***buy*** ***band*** ***basic*** ***baseball*** ***bottom***

The final consonant *t* also is pronounced the same in all these words and syllables.

pat ***get*** ***cat*** ***what*** ***water*** ***defeat*** ***cement***

When the vowels were analyzed, however, a large variation was observed. The same vowel was pronounced the same only 51% of the time.

see ***set*** ***cat*** ***cake*** ***sit*** ***site***

Vowels became more predictable when they were paired with the final consonant to form a rime. When the vowel and final consonant were considered as a unit, they produced the same pronunciation 77% of the time. This increase in the predictability of vowel pronunciations indicates that pairing vowels and final consonants and treating them as a unit can be useful in helping readers to recognize unfamiliar words.

Before illustrating how this idea can be used with young readers, it will be helpful to look at how it fits into the concept of phonological awareness. Phonological awareness was originally thought of in terms of phonemes, but two other levels of phonological awareness are also important—syllables and onset-rimes. Pre-readers as young as four years old are able to detect syllables and a few are able to understand that syllables can have two parts. The two parts of a syllable are the onset or initial consonant and the rime or vowel and following consonant. It is the consistency of the letter-sound relationship within rimes that can be used to help readers identify and learn new words.

Examples

word or syllable	onset	rime
cat	*c*	*at*
book	*b*	*ook*
rent	*r*	*ent*
trip	*tr*	*ip*
school	*sch*	*ool*
winter	*w, t*	*in, er*

Goswami (1998) identifies three critical tasks for teachers who want to use rime analogies (the consistency of pronunciation of words and syllables with identical rimes) to increase both decoding and comprehension.

1. Teach the awareness of rhyming words, and help young readers to identify rhyming words.

2. Introduce spelling patterns involving shared rimes through the use of word families, such as *ook* found in *book*, *look*, *cook*, *took*, *nook*, and *shook*.
3. Teach students to use rime analogies through modeling. Show them how to use a "clue word" or known member of a word family to identify an unknown word in the same family and how to use rime analogies in spelling (see examples below).

If a new word that belongs to a known word family is encountered in a story that the class or reading group is reading, young readers can be guided in applying what they know about rime analogies and segmenting and blending phonemes to identify the new word. Here is an example.

The unfamiliar word crook is found in a story being read aloud. The teacher calls the group's attention to the new word and leads it through this series of questions:

Teacher: Which of our word families does this word (*crook*) belong to?

Students: The *ook* family!

Teacher: Which part of the new word do we know how to pronounce because it belongs to this word family?

Students: The last part.

Teacher: How is that part pronounced?

Students: *ook*

Teacher: Which part of the new word will we have to sound out?

Students: The first two sounds.

Teacher: How are they pronounced?

Students: /k/.../r/

Teacher: What do the two parts sound like when we blend them?

Students: /k/../r/..*ook*.....*crook*

When students want to use rime analogies to spell unknown words they follow a similar process. The questions the teacher might use to guide students in using this process are as follows:

1. Which of our word families does the word I want to spell sound like it belongs to?
2. Which part of the word do I know how to spell because it belongs to this word family? How is that part spelled?
3. Which part of the word will I have to sound out? How is it pronounced?
4. How many different sounds do I hear? What letter(s) make each sound?
5. When I put the letter(s) I sounded out and the letters from the word family together, does my guess at the spelling look right?

What is a spelling pattern?

Any "chunk" or sequence of letters that occurs in a large number of words constitutes a spelling pattern. Spelling patterns include common sequences of letters such as *tion*, *st*, *an*, and *port*. Examples of words that include these spelling patterns are listed below.

tion	st	an	port
na**tion**	**st**op	**an**gible	re**port**
ques**tion**	fir**st**	r**an**dom	**port**able
objec**tion**able	pas**t**ing	adv**an**tage	trans**port**able

Rime analogies are a subgroup of spelling patterns that have a specific form. Not all spelling patterns are rime analogies, but all rime analogies are spelling patterns.

Leslie and Thimke (1986) found that a substantial sight vocabulary is necessary for readers to begin identifying and using spelling patterns. Many students will have accumulated a sufficient sight-word vocabulary by the end of second grade. There are, however, several strategies teachers can use to support early use of spelling patterns (Hall & Moats, 1999). These include pointing out spelling patterns in stories and books students are reading, listing words in "word families" on a Word Wall, modeling the use of spelling patterns within known words to recognize unfamiliar words that contain the same pattern, and drawing students' attention to meaningful word parts. Meaningful word parts include prefixes, suffixes, and plural and past tense endings.

Instructional strategies for building a larger sight-word vocabulary

What is a sight-word vocabulary?

Sight words are those that are recognized immediately and without conscious effort. That is, the connection between the sequence of letters that represent the word in print and its meaning and pronunciation stored in the reader's oral vocabulary has been strengthened through repetition until it has become automatic. As a reader's sight vocabulary grows, he is able to devote more and more of his working memory to understanding the collective meaning of the words he is reading.

Building a sight-word vocabulary

One of the important goals of reading instruction is to build an extensive sight-word vocabulary. Here are several examples of how this can be accomplished.

- Teachers can provide texts that contain the targeted words repeated across sentences, paragraphs, and pages.
- Teachers can focus the readers' attention on the important information about these words prior to reading a text that contains the words by calling attention to their spellings, pronunciations, meanings, and functions within sentences. For instance, if the teacher wants the word *echo* to become part of her students' sight vocabulary, she might write it on the board and point out each phoneme and the letters that represent the phoneme (how it sounds and how it is spelled). This is a good time to have students play with the sound of the word by counting syllables and saying the word in unison. The teacher might then use it in two or three sentences, illustrate its meaning by demonstrating how an echo sounds, and ask students to use it in their own sentences.
- Teachers can help students to build their background knowledge about the word by talking about its definition, looking at examples and non-examples, exploring its history or origin, and comparing it to other words in the same word family.
- Teachers should also talk with students about how the word is used in the story or text that they are about to read and conclude by having them look for the word as they read.

An Overview of Kindergarten Strategies

The primary task of kindergarten teachers is to guide and facilitate the transition from the home environment to the school environment. The strategies outlined in this section focus on this concept of transition. They seek to take young children from where they are to where they need to be in order to be successful in first grade. The kindergarten teacher keeps two things in mind in planning and delivering instruction: (1) the developmental needs of her students, and (2) the academic expectations of subsequent teachers who will be working with these children through the next few years.

Terms and concepts in this section:

- Alphabetic principle
- Big books
- Concepts about print
- Conventional spelling
- Developmentally appropriate instruction
- Environmental print
- Fingerpoint reading
- Invented spelling
- Language experience
- Phoneme
- Phonemic awareness
- Phonological awareness
- Play-based instruction
- Predictable books
- Rebus books

Definitions appear in the glossary.

This section concludes with a list of what a kindergarten child might accomplish during this very important first year in school.

In designing and delivering classroom instruction, kindergarten teachers must balance the need for developmentally appropriate instruction with the need to prepare their students for first grade. Being ready for first grade involves the following:

- An understanding of the concepts and uses of print, including the idea that much of what we learn, we learn from reading
- A familiarity with the format of books—the concepts of title, author, page, etc.
- An understanding of the structural elements of print—understanding what letters, words, and sentences are
- Basic phonemic awareness—the understanding that spoken words are made up of segments of sounds
- The ability to identify and write most of the letters of the alphabet
- A positive attitude toward reading and about themselves as emergent readers

Note: A more detailed list of accomplishments that make a student ready for first grade is included on page 47.

Since a kindergarten classroom serves as a transitional experience that bridges the distance between the home environment and the school environment, it should reflect this transition by beginning the year more like home and ending the year more like an academic first-grade classroom. The first question then becomes, what is the ideal home environment in terms of building literacy? Understanding what this ideal literacy-rich home environment looks like is important because it should be the model for the initial organization of the kindergarten classroom. The key features of a home environment in which literacy flourishes and techniques for translating them into a kindergarten classroom are explained in the table below.

A literacy-rich home environment includes:	*A kindergarten classroom can simulate this environment by including:*
A lot of books	Classroom libraries that include a permanent collection as well as books that reflect changing themes "on-loan" from the school's media center
A quiet place for the child to read	Special place(s) within the classroom dedicated to young readers
Environmental print: grocery lists, to do lists, thank you notes, letters, and directions for assembling or operating a new toy or tool	Environmental print: day and date on the board, labeled classroom areas and objects, and directions for classroom activities and schedules
Plastic letters for developing letter awareness	Plastic letters and a broad range of manipulatives for developing letter awareness
Adult models who read for a variety of purposes, and adults who read to the child and encourage early reading activities by asking questions and providing multiple opportunities for the child to read and write	Adults who read to children and encourage early reading activities by asking questions and providing multiple opportunities for children to read and write

Classroom materials and activities

Reading aloud to kindergarten children has widespread support in research, and it is especially important for children who have had little experience with books outside of school (Purcell-Gates et al., 1995). When adults read aloud to children and show them the text that is being read, children develop important concepts about print (Snow & Tabors, 1993). Reading aloud to kindergarten children models the connection between the printed word and spoken language. It also increases children's motivation to learn to read themselves, especially when the adult seems to enjoy reading to them.

There are several things kindergarten teachers can do to enhance the effectiveness of reading aloud to students, such as encouraging students to ask their own questions about the story, to respond to other children's questions, and to express their understanding of the story through drawing, movement, or play.

It is important for kindergarten teachers to include a variety of types of literature when reading aloud to their students. One reason this variety is important is that young children need to develop a broad appreciation for what reading is (it is more than storybook reading) and how readers benefit from reading. Research has shown that teachers naturally change the type of explanation and discussion they use when reading books on different subjects. When kindergarten teachers read storybooks aloud they tend to include discussions about the author, central characters, and vocabulary. They involve students in making predictions ("What do you think will happen next?") and explaining events in the story ("Why do you think he was walking so slowly?"). In contrast, when reading a science-oriented text, teachers will typically try to relate the text to students' everyday lives. They use questions to draw students to predict, to explain, to test cause-effect relationships, and to distinguish necessary from sufficient conditions: "Plants need sunlight to live, but they also need water. If we put a plant in the sunshine, but don't give it any water, it won't live very long. Plants need sunshine *and* water." Teachers also handle vocabulary building differently when reading a science text. They use more elaborate concept development, such as pointing out critical attributes in examples and non-examples, instead of simply providing definitions (Mason et al., 1989).

When using picture books, the discussion is usually less extensive and focuses on the text that accompanies the pictures on each page. By emphasizing different aspects of the text when talking to children about what has been read to them, teachers enhance the children's understanding that reading can serve a variety of purposes. Thus, reading aloud to children from different types of books has benefits that go beyond the information in the texts themselves. Different types of books are read for different purposes; that is, stories are read for enjoyment and informational texts to learn new things.

As kindergarten teachers prepare their children to read by themselves, they use a variety of types of materials. These include big books, predictable books, and rebus books. *Big books* allow teachers to engage a group of children or the entire class with print and illustrations in the same way they would share a conventional book with one child. Many kindergarten teachers use big books to model fingerpoint reading. Fingerpoint reading—when children point to the words as the text is recited verbatim from memory—is helpful in developing basic concepts about print, such as it is read left to right and corresponds to spoken language. *Predictable books* are composed of text that is repetitive or predictable. Each successive page varies only slightly from the text that appears on the previous page. By looking at predictable books, children learn how to use prediction and picture cues to support their reading of the text. *Rebus books* use pictures to represent words that are beyond the reading vocabulary of young students. Biemiller and Siegel (1997) found that using rebus books could make the children's transition into real reading easier. Here is a line from a rebus book:

He saw the  and the  in the sky.

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Language experience is another effective instructional strategy. The main objective of language experience is to convey to children the idea that anything that can be said can be written. The basic strategy of the language experience approach is writing down what children say and then helping them to understand that what has been written is what they said. Language experience activities are a great way to show children that individual words are separated by spaces or that every time a particular word is written, it is made up of the same ordered set of letters. This idea helps children understand that each letter in a word stands for one or more of the sounds that make up spoken words.

Play-based instruction is another common kindergarten strategy. The verbal and narrative skills that are a large part of play-based instruction help students to develop reading comprehension skills. For example, when young children in a group create and act out a scene from family life, they gain experience with dialogue, characters, sequencing of events, and plot—all of which are important elements of many of the stories they will soon be reading. Kindergarten teachers can enhance the effectiveness of language and literacy development through play-based instruction if they

- Allow a minimum of 20 to 30 minutes for each play session.
- Provide adequate space for play in the classroom.
- Provide a rich variety of items for children to use to expand and express their play script.
- Develop children's background knowledge for the specific play situation.
- Talk with children about their rehearsals of dramatic retelling.
- Become involved in play situations to guide children's attention and learning through modeling and interaction.

First attempts at discovering the alphabetic principle

Before kindergarten students are able to use the alphabetic principle to help them learn to read, they must understand that spoken words are made up of smaller speech sounds (phonemic awareness), and they must know at least some letters of the alphabet. Teachers need to understand the foundation of the alphabetic principle to help their students make use of it. A brief explanation of this principle follows.

English is an alphabetic language. This means that an alphabet—a set of printed symbols called letters—was created to form the basis of the writing system developed to represent spoken English. The primary advantage of an alphabetic language is that a large number of words can be represented by a relatively small number of letters, because individual letters and combinations of letters can be designated to represent the different sounds of that language.

The letters that make up the spellings of English words systematically, if not consistently, represent phonemes or speech sounds. For example, the letters *c-a-t* represent three phonemes or units of sound. When these three phonemes are blended together, they form the spoken word *cat*. The alphabetic principle stating that letters represent segments of the sounds of spoken words is necessary to learn to read an alphabetic language. Without the alphabetic principle, each word would have to be memorized and new words could not be sounded out.

Three key ideas related to the alphabetic principle are phonological awareness, phonemic awareness, and letter-sound association.

- Phonological awareness is the conscious understanding that spoken words are made up of sequences of sounds.
- Phonemic awareness is the understanding that spoken words are really clusters of separate units of sound that have been blended together to form a single word.
- Letter-sound association is connecting a specific sound to a specific letter or letters.

Providing training in phonological awareness helps young children learn to read more quickly (Lundberg, Frost, & Peterson, 1988). Many different classroom activities can help students to develop phonological awareness. Children's attempts to spell words in their own writing promote phonological awareness and letter knowledge. As kindergarten students attempt to figure out how to spell the words they want to write, they are experimenting with applying phonological and phonemic awareness. Although their early writing may be more like scribbling, by the end of the year, kindergarten children should be using real, legible letters to write phonetically correct spellings of some words.

Using invented spelling in initial drafts has been proven to help young children improve phonemic awareness (Adams, Treiman, & Pressely, 1998). Their attempts to spell words phonetically can provide insight into their level of phonological and phonemic awareness, thus giving the teacher important clues about how to help each child. However, students should use correct spelling and punctuation in all final writing products.

Two instructional strategies commonly found in kindergarten classrooms, fingerpoint reading and labeling environmental print, are rendered significantly less effective if students do not possess letter knowledge and phonological awareness (Ehri & Chun, 1996; Masonheimer et al., 1984).

Kindergarten accomplishments

The following list is taken from *Preventing Reading Difficulty in Young Children*, and it represents a comprehensive, but not exhaustive, list of what the editors (Snow, Burns, & Griffin) of that book believe a student should have accomplished by the end of kindergarten.

- Knows the parts of a book and their functions.
- Begins to track print when listening to a familiar text being read or when re-reading his or her own writing.
- "Reads" familiar text emergently, that is, not necessarily verbatim from the print alone.
- Recognizes and can name all uppercase and lowercase letters.
- Understands that the sequence of letters in a written word represents the sequence of sounds (phonemes) in a spoken word (alphabetic principle).
- Learns many, though not all, one-to-one letter-sound correspondences.
- Recognizes some words by sight, including a few very common ones such as *the*, *I*, *my*, *you*, *is*, and *are*.
- Uses new vocabulary and grammatical constructions in his or her own speech.
- Makes appropriate switches from oral to written language styles.
- Notices when simple sentences fail to make sense.
- Connects information and events described in text to life, and connects life experiences to text.
- Retells, re-enacts, or dramatizes stories or parts of stories.
- Listens attentively to books the teacher reads to the class.
- Can name some book titles and authors.
- Demonstrates familiarity with a number of types or genres of text, such as storybooks, expository texts, poems, newspapers, and everyday print like signs, notices, and labels.
- Correctly answers questions about stories read aloud.
- Makes predictions based on illustrations or portions of stories.
- Demonstrates the understanding that spoken words consist of sequences of phonemes.
- Given spoken sets of words like *dan*, *dan*, and *den*, can identify the first and second as the same and the third as different.

- Given a spoken set like *dak*, *pat*, and *zen*, can identify the first two as sharing one sound.
- Given spoken segments or phonemes, can merge them into a meaningful target word.
- Given a spoken word, can produce a word that rhymes with it.
- Independently writes many uppercase and lowercase letters.
- Uses phonemic awareness and letter knowledge to spell independently (invented or creative spelling).
- Writes unconventionally to express his or her own meaning.
- Builds a repertoire of some conventionally spelled words.
- Shows awareness of distinctions between "kid writing" and conventional orthography.
- Writes his or her own name (first and last) as well as the first names of some friends or classmates.
- Can write most letters and some words when they are dictated.

An Overview of Primary-Grade Strategies

Terms and concepts in this section:

- **Alphabetic principle**
- **Decodable text**
- **Direct code instruction**
- **Embedded phonics instruction**
- **Invented spelling**
- **Modeling**
- **Phonemic awareness**
- **Print-rich environment**
- **Spelling patterns**
- **Thinking aloud**
- **Whole language**

Definitions appear in the glossary.

In *Preventing Reading Difficulties in Young Children* (1998), editors Snow, Burns, and Griffin identify "excellent instruction" as the primary strategy for preventing reading problems that lead to reading failure. What emerges from the volume of research reviewed in the National Research Council publication is that there is no single approach to teaching young children to read that will be equally effective with all children. The first responsibility of the teacher who desires to be effective in teaching all of the children in her class to read is to develop a wide repertoire of instructional practices that have proven to help young readers. A second responsibility of the effective reading teacher is to know which strategy to use with each child and when to use it, and the third responsibility is to know how to use each strategy with skill. These three responsibilities represent a heavy load to carry for anyone. Yet, across the nation there are teachers who are successful in teaching the great majority of their children to read because they have done what was necessary to develop their own skills, both in breadth and depth. This section reflects what is known about how these effective reading teachers teach.

Outstanding reading teachers

There is much we can learn from a comprehensive examination of the practices of skilled reading teachers. The following list is a representative sample of the most common practices of kindergarten, first-grade, and second-grade teachers who Pressley et al. (1996) identified as effective in teaching their students to be readers and writers.

- Filling classrooms with print

  Teachers in this study reported utilizing classroom libraries, chart stories and poems, word lists, and signs and labels on objects in the classroom (although signs and labels were not used as often in second-grade classrooms). These teachers increase children's contact with print through learning centers that focus on listening, reading, and writing. They display student work, including students' writing, throughout their classrooms. Reading to students daily was another way these effective teachers contributed to a print-rich environment.

- Modeling

  These teachers model reading behaviors on a daily basis by demonstrating what fluent reading sounds like and illustrating the various purposes for reading. They employ "think aloud" strategies to make the processes they use as skilled readers, including comprehension strategies, visible to students. Students get to see and hear a skilled reader's enjoyment of reading as well as the proficient use of various strategies for identifying unfamiliar words and constructing meaning from text.

- Grouping

  Effective primary-grade teachers use a combination of whole-group, small-group, and individual instruction with about 50% of the total instructional time being spent in whole-group instruction. Very few reported a traditional "three-group approach," in which students are grouped as high, average, and low readers.

- Targeting student needs

  Ninety-six percent of the teachers in this study reported that they allowed students to move at their own pace. They also spent nearly half of their instructional time in mini-lessons that focused on things students needed to know at that moment. Meeting students' needs can also mean reteaching skills or concepts that students do not acquire during the initial presentation.

- Integrating reading instruction in content areas and activities

  Nearly all of these teachers provide reading instruction as they teach science, social studies, and math. They use themes originating from these subjects to organize reading and writing instruction. Art experiences were integrated through illustrating the stories that students were reading and writing.

- Teaching basic skills

  Basic skill instruction occurs in the context of real reading and writing and through isolated skills instruction. Nearly every teacher described decoding strategies, such as using context clues and sounding out words, as regular parts of their reading program. These teachers include the explicit teaching of phonics within the context of actual reading and when talking about the sounds of spoken language in using invented spelling in writing.

  Most teachers (96%) worked with students to help them learn new vocabulary—a number of these new words arising from stories read in class or students' own writing. The same number of teachers reported that they taught comprehension strategies, such as identifying themes and main ideas; distinguishing details and main ideas; and identifying plot, sequence, and cause-effect relationships. Making predictions was the most commonly reported comprehension strategy, with other strategies, such as activating prior knowledge, generating questions, and summarizing, becoming more frequent as students move from first to second grade. Teachers developed students' background knowledge through pre-reading discussions, hands-on experiences, or audio-visual materials for more than half of the stories their classes read.

- Using a variety of reading activities

  Teachers in the Pressley study reported using the following activities. Activities marked with a "+" increased in use as students advanced from kindergarten through first and second grades; those marked with a "-" decreased with each subsequent grade level.

  choral reading +
  reading assigned as homework +
  shared reading from big books -
  reading aloud to other children, teachers, or adults +
  student re-reading of stories and books
  silent reading +
  book sharing through book reports or other forms of responding to what has been read

The teachers in this study presented a picture of reading instruction that corresponds well to the effective practices that researchers, such as Snow, Burns, and Griffin (1998), have identified. Their classrooms are inviting places in which young readers have multiple daily opportunities to read and to be read to. Children in these classrooms are exposed to high-quality children's literature. Exposure to this literature produces more motivated readers

(Morrow, 1990). Morrow (1992) reports in a later study that exposure to good children's literature helps young readers gain insight into how stories are organized. This understanding benefits comprehension as the reader uses this knowledge to see relationships among story elements and to make predictions. It also can improve students' writing to the degree that they use the structure of high-quality literature as a model for their own stories and other forms of writing.

Much of what these teachers do is designed to increase students' motivation for and enjoyment of literacy, and they combine this with an important emphasis on the understanding and application of the alphabetic principle in both reading and writing. It is through this blending of meaningful literacy experiences and explicit skills instruction that these teachers build a program of balanced reading instruction (Adams, 1990).

Decodable text

It is not only the percentage of decodable words that affects children's reading. In addition, it seems that children learn letter sequences best if they appear in many different words, rather than the repetition of the same word in a passage. Thus students may learn to read words with the *th* pattern better if their reading contains a number of words such as *this*, *that*, *path*, and *thank*, than through as many repetitions of *the*.
—Marilyn Adams, (1990)

Young readers need daily practice in applying their new skills. This practice should include independent reading in books they find interesting and easy to read. The books and stories that are most beneficial to readers who are just developing their word identification skills are those that include decodable text (Juel & Roper-Schneider, 1985). When students use their emerging decoding skills in reading meaningful stories, they learn to rely on spelling-sound relationships to recognize unfamiliar words rather than less effective strategies such as looking for unique visual cues.

Decodable text may feature repetition of target words throughout the story or passage. However, it is more helpful for young readers to encounter the spelling patterns they have been taught in different words rather than merely repeating the same example throughout a passage of text.

Reading books and stories at the child's independent reading level should be combined with assisted or supported reading (and rereading) of texts that are slightly more challenging. Reading at the independent level provides practice in using new skills and builds a sense of accomplishment. Text that is at the child's instructional level will include new vocabulary and can stimulate the child's interest in further reading through richer content.

Concepts and other forms of knowledge that are taught in subjects such as science and social studies can serve as building blocks for the background knowledge so necessary to becoming a good reader. Teachers should keep this in mind as they present content in these subjects, so they can help students connect what they are learning to what they encounter in books and stories. Lessons in other subjects can be rich opportunities to practice summarizing the main idea, predicting what will happen next, making inferences, and self-checking for understanding. These are critical components of building students' skill in comprehending what they read and, therefore, should be taught explicitly and practiced frequently.

Explicit or embedded phonics instruction

The approaches to teaching reading commonly used in primary-grade classrooms represent three levels of explicitness of phonics instruction.

Whole language instruction represents the greatest level of embedment and, therefore, the lowest level of explicitness. In this approach, the emphasis is on helping children create meaning—reading and writing are studied and practiced as ways of sharing meaningful ideas and events. Instruction seeks to draw attention to new skills and knowledge within the context of what students are interested in reading and writing. The teacher's role is one of facilitating the learning that naturally occurs when children are given opportunities to explore and experiment with reading and writing. According to Hall and Moats (1999), the major assumptions of this approach are:

- The purpose of reading is to extract meaning from text.
- The skills needed for reading will be acquired from the experience of reading and need not be taught explicitly.

A teacher using a variation of the whole language approach (and there are as many variations as there are whole language classrooms) might write on a piece of chart paper a student's response to the question: "What did your family do over the weekend?" Using selected words from the child's response, the teacher would draw students' attention to specific letter-sound associations and high-frequency words that might appear in text at the students' independent or instructional reading level.

The whole language approach assumes the acquisition and refinement of the alphabetic principle goes on implicitly as students connect print to their own experiences. Opportunities for instruction in decoding skills arise from what students read, write, or say. Practice typically includes language experience activities, meaningful writing, and choral reading.

Embedded phonics instruction uses skills and concepts that arise not from students' own experiences but from a carefully sequenced list of rhyming word families. Instruction in decoding skills is presented initially within meaningful text, but the emphasis is on the spelling patterns, not on the text. For example, a teacher may present a word containing a spelling pattern from the list while sharing a big book story. In the middle of the story, the teacher may stop to draw attention to the pattern by substituting several consonants for the initial consonant to form new words. This teachers approach reflects an emphasis on phonemic awareness as a key component of learning to read. After specific instruction in the spelling pattern, the teacher gives the students trade books that contain words utilizing that spelling pattern. Practice activities also involve meaningful reading and writing but place more emphasis on direct practice with specific letter-sound associations and spelling patterns. The primary goal of embedded phonics instruction is to build rapid word recognition through the use of consistent spelling patterns.

Direct code instruction is built upon phonemic awareness activities, such as those prescribed by Adams et al. (1998), and phonics instruction that emphasizes the blending of phonemes and interaction with good-quality literature that contains decodable text. Students learn letter-sound correspondences and spelling generalizations through explicit instruction. The focus is on the use of the alphabetic principle in sounding out unfamiliar words and establishing strong access routes between the sequence of letters that make up words and their associated pronunciations and meanings. The primary goal of this approach is to equip young readers with decoding skills that will enable them to recognize unfamiliar words quickly so that greater attention can be placed on comprehension.

In their extensive study of these three approaches, Foorman, Francis, Fletcher, and Schatschneider (1998) concluded that direct code instruction was superior to the other two approaches in improving word-reading skill for at-risk students. (This study defined at-risk students as "economically-disadvantaged children with low achievement" as determined by participation in the free or reduced price lunch program and a score in the bottom quartile of the school district's emergent literacy survey.) Explicit instruction in phonemic awareness appeared to be a key factor in producing this difference in performance. This conclusion also explains why the performance of similar students who were taught with the embedded phonics approach, which included systematic instruction in spelling patterns, reached levels between those of the whole language group and the direct code group.

A closer look at why the direct code approach was more successful with at-risk students can serve as a rationale for a flexible, balanced approach to reading instruction. Typically, at-risk students arrive at school with significantly less exposure to print. There are at least three likely conditions that contribute to this situation:

- These children have not been read to as much as their more advantaged classmates.
- They are less likely to have seen the adults in their households reading for varied purposes.
- They have experienced fewer of the kinds of interactions with adults that build vocabulary and understanding of the functions of print.

The result of these conditions is that these young children have not figured out the alphabetic principle by the time they reach school age. They are able to communicate well through spoken language, but they are unaware that print represents spoken language or that both spoken language and print can be segmented into smaller units. They do not possess phonemic awareness. These understandings are critical to learning to read an alphabetic language. Explicit or direct code instruction addresses these deficits in understanding directly.

It is the direct nature of this instruction that allows teachers to make up for lost time with these children. By explaining the connection between spoken language and print directly and explicitly, teachers enable young children to gain these insights more quickly and to use them more successfully. But, is direct code instruction just for at-risk students? Is there a different approach that is more successful with students who come to school having deduced the alphabetic principle?

Children who have learned through exposure to print that print represents spoken language can still benefit from direct, explicit instruction in the alphabetic principle, phonemic awareness, and letter-sound correspondences. Skilled application of the alphabetic principle enables readers of any age to identify words that are in their speaking vocabulary easily and rapidly by sounding them out. A desirable level of skill in using the alphabetic principle can be achieved more efficiently through explicit instruction combined with extensive reading than it can be through extensive reading along.

Applying the alphabetic principle to new words "locks" the sound sequence or pronunciation of the word into the sequence of letters in print (Adams, 1990). The strengthening of this connection of print to pronunciation is what enables the construction of an ever-growing sight-word vocabulary. Without this process, each new word would have to be memorized, making the development of an extensive sight-word vocabulary an impossible task. A skilled reader's use of the alphabetic principle enables rapid recognition of words that are in the reader's oral vocabulary but are so rare in print that they appear unfamiliar at first.

What should be different about reading instruction for at-risk students and those who are more capable readers is not a matter of content, but rather balance between direct instruction and practice with meaningful reading and writing experiences. Addressing the instructional needs of students who come to school ready to learn to read, Adams (1990) wrote: "systematic phonics instruction is no less important for these children. To be most productive, it may best be conceived as a support activity, carefully covered but largely subordinated to the reading and writing of connected text" (p. 118).

This is not to say that those who cannot yet apply the alphabetic principle as reliably as others should be given fewer opportunities to read. It is a mistake, Adams also points out, to focus exclusively on direct instruction in decoding skills with low-achieving readers and fail to give them sufficient opportunities to read meaningful text. The benefits of extensive reading—greater fluency, larger sight-word vocabulary, and increased background knowledge—should be provided to all students.

How then is an appropriate balance to be maintained for readers of varied skill? Young readers who lack a strong grasp of the alphabetic principle should be given more in-depth instruction in phonemic awareness and letter-sound correspondence. Stronger readers will benefit from the same type of instruction but will need less time to acquire this knowledge. Practice in reading connected, meaningful text should be provided to all readers. Although slower readers will read fewer stories (and fewer words) than stronger readers in the same amount of time, it is important that they are given adequate time to practice their emerging skills and to gain satisfaction from reading at their independent and instructional levels. If the teacher uses much of the time allocated for reading to correct

students' oral reading for accuracy, she can rob these students of opportunities to concentrate on the meaning of the text. This makes the selection of reading material extremely important, because if too many words within a given text are too difficult for the young reader to decode, comprehension of the text and progress in learning to read are slowed significantly (Clay, 1985).

Connecting Reading and Spelling Instruction

Terms and concepts in this section:

- **Conventional spellings**
- **Generalizations**
- **Invented spellings**
- **Morphological**
- **Spelling patterns**
- **Whole language**

Definitions appear in the glossary.

In many elementary classrooms, reading instruction and spelling instruction occur during separate parts of the school day and through disconnected materials and activities. Is this the best practice? There is an apparent connection between reading and spelling in that both deal with sequences of letters in words—spelling involves producing the correct sequence of letters, and reading involves recognizing that sequence of letters in print. But just how are they connected and what does this connection mean for instruction? As you prepare to read this section, think over these questions:

- Which is harder for students in my classroom, reading or spelling? How do I know this?
- Who are the good spellers in my classroom?
- Are they the same students who are the better readers?
- What kinds of errors do my students make in spelling unfamiliar words?
- Do these errors have any connection to errors they make when reading?
- Do I make connections between spelling and reading for my students that help them spell and/or read better?

The English spelling system

Before answering the above questions, some background information on the English spelling system is required. Most people believe the English spelling system is quite irregular, with more exceptions to the rules than can be remembered. However, when looked at comprehensively, the spelling system has greater regularity than one might think.

This comprehensive view takes into consideration the phonemic structure of English spellings, the morphological or meaning-bearing structure of English words, and the more useful spelling patterns and generalizations (Treiman, 1998). For example, the phonemic structure of English allows us to produce recognizable attempts at the spellings of most words. A person who is familiar with the 45 or so phonemes of English and their more common spellings can produce phonetically correct spellings that can be recognized by others.

Phonetically correct spellings, however, are not always conventional spellings. To move closer to conventional spellings, the writer can combine phonemic knowledge with his knowledge of meanings. For instance, in spelling the word *health* phonetically, the writer might produce *helth*, but knowing that the meaning of *health* is derived from the word *heal*, the writer is more likely to be able to produce the correct spelling. Other aspects of morphology, such as using *ed* to represent past tense, can help writers to spell words like *passed* and *burned* correctly, even though the final phonemes differ.

Spelling generalizations like the following can also be helpful: Every English word that ends with the phoneme /v/ ends with a silent *e*. Still, there are words that defy the application of any of these structures and patterns. Words like *sword* and *plaid* contain letters for which there is no apparent justification. The *w* in *sword* and the *i* in *plaid* are not heard and cannot be connected to a root word.

Instructional implications of the connection between spelling and reading: Can children learn to spell by reading?

Logic and research argue against the idea that all we have to do to help children become good spellers is to expose them to large amounts of good literature. If this were true, mature adult readers would not have difficulty spelling any word they had read repeatedly. Yet, many of us have a word or several words for which the correct spelling eludes us even though we have

read it many, many times (my own chronically misspelled word is *opportunity*). Two studies with first-graders (Ehri & Roberts, 1979; Ehri & Wilce, 1980) found that reading target words in connected, meaningful text was less effective in producing the correct spelling than studying the words in isolation, on a list.

While reading by itself is a less effective (and less systematic) way to learn to spell, some conventional spellings and spelling patterns can be learned incidentally through reading. For example, Treiman (1993) found that children in first grade were able to pick up the generalization that *ck* is used to spell the phoneme /k/ in the middle and at the end of words but not at the beginning, even though they had never been taught this pattern. She concluded that the students had learned this pattern through reading. While it is encouraging that students are able to acquire some spelling patterns through extensive reading, this approach requires more time and does little to help students identify those patterns that occur less frequently in the texts they read.

If children are to become mature spellers who know and use conventional spelling, they need direct instruction in these three areas:

- Application of phonemic knowledge, including the use of spelling patterns
- Knowledge of the meaning-bearing form of words
- Practice with a set of useful spelling generalizations

Applying phonemic knowledge involves learning to use what students know about segmenting words into individual speech sounds and matching those sounds to the letter(s) that represent them. As students become more advanced, they learn to utilize spelling patterns (*tion*, *ack*, *eed*) in addition to one-to-one sound-spelling correspondences (Marsh, Friedman, Welch, & Desberg, 1980). Familiarity with spelling patterns helps students to check their spellings as well as generate them. Research has shown that more able spellers use their knowledge of the consistency with which certain letters appear together (i.e., the letter *d* is followed by the letter *r* 40 times more often than it is followed by the letter *n*) to determine if their attempt to spell a word looks right (Sloboda, 1980).

To help students use the meaning-bearing form of words, teachers should provide instruction in endings, such as *ing*, *ed*, and *es*, as well as in how to use root words as clues to conventional spellings. Useful spelling generalizations have been identified and should be incorporated in regular spelling instruction (Pressley, 1995). Although this instruction can come in many forms, it should always draw students' attention to the correct spelling and to how these three structures contribute to producing the correct spelling.

Can learning to spell make a difference in how well students read?

As children spell words in their own writing, they become aware that the letters need to be in the correct sequence because they are intended to match the sequence of sounds in the spoken word. Using an approach to spelling that is based on the alphabetic principle aids children in applying this principle to reading. Treiman (1998) writes that spelling "encourages students to analyze words into smaller units of sound and to link these sounds to letters". Young writers learn that spellings are "maps" of the speech sounds that make up the spoken word, not just arbitrary sequences of letters that have to be memorized.

A study in which kindergarten children were given training in breaking spoken words and syllables into phonemes and matching those phonemes with letters (making it a spelling task) revealed that this activity was superior to matching letters to isolated sounds (not within words) in improving performance in adding new words to their sight vocabulary (Ehri & Wilce, 1987). Treiman sums up these and other findings this way: "Learning to spell words benefits children's reading down the line by giving them practice in segmenting spoken words into phonemes and in relating phonemes to graphemes (letters)."

Is it helpful or harmful to encourage students to use invented spelling in their own writing?

In his study that looked at first-graders who were encouraged to use invented spellings and others who were expected to use conventional spellings, Clarke (1988) reports several important findings:

- Students in the classes that used invented spelling spent more time actually engaged in writing than those in the classes that used conventional spelling. The conventional spellers spent less time writing and more time asking others how to spell specific words or looking up words in the dictionary or on wall charts.
- The invented spelling approach served well the students who came to school with lower alphabet knowledge. They performed significantly better on standardized tests of spelling than similar students in the conventional spelling classes. Differences with students who already grasped the alphabetic principle were not significant.
- Students who were encouraged to use invented spelling did not learn incorrect spellings of words; in fact, they performed better on the standardized spelling test at the end of the study.

Ehri, Gibbs, and Underwood (1988) confirmed this last finding in a study that showed that second- and third-graders who used invented spellings learned the correct spellings of words about the same as students who did not use invented spellings for those same words.

These findings suggest that encouraging young spellers to use invented spellings will enable them to spend more time actually writing and less time waiting for help, and that the use of invented spellings does not cause children to learn incorrect spellings. However, as children grow older, they should be encouraged to use conventional spellings because the benefits of invented spelling seem to be less for older students.

Instructional strategies

The correct spelling of a word is learned much more quickly and retained for a longer period of time when it is presented in print rather than orally (Henderson & Chard, 1980). Based on this finding, teachers should present new spelling words in writing and focus students' attention on the written sequence of letters. Research strongly supports the traditional strategy of having students copy their new spelling words from the board or a spelling book (Whittlesea, 1987). Writing the words aids students in remembering the correct spellings of the words. It is likely that the attention given to the sequence of letters as students copy the word strengthens their memory for the word's spelling (Adams, 1990).

Guided invented spelling is a promising strategy for spelling instruction (Treiman, 1998). This strategy involves providing spelling instruction to individual children through classroom activities that require them to write. The teacher is available during writing activities to respond to students' attempts at spelling unfamiliar words and to offer insights and corrections that help students improve their spelling. Reviewing students' writing and selecting words that reflect common errors or misunderstandings can create whole-class or small-group "spelling lists." The key to this type of spelling instruction is to encourage enthusiastic engagement with writing and to coach students in the use of phonemic knowledge (what they know about the sounds of words they are trying to spell), the meanings of words (their roots and inflections), and useful spelling generalizations.

Primary teachers using this approach have found the "Ear Spelling" Draft Spelling Sheet to be an effective tool. The teacher gives the students this sheet as they begin a writing assignment. When they want to use a word they are not sure how to spell, they are encouraged to use the first column to spell the word by listing the letters that correspond to the phonemes in the word, that is, to spell it the way it sounds. Students who are able should apply what they know about meaning and spelling patterns to make their first attempt as

accurate as possible. After the first attempt, they can look for the word in a dictionary or word bank to confirm or revise their initial spelling. Students may ask their teacher for help at this point as well, giving the teacher an opportunity to reinforce correct spellings or diagnose the source of errors. Following the teacher's input, the student makes a second attempt at the correct spelling—"How does it sound to my ear now?"—and writes it in the middle column. If the spelling is correct, the student copies it again in the third column to reinforce the correct sequence of letters in his memory. If it still is not correct, the teacher prints the correct spelling in the third column or dictates the correct spelling to the student, and then the student is ready to use the correct spelling in his writing.

Erasing words over and over again as they attempt to write the correct spelling is discouraging to many young writers, and this tool gives them several places to write the word without having to erase mistakes. More importantly, it gives the child's teacher a window through which to view the child's spelling errors and can immediately create a teachable moment. Here is a sample of how the "Ear Spelling" sheet can be used.

Ear Spelling 1	Ear Spelling 2	Book Spelling
bed	*bred*	*bread*
plat	*plate**	*plate*
store		*store*

The student's attempt to spell *bread* on his own revealed to the teacher that he was not hearing the two separate phonemes within the /br/ cluster. Helping the student hear these phonemes clearly allowed him to produce a closer approximation. The teacher then dictated the correct spelling. After his first attempt to spell *plate*, the student was able to locate the word in the dictionary because his original spelling was very close to the correct spelling. He wrote the correct spelling twice: in the "Ear Spelling 2" column with an asterisk to indicate that he had looked it up in the dictionary, and in the "Book Spelling" column as extra practice so that he would know the correct spelling the next time he wanted to use the word. The student wrote the word *store* correctly, and the teacher confirmed that it was correct. The student then copied it in the "Book Spelling" column.

Another practical idea for connecting spelling and reading instruction comes from Diane Goodson, a teacher at Eccleston Elementary in Orange County Public Schools. She dictates selected words from a passage in a book or story that the class is reading and asks students to spell them phonemically on a small, white board or piece of paper. Students then either confirm or revise their spellings by locating the word in the text as they read. Ms. Goodson uses this activity to help students focus on the sounds they hear in spoken words and the letter sequences that make up the correct spelling.

"Making Words": An effective approach to connecting spelling and reading instruction

"Making Words" (Cunningham & Cunningham, 1992) is a widely used activity that is engaging and effective in helping young readers enhance their knowledge of letter-sound associations and enrich their understanding of how this knowledge can be used to decode and spell words. In this activity, students use selected letters to "build" words. The teacher may pronounce the words or provide meaning-based and/or phonological clues. For example, the teacher may say, "The next word I want you to build is something you give and receive at Christmas and it rhymes with *lift*."

In the original "Making Words" game, students used letters printed on cards or tiles. Timothy Rasinski, however, has adapted the activity so that students write the words as they build them on a specially designed form—he calls his adaptation "Making and Writing Words" (Rasinski, 1999). In either format, the game is a fun way to help students learn new words, practice important components of decoding, and gain skill in spelling.

Rasinski (1999) has further modified the activity to include the use of clusters of letters (letter patterns). He suggests that teachers include the following six steps when planning a "Making Words" lesson utilizing letter patterns:

1. Select a multi-syllable foundation word and identify its letter patterns (i.e., rimes, prefixes, and suffixes) and the individual letters that are not part of letter patterns.
2. Add a few other letters and letter patterns that will allow additional words to be built.
3. Plan a series of words that can be built using the letters and letter patterns you have selected.
4. Devise clues based on the meaning, structure, or identity of the words.
5. Identify a set of "transfer words" that students could be expected to spell and decode using their knowledge of letter patterns beyond those you have selected for this lesson.
6. Plan extension activities, like word sorts and flash card games, that students can play using the letters, patterns, and words from this lesson.

Rasinski has included a number of downloadable tips, examples, and sample forms at *www.readingonline.org*

Using Systematic Observation

Terms and concepts in this section:

- **Concepts about print**
- **Print awareness**
- **Running records**
- **Systematic observation**
- **Word recognition**

Definitions appear in the glossary.

The systematic observation of children's performance on tasks that are authentic (tasks that involve actual reading of connected text) or tasks that are closely related to reading can reveal important information about children's skills and points of confusion, the strategies they use to solve problems they encounter while reading, and what they are ready to learn next. Systematic observation has two components:

1. Direct observation of children performing tasks that are authentic reading tasks or closely related to authentic reading tasks
2. Systematic recording of objective observations of the child's performance (recording observations in such a way that allows for reliable, valid comparisons over time)

Systematic observation supplements standardized testing by filling important gaps in the information that standardized tests provide and by allowing the collection and analysis of data on a child's reading progress at multiple points of time during the school year. By evaluating a child's reading progress several times during the year, the teacher is better able to identify what each child is ready to learn throughout the year and how instruction and practice affect the child's skill or understanding.

Systematic observation differs from standardized testing in the same way that watching a football game at the stadium differs from reading the final score in the next day's newspaper. By watching the game as it is played, you can identify where problems are occurring and where things are working well. Reading the score in the paper just tells you the outcome of all of the things that went well and all of the things that did not. Now, imagine that you are the football coach, a role that is very much like that of a classroom teacher. You might be interested in reading about the game in the paper, but you would be much more interested in observing what is going on during the game so that you could make changes in strategy and give instructions that would influence the outcome. You would want to study what your players are doing before and during the game so that you could "coach them up" to their full potential. Systematic observation allows the teacher to collect and analyze the kinds of information needed to help children reach their full potential as readers.

The careful, direct observation of children reading can reveal how they manage the complex set of tasks that are required to read meaningful, connected text. It can also give insights into what tasks or types of text create problems in word recognition or comprehension. This kind of observation can show the teacher how readers try to solve these problems and whether they are even aware that problems are occurring.

Systematic observation involves the direct observation and recording of students' behaviors (those things the reader actually does) while reading or performing a reading-related task. The teacher prescribes a specific task that is designed to require certain behaviors and remains close at hand as the reader actually performs the task so that she can record as much information as possible about what the reader does.

Systematic observation is a time-consuming activity, but it produces significant benefits, such as

- Providing relevant information in time to make informed instructional decisions and helping the teacher know how to address specific needs.
- Enabling the teacher to assess the impact of instructional decisions and helping her determine if what was done was effective.
- Charting growth or progress over time by measuring growth at intervals determined by the teacher rather than the state or district testing schedule.
- Providing deeper insights into the child's reading strategies and approaches to solving problems in word recognition and comprehension.
- Revealing areas of strength as well as points of weakness so that the teacher can build on the child's strengths.
- Providing a way to assess the reading performance of children who are too young for standardized testing to be appropriate and facilitating the early identification of reading problems.

All tasks that are prescribed for systematic observation should be as authentic as possible. That is, they should involve reading meaningful, connected text or a subtask that is directly related to reading. In using systematic observation, teachers should include diverse measures of reading performance rather than rely on one or two types of tasks, especially when important decisions are being considered. Diverse measures reduce the likelihood that a mistake will be made. Marie Clay (1993) speaks to the need for using different measures in the following way:

> The Concepts About Print test should not be used in isolation because it assesses only one aspect of early reading behaviors. In research studies it is an excellent predictor of subsequent reading progress, but it tells the teacher nothing about the child's knowledge of letters, or of words, or of writing, or of letter-sound relationships. In a profile of scores, a child may score high on concepts about print and low on letters and word knowledge, or vice versa. In the early stages of literacy learning, no single measure is going to inform the teacher. The child's learning is progressing on several fronts at the same time, and the teacher must know about the spurts and lags in different knowledge areas in order to make the most of her teaching interactions with a particular child.

Systematic observation that is intended to document progress or growth should utilize a standardized task that produces reliable results. A task that a child can do well on one day and struggle with the next day may not be a reliable measure of what the child knows and can do. Tasks that are used to show progress should also be administered in the same way and under the same conditions each time. This consistency produces more reliable results.

Because the teacher can perform repeated systematic observations spontaneously and at any time throughout the year, she can better respond to the information she discovers about the students' progress and growth than with standardized testing. The teacher can make adjustments in instruction throughout the year instead of waiting on data available through standardized tests that may only measure progress at one or two points during the

year. Repeated systematic observations also allow the teacher to experiment with different approaches to solving specific problems and then gauge the impact of each approach after the child has had time to benefit from it.

A popular example of systematic observation is called running records. To record observations in this format, the teacher asks the child to read orally a sample of 100 to 200 words from a text. As the child reads, the teacher makes a systematic recording of the child's reading performance. Because the conventions of scoring are simple and logical, a teacher can learn the conventions of scoring running records after only a few attempts (Clay, 1993). The teacher records the following types of information:

- Words read correctly—teacher notes with a check mark.
- Errors in word recognition—teacher writes down the wrong response with the correct word written under it.
- Self-corrections and repetitions—teacher notes instances in which the child rereads one or more words in a line of text.
- Overlong pauses in reading—teacher notes points where the reader hesitates or stops reading.
- Directionality—teacher notes whether or not the child reads from left to right and from the top to the bottom of the page.

Records of these types of behaviors can be analyzed to reveal aspects of the child's reading skill and understanding, such as what clues does the child use to recognize unfamiliar words, what types of comprehension monitoring strategies does the child use, and what kinds of errors are self-corrected. Using samples of text appropriate to the child's levels of independence, instruction, and frustration can also add considerable information about the child's reading strategies. Observations of the child reading at the independent level will show how the child manages effective reading, and using text at the instructional level will reveal the child's strategies for dealing with problems as they arise. Teachers can determine how the child handles the failure or breakdown of reading by recording the child's reactions when reading more difficult material.

In addition to running records of a student's actual reading performance, there are a number of reading-related tasks that can be used to obtain helpful information about the strengths and needs of young readers. Examples of these tasks and how they can be measured are listed below.

Letter knowledge/letter identification

Ask the child to tell you the names or sounds of selected letters. Be sure to include uppercase and lowercase letters. Using printed letters that are in typeface is also recommended. Letters that appear different in type, such as *a* and *g*, should be included among the letters used to collect information on letter knowledge. This exercise will provide information about the child's readiness to read print in books.

Word recognition

Use a list of high frequency words to collect data on the child's sight-word vocabulary (the *Ohio Word Test* is a good tool for this purpose). Strategies for building a strong sight-word vocabulary are discussed on page 36.

Print awareness/concepts about print

Marie Clay (1993) has developed an excellent tool for collecting information on the literacy knowledge of young readers that includes standardized instructions for administration (an important element of systematic observation) and scoring. The test collects data on the child's knowledge about books, understanding that print rather than pictures carries the message, directionality, and numerous other aspects of print awareness.

Systematic observation is a worthwhile tool for discovering and analyzing what children know and can do as they read. It takes time but yields extremely useful information.

Motivating Young Readers

Terms and concepts in this section:

- **Comprehension**
- **Decoding**
- **Fluency**
- **Print-rich environment**
- **Word recognition**

Definitions appear in the glossary.

Motivating young readers is more than just something the teacher does to improve reading achievement. By helping children to see the purposes and benefits of reading, to experience a desire to read widely, and to develop a positive image of themselves as readers, teachers are turning students into lifelong learners. Higher reading scores are an indication that what teachers are doing to motivate children to read is succeeding, but the primary reason for generating enthusiasm for reading is not higher scores. The primary goal is to produce young people who love to learn and who recognize that reading is a wonderful way to learn about their world and themselves.

This section will answer four questions dealing with motivating young readers.

- How do motivated readers behave?
- What are some of the results of motivating young readers?
- Why are some children not motivated readers?
- What can be done to motivate young readers?

How do motivated readers behave?

Students who are motivated readers read. They read more than their less motivated peers, and they read more widely. They also participate actively in discussions with their teachers and their friends about books and other materials they have read. Motivated readers persist when they run into difficulty reading. They look for ways to solve the problem rather than giving up and going on to another activity, and they try to solve the problem on their own before seeking help.

Motivated readers invest time in reading and in learning to read well. They develop their reading skills and apply them purposefully. They enjoy reading, often choosing it as a free-time activity. They demonstrate enthusiasm about reading and what they have read. Motivated readers will talk about characters and events in the stories they have read, tell their friends about books or stories they feel they would enjoy, and want to know what others have read and can recommend.

Here is a quick checklist to determine if your students are motivated readers:

Descriptors of Motivated Readers

- [x] **Choose to read during free-time**
- [ ] **Select books to read and look for opportunities to read them during the day**
- [ ] **Begin another book shortly after completing one**
- [ ] **Persist in trying to solve a problem of word recognition or comprehension**
- [ ] **Seek help after trying to solve the problem on their own**
- [ ] **Read for a variety of purposes**
- [ ] **Read a variety of genres**
- [ ] **Demonstrate enthusiasm for reading by talking with others about books**
- [ ] **Recommend books to others**
- [ ] **Ask others for recommendations of good books**

What are some of the results of motivating young readers?

Motivating young readers produces a desire to read more. Students who read more become more fluent readers, increase their sight-word vocabulary, and gain greater background knowledge, which is an important element of improved comprehension (Cunningham & Stanovich, 1998). More fluent readers enjoy reading more and see themselves as "good readers." This positive self-image translates into greater motivation to read and more actual reading.

Why are some children not motivated readers?

Most teachers believe that motivation drives a positive cycle of improvement in reading. Likewise, lower motivation to read produces a cycle of diminished improvement in which students read less and, therefore, develop reading skills more slowly than their more motivated peers. Their lack of skills makes reading a negative experience and reinforces their lack of enthusiasm for reading. Readers who are not excited about reading read less. They find reading to be a struggle, and they are less likely to choose it as a free-time activity. They see themselves as poor readers, and this further reduces their motivation to read.

Poor readers may want to learn to read, but over time they may lose some or all of this desire if they feel reading will continue to be a struggle with little payoff for their efforts. It is important to build success for these young students so that the cycle of motivation and performance can be an upward spiral.

Children who do not have strong positive models of adult readers often find reading less interesting. If reading is not important to the significant people in their lives, then it is not important to them. These children may not be fully aware of the different purposes of reading. If they view it as an academic exercise, with little or no connection to something they find meaningful, then they are less likely to want to read beyond what they are required to read.

What can be done to motivate young readers?

It is vitally important that teachers read to their children each day. It is through this kind of exposure to print that children see reading as an enjoyable experience. They hear the flow of a fluent reader and increase their appreciation for different types of literature. The teacher should also do as much as possible to create a print-rich environment. To establish such an environment, teachers need to make high-quality books and other reading materials available to children and provide time for them to read those materials. Materials should include a wide range of topics and levels of difficulty. Although children should be given freedom to choose what they will read, the effective teacher will challenge students to read increasingly more difficult texts because successfully completing a challenging task is highly motivating.

The teacher should also highlight the various purposes of reading and stress those purposes in her interactions with students. Children should also be given multiple opportunities to respond to what they are reading and to hear others do the same. Reading should occur in an environment of support that includes praise for effort and feedback that improves performance.

A final note

Through their ten-year longitudinal study, Cunningham and Stanovich (1997) found that measures of decoding, word recognition, and comprehension skills, taken when students were in the first grade, were strong predictors of the volume of reading these students would accumulate by the time they reached the eleventh grade. Cunningham and Stanovich were able to determine that early acquisition of skill in decoding, word recognition, and comprehension made significant differences in how much students read both in school and out of school. Taken in combination with Hayes and Ahrens's (1988) findings that students who read more acquire a larger vocabulary and greater general knowledge, this finding highlights the importance of ensuring that all children develop strong decoding, word recognition, and comprehension skills and that this kind of strong start will produce dividends throughout the individual's life.

Building Comprehension Skills

Comprehension

Terms and concepts in this section:

- Comprehension
- Comprehension monitoring
- Decoding
- Inference
- Mental representations
- Metacognition
- Modeling
- Oral vocabulary
- Prior knowledge
- Word recognition

Definitions appear in the glossary.

Part of the problem students have with comprehension may be the result of poorly written text. All of us have read directions that no one could follow or an informational text that left us more confused than we were before we read it. Apart from the poor quality of a text, a major reason for the difficulty young readers have comprehending what they read is that they have not been given much instruction in getting meaning from print.

Comprehension is a different type of task than decoding. It is not as sequential. The steps of the process, if it can be said that there are steps, are not easily specified. We know that as words are recognized in print, information about those words is brought to the reader's working memory—the place where mental tasks such as comprehension take place. As the information about the words that are being read accumulates in working memory, the reader organizes the words' meanings and attempts to integrate them with his background knowledge of the topic(s) addressed in the text. This integration of literal meaning and background information drives two functions: comprehension or the construction of meaning and comprehension monitoring, which is a self-checking of understanding by examining both internal and external consistencies. (Text that is internally consistent does not contain contradictory information. External consistency means the information in the text does not contradict what is known from other sources.) As you might expect, these tasks require considerable amounts of working memory. When problems arise and word recognition or comprehension slows down, the reader's working memory can be taxed to the point that comprehension suffers (sources of comprehension difficulty are treated in detail in a subsequent section).This section examines how readers construct meaning from print and how teachers can strengthen students' ability to understand and to think critically about what they are reading.

Although many teachers will tell you that comprehension is the ultimate purpose of reading, observation of common classroom practices indicates that comprehension is given little emphasis in many classrooms. In a study that recorded how a sample of fourth-grade teachers taught reading, Durkin (1979) classified only 20 minutes of the 4,469 minutes of reading instruction she observed as instruction directed at teaching comprehension. She concluded that considerable time was spent asking questions, but negligible time was devoted to teaching strategies for answering questions. Someone observing such a class might mistakenly believe that comprehension is something students acquire through independent practice and that practice is rarely preceded by instruction in how to draw meaning from the assigned text.

The observer in an upper elementary-grade classroom might see the teacher ask students to read a section of a textbook and to answer three to five questions about the content of that section. Typically, the questions would include a factual, detail-oriented question that requires students to match the "important" word(s) in the question with those same words in the passage. A "main idea" question is also likely to be asked, and some students in this classroom may have discovered that this question can frequently be answered by expanding on the heading that appears at the beginning of the passage. "Inference" questions are less common. These ask the reader to identify what was implied rather than stated explicitly, to draw a conclusion from the information presented; or to infer the motive or rationale for some event or action portrayed in the text.

Other observations of classroom practice reveal that weaker readers receive less exposure to activities that foster comprehension than more skilled readers. Stronger readers are more frequently asked about their understanding of what they have read whereas instruction in the less-skilled reading groups tends to focus on decoding and word recognition strategies (Collins, 1980).

These practices raise several questions about teaching comprehension: Can comprehension be taught? If so, what instructional strategies are most effective? Can all students benefit from instruction in comprehension? If they can, are the same strategies effective for good and poor readers? Research on reading and cognitive strategies provides answers to these questions.

Comprehension: What is it and how do we get there?

Gough, Hoover, and Peterson (1996) divide reading into two components: word recognition and comprehension. The processes and methods of word recognition were described in earlier sections. Comprehending text, the part of reading that is much the same as understanding spoken language, is the focus here. (See the text box for how listening comprehension and reading comprehension compare.)

Comprehension is a complex process that involves constructing reasonable and accurate meaning by thoughtfully considering the information or message of the text and connecting it to prior experience and knowledge. Such thoughtful consideration must go beyond recalling information. When a reader recalls specific facts or ideas from a text in basically the same form in which they occurred in the text, he may not have comprehended that information. If the recall of information does not involve any connection of that information to prior knowledge, any translation into a different form (including the reader's own words), or any use of the information other than to answer a recall question, then we cannot say for certain that comprehension has occurred.

As readers move through a passage or text, they create mental representations of what they are reading. These mental models or maps reflect an active construction of meaning on the part of the reader. They represent attempts to organize information from the text in a meaningful way so that it is easier to understand and remember. By talking with students about what the creation of these mental representations might look like (using a story map or other strategy), teachers can make students more aware of this sometimes unconscious behavior and make it more likely that students will actually construct thoughtful mental models of what they are reading.

Comprehension can involve multiple pathways for constructing meaning. There are at least eight different cognitive paths that lead to deeper comprehension.

1. **Connecting the text to prior knowledge**

   Comprehension involves connecting the ideas and information, both literal and inferred, in the text with prior knowledge and experience. Keene and Zimmerman (1997) identify three forms of connections: text-to-self, text-to-text, and text-to-world.

   - Text-to-self connections enhance the reader's understanding of a text or passage by comparing ideas, events, characters, or other features of the text to his own personal experiences. When a young reader uses what he knows about taking care of his dog to connect with an account of a farmer caring for the animals on a farm, he is making a text-to-self connection. Thinking of ways in which a character in a story is like or different from someone we know is another example of a text-to-self connection.
   - Text-to-text connections involve comparing information in a text or the style or structure of the text to what is found in another text. Thinking of a book or poem that you have read and using it to better understand or interpret something in the text you are reading is making a text-to-text connection.
   - Text-to-world connections involve understanding or interpreting what is being read in terms of what is known about the world. This can include detecting external inconsistencies—when something in the text does not agree with what you know is true—as well as factual connections that verify or expand information in the text.

Comprehending Speech and Text

Reading can be considered to have two primary components, *word recognition* and *text comprehension*. Readers employ numerous strategies for word recognition, but the outcome of each of these strategies is the matching of a sequence of letters (a printed word) with a meaning and other identifying information stored in the reader's oral vocabulary. Once this match has been made for the words within a sentence (or a clause or phrase if the sentence is particularly complex), the reader must analyze the relationships among the words. The reader determines which noun is modified by each adjective, which noun is the subject of each verb, and so forth. These relationships, along with the meanings of individual words, provide the literal meaning of the sentence. Using prior knowledge and analytical processes, the reader fills in the blanks by *drawing conclusions*, identifying implied ideas or conditions, or interpreting *motives or intentions of the writer* or characters.

The actions that take place after word recognition is completed make up text comprehension. While these actions are essentially the same for comprehending spoken language, there are a few differences. Spoken language uses *inflection and intonation* to communicate syntax while text uses punctuation. Print can be reread as many times as is needed to clarify its meaning, but spoken language passes quickly.

Continued

Even asking a speaker to repeat something does not always give one a chance to hear the same thing twice.

Despite these differences, the major aspects of processing print and spoken language are the same. The same vocabulary is used in text and speech, words are used in a specified sequence that influences their meaning and that sequence carries the same meaning in spoken and printed language, the same grammatical rules apply to text and speech, and the same base of prior knowledge is used to interpret what is read and what is heard.

Because many of the connections readers make involve comparing or contrasting what is described in the text, lessons that help readers learn to compare and contrast aspects of what they have read can be very useful. These lessons might include some of the following:

- Pointing out that comparisons and contrasts usually involve two or more people, places, emotions, things, actions, or events and how they are similar and/or different

  "The characters in this story are like the characters in last week's story in some important ways. First, they are alike in that they are young people who are faced with a problem. But, they are different in that they don't seem frightened by the problem they are facing."

  "This passage describes three different types of bridges that we might see if we visited the Northeastern states. Who can tell us how the designs are different and what they have in common?"

- Clarifying that things being compared or contrasted may have some aspects that are similar and some that differ

  "When you compare the methods of transportation used by Americans in the 1800s with what we use today, be sure to look for similarities as well as differences. Looking for how things are alike as well as how they are different can give you a deeper understanding of them."

2. **Determining importance**

Part of comprehension is judging the importance and relative importance of different aspects of a text, for example finding the main idea. Readers may look for what is important in a text by identifying key words and sentences or paragraphs or by assessing ideas or themes that are woven throughout the entire text. The reader gives more important elements of a text more thought because these elements are critical to understanding the overall meaning of the text.

Several factors determine the aspects of a text or passage that are relatively more important (Keene & Zimmerman, 1997). The reader's purpose can influence what is important. For instance, a reader who is looking for specific information in a text will place importance on different aspects of a text than a reader who is comparing the writer's views on a complex issue to his own perspective. A reader may judge information, ideas, and themes that are aligned more closely with his prior knowledge to be more important. Text format—what stands out visually, such as bold or italicized print or bulleted points—can influence the reader's assessment of what is important and what is not in a text. Relevant ideas discussed with others prior to reading a passage can also cause a reader to identify items in the text that agree with or contradict those ideas as more important.

Lessons that focus on helping students learn to determine the main idea might include the following features:

- Defining the main idea in terms students can readily understand

  "The main idea of a paragraph summarizes or condenses the important facts and details into one sentence."

  "The main idea is like a conclusion drawn from the supporting details."

  "The main idea answers the question, 'What is the writer trying to tell us?'"

- Explaining how to locate or identify the main idea

  "Many times, the main idea is stated in the first or last sentence of a paragraph, so looking at these sentences may help you find the main idea."

"The main idea is broader than an individual fact or supporting detail; it is like a heading or title in that it tells us what the whole paragraph or passage is about."

- Providing students with a way to test their identification of the main idea

  "When you think you've found the main idea, you can test your answer by asking if individual details in the paragraph support that idea or are they written about a different idea."

- Modeling how to locate, identify, and test the main idea

  The teacher prints a paragraph on chart paper so that it is large enough for the whole group to read it. She then thinks aloud as she works through the steps of reading the paragraph: looking at the first and last sentences for possible main idea sentences, identifying the main idea as a summarizing statement, and testing the idea she selected as the main idea by checking several individual details to determine if they support that idea or if they address another idea. If too many of the individual details are written about a different idea, then the teacher shows students how she would rethink her selection of the main idea.

3. Generating questions

Creating questions before, during, and after reading a text or passage to enhance comprehension is a strategy used by many skilled readers. As such, it represents another path to a deeper level of comprehension. Questions that relate to the reader's purpose direct attention toward the elements of the text that are most important for achieving that purpose. Skilled readers use questions to clarify meaning by focusing their attention as they read or to connect what is in the text with their prior knowledge. Other types of questions lead the reader to predict what might be found in text still to be read or to identify aspects of the writer's style or perspective.

Proficient readers know when a question they have generated can be answered directly from the text and when they must connect to prior knowledge or acquire new knowledge from other sources to answer the question. They also realize that hearing and thinking about questions that others have generated can stir up new questions. Above all, they understand that creating, pondering, and answering questions about what they have read enhances their understanding and, in many cases, their enjoyment of the text.

Lessons designed to help students learn to generate questions may begin with easier questions that identify supporting details or recall the sequence of events. Students can also learn to create questions that deal with cause and effect relationships. Teachers might include the following strategies in helping students learn to generate specific types of questions:

- Defining supporting details in terms students can readily understand and explaining how to structure questions that focus on supporting details

  "Supporting details are the facts stated in the text that clarify or explain the main idea."

  "The supporting details give us specific information about the topic."

  "Supporting details frequently provide answers to questions that begin with *what*, *why*, *where*, *when*, *who*, or *how*."

- Providing practice in creating questions about the order of events described in the passage and explaining the use of "key sequence words"

  "The boy in this story went to several places after it started to rain. Come up with a question that asks about the places he went and the order in which he went to those places."

"Key sequence words, words that give us clues as to the sequence of events in a story or passage, include words like *first*, *next*, *last*, *finally*, *before*, and *after*."

- Giving an explicit explanation of the cause and effect relationship and how to word questions that focus on this relationship

  "The writer tells us that the bad weather made the airplane late in taking off. The cause was the bad weather; the effect was that the plane took off later than scheduled. We might come up with a question about this cause and effect relationship that sounds like this—'What caused the plane to take off late?' Or, 'What was the effect of the bad weather?'"

  "Key words for identifying cause and effect relationships include *because*, *so* or *so that*, and *since*."

- Using a scaffolding strategy, such as reciprocal teaching, to ease students into generating their own questions (see an example of this instructional practice on page 78.

4. Making inferences

Making an inference can mean drawing a conclusion, predicting what will happen next, detecting implied statements or ideas, or extending the reader's thinking from stated facts or ideas to possible explanations of events or actions. Inferring is the process of using what is read along with relevant parts of the reader's prior knowledge to construct or extend the meaning of a text beyond what is explicitly stated.

Different types of writing require or allow different levels of inferential thinking on the part of the reader. For example, directions for completing a task (if they are written well) require fewer and less complex inferences than a piece of fiction. Readers who are strong comprehenders are able to correctly assess the level of inference required by the text and their purposes for reading.

Teaching students to make inferences frequently involves modeling or "think aloud" strategies in which the teacher demonstrates the thought processes behind drawing conclusions or inferences. The teacher puts her thoughts into words in a step-by-step explanation of how prior knowledge and details from the passage can be combined to create meaning that extends beyond what was explicitly stated in the text. Thinking aloud about making inferences might include statements such as these:

"If I combine what I know about life on a farm with what the writer described the little girl doing in the kitchen, I can guess that she was churning butter."

"The writer doesn't say it directly, but I think the two men were pretty hungry by now. I started to think they might be hungry when the writer described how they looked in at the people eating in the restaurant."

5. Synthesizing to form new ideas

Synthesizing involves integrating ideas from the text with relevant ideas from prior knowledge to create a new idea that may reflect aspects of what was in the text and what was drawn from prior knowledge. In certain situations, this synthesis may involve combining ideas from the text in a way that is different from what is found in the text. The critical attribute of this type of comprehension is the assembling of existing ideas, from the text and/or prior knowledge, to form a new or different idea.

Lessons that ask students to synthesize information from the text with other information to form new ideas are ideal opportunities to involve students in using writing to respond to what they have read. These lessons may include statements such as these:

"I want you to use what you learned about gravity and weightlessness in this section to write how you would cope with a long space flight. Be creative in how you come up with ideas for dealing with weightlessness and the problems it can cause."

"Several of you said that you were left kind of down in the dumps by the way the story ended. Why don't you use part of your seatwork time to write a different ending. You can make it more upbeat or change it in any way that you'd like—just be sure you find some way to resolve the main character's dilemma."

6. Applying ideas

Applying ideas from the text (or those synthesized from the text and prior knowledge) to a specific task or situation is another extension of comprehension. While a certain amount of synthesis and application may occur while reading, much of this activity takes place after a text or passage has been read and the reader is reflecting upon the important ideas, themes, or perspectives found in the text.

When teachers ask students to apply ideas or information from the text to specific situations or problems, they give students an opportunity to enhance their understanding of what they have read. The following statements represent assignments that require students to use what they have read to solve specific problems:

"I want you to use what you read about the culture of the earliest American settlers to plan what you would need if you were stranded on a deserted island."

"When we read the section of our science book that explained photosynthesis, we talked about several suggestions for experiments to illustrate how important light is to plants. With the others in your science study team, I want you to design an experiment based on what you learned. In your explanation, include a prediction of what you think will be the results of your experiment."

7. Evaluating text

When readers collect evidence from a text and apply specific criteria to make a judgment about that evidence, they are operating at a level of comprehension that can be labeled as evaluation. When a reader states approval for a book or writer—"I really liked *The Lion, the Witch, and the Wardrobe*!"—he indicates evaluation only if he identified criteria for liking a book and judged the book by those criteria.

Group discussions can be used to develop criteria for evaluating what has been read. The following is an example of criteria developed by a group of fourth-graders to help them assess the books they were reading:

- A good book should grab your attention or interest in the first few paragraphs.
- A good book should include some surprises.
- A good book should make you want to keep on reading and not put it down.
- A good book should teach you new words and/or new ideas.
- A good book should make you want to read it again or recommend it to a friend.

8. Monitoring comprehension while reading

Skilled comprehenders check or monitor their comprehension as they read. They know when their level of understanding of what they are reading falls off or erodes. Proficient readers have strategies for solving comprehension problems as they arise.

They know when to go back and reread an important section to more fully understand it, and they know when they can keep going and repair their comprehension by reading further. These self-monitoring behaviors are part of a deeper aspect of comprehension called *metacognition* or "thinking about your own thinking."

Being aware of the purpose for reading a specific passage or text and checking comprehension while reading to make sure the level of comprehension is adequate for that purpose is also part of metacognition. This awareness is what allows a strong reader to adjust reading speed and the use of comprehension strategies when reading a magazine article for amusement, reading the directions for assembling a complex piece of machinery, or studying a chapter in a chemistry text prior to the final exam.

Fluency—Where Word Recognition and Comprehension Meet

Terms and concepts in this section:

- Automatic word recognition
- Comprehension
- Fluency
- Guided repeated oral reading
- Oral vocabulary
- Prior knowledge
- Repeated reading
- Word recognition
- Working memory

Definitions appear in the glossary.

Fluency is the ability to read with speed, accuracy, and expression. Fluent reading allows more of the reader's working memory to be devoted to comprehension. For some time, most reading experts believed that a reader developed fluency as his word recognition skills improved. Conventional wisdom assumed that fluency was the end product of rapid word recognition. Because of this belief, instruction that was intended to increase fluency focused on developing students' word recognition speed. It is now apparent, however, that there is more to fluency than speedy word recognition. Fluency also involves the use of punctuation and the grouping of words into meaningful clusters to enhance comprehension. These cognitive behaviors take place without conscious effort in the mind of the fluent reader so more of the reader's working memory can be devoted to deeper levels of comprehension.

What is fluency?

A fluent reader is able to recognize the words in a text rapidly and accurately without conscious effort and to use phrasing and emphasis in a way that makes what is read sound like natural speech. Initially, fluency was understood to mean rapid word recognition that frees up space in the reader's working memory for use in comprehending the message of the text. Later researchers (Schreiber, 1987) expanded this understanding of fluency by discovering that it also involves grouping words within a sentence into phrases that aid interpretation. By adding appropriate pauses and intonations, the reader converts the text into a more readily understandable form. This grouping of words helps the reader understand the text by making what is being read resemble natural speech in terms of expression.

Accurate, automatic word recognition

Accurate, automatic word recognition contributes to stronger comprehension by reducing the load on working memory and allowing more of the space in the reader's working memory to be allocated to constructing meaning. Accuracy in word recognition is the ability to correctly identify words on the first attempt. When a word is identified correctly, the meaning that is retrieved from the reader's oral vocabulary makes sense in relation to the other words in the sentence. Misidentifying a word in print affects comprehension by accessing a meaning that might not make sense in terms of the collective meaning of the words in the sentence. The results of errors in accuracy can be illustrated by thinking of how a cake might taste if the baker misidentified the word *sugar* as the word *salt*. Just as someone who tastes the cake would know right away that something had gone wrong, a reader who misidentifies a word might sense that a mistake had been made with one of the "ingredients" and reread the sentence to locate the error.

Primary-grade teachers focus attention on accuracy as they provide reading instruction. As students progress through elementary school, however, more and more of the emphasis of word recognition instruction turns to making word recognition automatic. The following are characteristics of automatic word recognition:

- It occurs without conscious awareness or intention.
- It does not interfere with comprehension, even though they occur simultaneously.
- It is built gradually over time through extensive practice reading.

By definition, automatic behavior of any type occurs without conscious thought directing it. The kind of automatic behavior that is part of fluent reading is no exception. The processing of words in print, the accessing of the correct meanings and pronunciations from the reader's oral vocabulary, and the transfer of that information to working memory all take place without the conscious direction of the reader.

The National Reading Panel (1998) states that "the fluent reader has learned how to recognize the printed words with ease and speed, and few cognitive resources are consumed in the process" (p. 3-8). It further describes the fluent reader as "one who can perform multiple tasks—such as word recognition and comprehension—at the same time." Because word recognition has become automatic for the fluent reader, he is able to process the collective meaning of the words in the text and integrate this collective meaning with his own background knowledge as the words are being read. The reader who has not gained such fluency may be restricted to performing one of these tasks at a time. That is to say, so much working memory is devoted to decoding the words in print that too little is left over to process their collective meaning.

Logan (1997) reports that automatic word recognition exists as a continuum that begins with the slow, struggling word recognition of a beginning reader and extends to the rapid, effortless word recognition of the skilled reader. Readers progress gradually along this continuum. As readers develop stronger access routes to more words and begin to use consolidated spelling patterns to recognize familiar chunks of letters, their sight vocabulary grows larger. This gradual build-up of proficiency requires instruction and practice. The next section examines different approaches to providing instruction that increases fluency.

Developing fluency through repeated reading and guided repeated oral reading

Because of the identified benefits of fluent reading, it is important to look carefully at how fluency is developed. Although practice is a key component of acquiring any type of automatic behavior, the question of what types of practice are most effective in developing reading fluency has a somewhat surprising answer.

Encouraging students to read more has been a widely accepted method of building fluency. However, the research support for this practice proves only a connection between extensive reading and reading achievement. It does not indicate what the cause and effect relationship is between the two factors. The question of whether a great deal of reading causes the student to become a good reader or is the result of being a good reader has not been answered yet (National Reading Panel Report, 1998). This fact does not diminish the strength of the connection; however, it does suggest that teachers attempting to develop fluency in their students should not rely solely on encouraging them to read more.

Despite the lack of empirical evidence that extensive reading directly improves reading achievement, it is still a good idea to encourage and support students to read on their own. Extensive reading has been associated with improved vocabulary, greater general knowledge, and increased reading skill. Nevertheless, to ensure that students continue to develop fluency, other forms of practice should be included. Two forms of practice that have shown evidence of improving fluency are repeated reading and guided repeated oral reading.

Repeated reading, as an instructional approach, involves asking students to read and reread a passage or story. In studies of the effects of repeated reading, students were required to reread a story a specified number of times or until a specified level of fluency was reached. In a classroom setting, students might intersperse their repeated readings of a story with related activities that give them an opportunity to respond to what they have read. Many teachers incorporate forms of shared reading, such as reading aloud to a classmate or adult, once the child has reached a level of fluency with the story or passage.

At least part of the improvement in fluency produced by repeated reading may be derived from a shift in the reader's emphasis from word recognition to comprehension as he rereads the story or passage. During initial readings, the reader may be required to devote more working memory to the task of recognizing unfamiliar words. These efforts at word recognition build connections that enable the reader to recognize those words more rapidly during subsequent readings, thus allowing more working memory to be used for comprehension, making inferences, and connecting the text to prior knowledge.

Guided repeated oral reading adds a dimension of support to the practice of repeated reading. This support may come in the form of direct assistance or reading along with a tape recording of the passage or story. Direct support or guidance may come from peers, parents, or the classroom teacher. Comparisons among different methods of providing guidance during repeated oral reading indicate that all of the methods were successful in producing improvement in fluency. However, research findings do not support "round robin" reading as an effective form of guided reading (Stallings, 1980). Students may experience this practice as boring and, for some, anxiety producing, but the primary flaw in this method is most likely that it does not give students a chance to reread any portion of the story or passage and thereby improve their fluency.

The most typical structure for guided repeated oral reading activities begins with some form of introductory explanation of the story or passage to connect it to the readers' background knowledge and to highlight important vocabulary words. The teacher may also use this initial phase to explain the objective(s) for this session, such as indicating a particular strategy as the focus of the session. The teacher may then read the story or passage aloud (students may follow along in their own books or listen without reading along). At this point, readers may be allowed to read the text aloud to themselves or to one another (this segment of the lesson may involve repeated readings). The teacher uses this time to listen to individual students read sections of the assigned text and to provide support through one or more of the practices listed below. The final phase of the lesson includes discussion of the story to enhance comprehension. Further independent repeated reading of the story or passage is used to increase fluency.

The following forms of guidance were among those that produced improved fluency. To date, there is no research evidence indicating that one of these practices is more effective than the others. Therefore, it would be prudent to experiment with all these practices to determine which ones work best for specific groups of readers.

- Helping readers apply strategies, such as predicting, summarizing, and using context clues, to learn the meanings of new words and to draw conclusions or inferences (Snow, Burns, & Griffin, 1998).
- Telling students unfamiliar words as they encounter them so that they can focus on constructing meaning and reading with fluency (Shany & Biemiller, 1995).
- Helping students to group words in a sentence into meaningful phrases (Taylor, Wade, & Yekovich, 1985).
- Having students read orally along with the teacher as he or she reads the story aloud (Rasinki, 1990).
- Having students read along with a tape-recorded reading of the story or passage (Blum et al., 1995).

The research findings for both repeated reading and guided repeated oral reading support their use to improve word recognition and fluency, although the impact of these practices on comprehension may be somewhat less than on word recognition and fluency (National Reading Panel, 1998). They are not, however, sufficient to serve as the primary instructional strategy. They should be used as a component of a comprehensive, balanced reading program.

Cognitive Strategies

Terms and concepts in this section:

- **Cognitive strategies**
- **Comprehension**
- **Less-structured and well-structured tasks**
- **Prior knowledge**

Definitions appear in the glossary.

Cognitive strategies are tasks or activities that produce a desired outcome indirectly, as a by-product. For example, generating questions about a text—one of the more common cognitive strategies for improving comprehension—has as its direct outcome, a set of questions. The reader actually generates a set of questions about the text, and the thinking that is involved in creating a set of meaningful questions also produces greater comprehension. Thinking of questions that are relevant to the text requires the reader to analyze, synthesize, integrate, and evaluate the content of the text. It is the thinking required in producing the questions that actually increases the reader's understanding of what he has read.

Cognitive strategies are said to support or facilitate learners as they perform the higher-level thinking that is required by less-structured tasks like comprehension. This section focuses on four effective cognitive strategies and how they can be used with young readers.

The National Reading Panel Report (1998) states the following in introducing the idea of teaching specific strategies for improving comprehension:

> Readers normally acquire strategies for active comprehension informally. Comprehension strategies are specific procedures that guide students to become aware of how well they are comprehending as they attempt to read and write. Explicit or formal instruction on these strategies is carried out by the classroom teacher who demonstrates, models, or guides the reader on their acquisition and use. When these procedures have been acquired, the reader becomes independent of the teacher. Using them, the reader can effectively interact with the text without assistance. **Readers who are not explicitly taught these procedures are unlikely to learn, develop, or use them spontaneously**. (p. 4-5, emphasis added)

In the previous section dealing with comprehension, research findings were cited that indicated relatively little instructional time is devoted to teaching comprehension. Part of the reason for this may be that comprehension is considered a less-structured task (Rosenshine, 1997). These tasks cannot be described by a fixed sequence of steps. In contrast, well-structured tasks can be broken down into steps that, if followed faithfully, will consistently produce the desired outcome. The steps of a well-structured task are concrete and can be made visible to learners by listing or demonstrating them. This makes them easier to teach (see the textbox for the strategies that appear most effective for teaching well-structured tasks).

Teaching Well-Structured Tasks

- **Begin the lesson with a short review of previous learning as it relates to the current lesson topic.**
- **Include a brief statement of the objective(s).**
- **Present new material in small steps, providing for guided practice after each step.**
- **Give clear and detailed instructions and explanations of each step and model each step as it is explained.**
- **Provide a high level of active practice for students by asking frequent questions that check for understanding.**
- **Provide students with prompt support during initial guided practice.**
- **Use corrective feedback that draws attention back to earlier explanations and demonstrations.**
- **Conclude with an ending review.**
- **Provide explicit instruction and practice for seatwork exercises and monitor students during seatwork.**

In an attempt to identify instructional strategies that might help students learn how to perform less-structured tasks, researchers began developing what have come to be known as cognitive strategies. These strategies are not step-by-step procedures. They are guides or supporting structures that make it easier for the learner to develop internal procedures for performing the task. Teaching readers to generate questions about what they have read or to summarize the content of the text are examples of cognitive strategies used to improve comprehension. Just as comprehension is a less-structured task and therefore cannot be broken down into concrete steps, cognitive strategies do not follow a step-by-step procedure. For example, as readers review the text and sort through the ideas they want to use as the basis for the questions they are generating, they increase their comprehension of what they have read.

The following sections provide brief explanations of cognitive strategies that have proven effective in increasing comprehension.

Activating prior knowledge

Bringing prior knowledge to the surface before beginning to read improves comprehension and recall of information in the text (Wilson & Anderson, 1986). This cognitive strategy may be even more important for poor readers who "may not spontaneously relate their previous experience or knowledge to reading passages" (Pressley, 1995). Group

discussions held prior to reading are a good way to activate prior knowledge. Asking questions, such as, "What would you expect to read about in a passage or story about _____?" can benefit students who have significant prior knowledge by bringing their relevant knowledge to the surface. Students who lack knowledge on the topic at hand benefit from being exposed to the background knowledge of other students.

Carr and Ogle (1987) created a format for activating prior knowledge that has proven popular with many students and teachers. It is known as K-W-L. This acronym stands for "what we Know about this topic, what we Want to find out, and what we have Learned through our study of this topic." Here is an example of a K-W-L chart that might be used by a science teacher to activate prior knowledge about the rainfall cycle.

Rainfall Cycle

What we Know	What we Want to find out	What we have Learned
• Rain comes from clouds. • Rain water is not salty. • Some drops are bigger than others. • When a cloud is really dark, it holds more rain.	• What gets clouds started? • Why do some clouds get dark but don't rain? • Why does it rain more some times of the year? • What makes hail? • Does wind have anything to do with rain?	• Clouds form when water evaporates and rises into the sky. • Rain drops fall when they get heavy. • Sometimes the clouds are dark, but the drops are not heavy enough to fall.

Columns one and two are generated through class discussion prior to reading the relevant sections of the science textbook. Column three is completed after students have read the relevant text (and other sources, if necessary) and have discovered the answers to the questions they listed in column two.

Making predictions based on story titles, chapter and section headings, and illustrations is another additional way of activating prior knowledge. Predicting what might be discussed or what might happen next in a story produces better comprehension when used in conjunction with other cognitive strategies.

Summarization

When students are involved in creating their own summaries of a text they have read, their recall of information in the text improves (Armbruster, Anderson, & Ostertag, 1987). Four basic rules for summarizing can be drawn from the research on this cognitive strategy.

1. Identify the most important information—"Have I listed the critical events, actions, or terms that focus on the main idea of the paragraph or passage?"
2. Identify supporting information—"Have I included the information necessary to define or explain the main idea?"
3. Delete the less important information—"Have I included any information that is not needed to define or explain the main idea?"
4. Delete redundant information—"Have I used any information more than once?"

Learning to summarize well takes time and practice (Pressley, 1995). If students are not given adequate practice to attain a fair degree of skill in summarizing, it is not likely to produce improved comprehension. Furthermore, the research studies to date have involved children at least ten-years-old (Rosenshine, 1997), so it is not yet known if asking younger children to develop skill in summarizing is a worthwhile activity.

Question Frames (adapted from King, 1994)

- How are ___ and ___ alike?
- What is the main idea of ___?
- What do you think would happen if ___?
- What are the strengths and weaknesses of ___?
- In what ways is ___ related to ___?
- How does ___ affect ___?
- What do you think could cause ___?
- How does ___ connect to what you have learned before?
- Which is the best ___ and why?
- What do you still not understand about ___?
- How does ___ work?
- Why was ___ successful?
- How could ___ be used to ___?

Identifying the Main Idea

- This passage tells us that ___

Generating questions

If students are taught how to generate questions as they read, reading comprehension can be improved (Davey & McBride, 1986; King, 1994). However, cursory instruction on question generation appears to produce little benefit. It is only with extensive instruction and practice (the Davey & McBride study provided five, 40-minute sessions) that students realize improvements in comprehension. The following points were drawn from these two studies to illustrate how this type of cognitive strategy can be taught successfully.

- Begin by explaining that learning to generate questions as a text is being read will help students to improve comprehension and recall. Students need to see the value in what they are about to learn.
- Explain the basics of question generation in an overview format. Emphasize the two basic types of questions: "think-type" or inferential questions that require students to integrate information from the text and/or prior knowledge of the topic, and "locate" or literal questions that require students to find the answer located in the text.
- Provide students with examples, non-examples, and plenty of practice with feedback on the questions that they generate. Modeling or use of think-aloud scaffolding is helpful in this stage of the teaching process.
- Use "Question frames," such as those shown in the textbox, as question starters.
- Teach students how to identify relatively important information within a given text and have them focus their question generation on this information.

  Provide self-monitoring questions, such as
  - How well did I identify the most important information?
  - How well did I connect information to generate "bigger" questions?
  - How well was I able to answer my own questions?
  - Did I put the questions in my own words rather than pull words directly from the text?
  - How well did I use the question frames?

Story Mapping Questions

- Who is/are the main character(s)?
- Where and when did the story take place?
- What did the main character(s) do?
- What made the main character(s) do these things?
- How did the story end?
- How did the main character(s) feel?

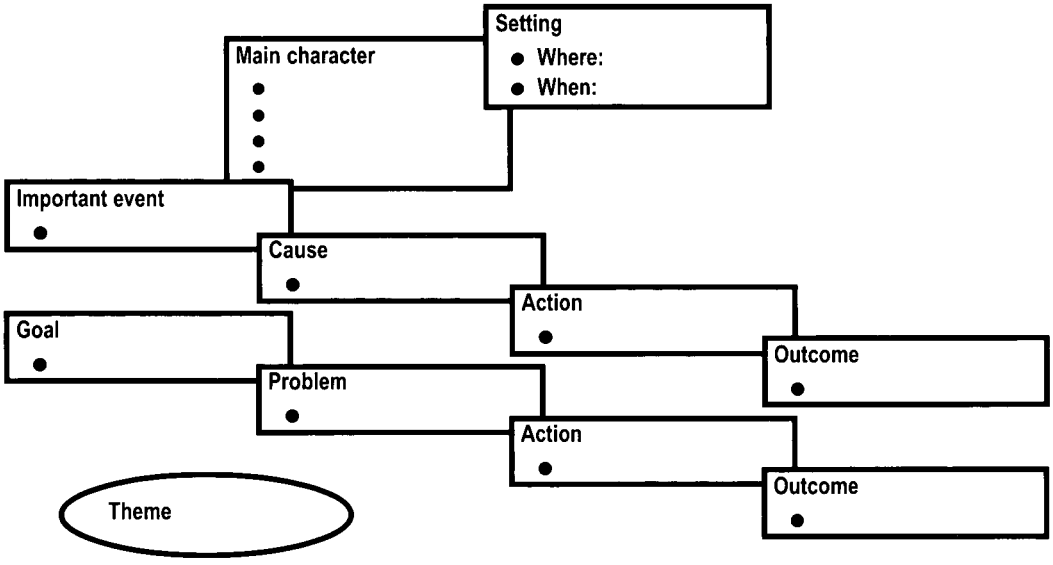
Story mapping

Stories, whether in a basal reader or quality children's literature, have several basic elements. These can include setting, characters, events, reactions of the characters to events, actions of the characters, and outcomes. Creating a story map that illustrates these elements and their relationships to one another or providing a set of questions (see textbox) that pull together these elements has been proven effective in improving the ability of poor readers to recall information from text (Short & Ryan, 1984; Idol & Croll, 1987). Training in this cognitive strategy did not produce improvement in recall for better readers, however. More skilled readers may have learned to produce a story map or similar structuring of the elements of a story as a way of enhancing their understanding of what they have read and, therefore, would not benefit from additional training in a skill they already possess. One study reported that encouraging better readers to ask themselves questions about the setting, characters, and other story elements, rather than providing a set of questions, improved recall for these students (Nolte & Singer, 1985). This approach represents a combination of two cognitive strategies, story mapping and question generating.

Mapping story elements through these diagrams and/or providing a set of questions that students can ask themselves as they read could improve comprehension for many children who do not have an intuitive way of organizing story elements. This cognitive strategy is easy to teach through modeling and can be learned within a few lessons.

Teaching cognitive strategies

Cognitive strategies can improve comprehension, but readers must use them effectively. Sustained, focused instruction that includes clear, direct explanations; modeling and/or "think aloud" demonstrations; and practice with feedback is required to bring students to a level of proficiency where they will see the desired benefits. The following section describes an approach that is successful in developing this level of competence in students.



Teaching Cognitive Strategies through Scaffolding

Terms and concepts in this section:

- **Cognitive strategies**
- **Less-structured and well-structured tasks**
- **Modeling**
- **Procedural prompts**
- **Scaffolding**
- **Thinking aloud**

Definitions appear in the glossary.

Scaffolds are temporary support structures that teachers use to aid students in learning new content. They are temporary in that they provide support during the early stages of learning a new strategy or technique, but they can be withdrawn or modified gradually as learners become more proficient in their use of the new skill.

Teachers who teach cognitive strategies successfully employ a number of instructional practices that appear to make it easier for students to acquire and use these strategies. This section introduces the idea of scaffolding as a way to conceptualize a set of instructional techniques that teachers can use to teach cognitive strategies. It continues with a list of these techniques or tools and a brief description of how each might be used.

Scaffolding

A number of the techniques that teachers use to aid students in using cognitive strategies can be described as scaffolds or temporary support structures. They are temporary in that they provide support during the early stages of acquiring a new cognitive strategy but can be withdrawn or modified gradually as learners gain competence. Here are several examples:

- Introducing content in small, manageable chunks
- Beginning with simplified problems or regulating the difficulty of the content
- Providing models of appropriate or high-quality responses
- Thinking aloud while performing the task
- Providing prompts while students perform the task
- Anticipating potential difficulties and talking about them in advance
- Using cue cards or checklists

Introducing content in small, manageable chunks

Studies of strategies that distinguish effective teachers from less effective teachers have pointed out that less effective teachers present larger segments of content (an entire lesson, for example) before allowing students to practice what is being taught. Presenting

new content in small steps followed immediately with guided practice was proven more effective (Rosenshine & Stevens, 1986). Part of the rationale for presenting new material in smaller pieces is derived from research in cognitive psychology that describes working memory as limited in capacity. Filling a student's working memory with more information than it can hold before allowing him to process it can hinder learning.

Beginning with simplified problems or regulating the difficulty of the content

This idea is similar to introducing content in small steps. It allows students to process a reasonable amount of content and experience success before moving on to more challenging material. When teaching the cognitive strategy of generating questions, for example, the teacher might begin by showing students how to create a question based on a single sentence. After guided practice with this small piece of content, the teacher would expand the task to include generating questions about a simple paragraph, then a more complex one, and finally an entire passage.

Providing models of appropriate or high-quality responses

Modeling cognitive strategies for students is critical because the strategies do not prescribe specific steps. To model the strategy of predicting what might appear in the next passage of a text, the teacher would make a prediction and explain how she arrived at that prediction and describe the cues from the text that led to the prediction. In this situation, students see a high-quality performance—the teacher's prediction—and the aspects of the text and prior knowledge that were used to create it. This type of modeling provides a structure against which they are able to compare their own attempts to predict the content of passages in their own reading.

Thinking aloud while performing the task

Thinking aloud reveals the internal cognitive processes that an individual goes through in using a cognitive strategy. The use of this technique is closely related to modeling, and the rationale for using it is also similar. Students who hear the thought processes behind the teacher's use of a particular cognitive strategy have a high-quality model they can use to rehearse the strategy or to assess their own attempts to use the strategy. Making "expert thinking" visible to students by using this technique is a type of scaffolding that can be applied to any number of less-structured tasks.

Using a think-aloud demonstration is not as easy as it might appear, especially if the teacher is trying to reveal a cognitive strategy that has become second nature or automatic. The teacher might not be as aware of all the sub-processes that are operating behind her thoughts. Teachers should practice "thinking aloud" on several examples prior to using this technique with students.

Providing prompts while students perform the task

Prompts, often referred to as "procedural prompts," give learners a concrete starting point or guide for completing a specific task related to a cognitive strategy. They are considered scaffolds because the learner will eventually develop an internalized structure for performing the task and will no longer need to refer to the prompt to complete the task (Scardamalia & Bereiter, 1985). Prompts can be as simple as providing learners with a list of "question words," such as *who*, *what*, *why*, *where*, *when*, and *how*. Learners use these words to build questions relating to the content of what they have read.

Anticipating potential difficulties and talking about them in advance

With experience (and experience with a specific group of learners), teachers almost intuitively know what aspects of a passage might pose difficulties for readers. A scaffolding technique that can be effective in these situations is talking with learners about those points in advance. Teachers can provide examples of common errors that can be anticipated and train students to identify and avoid them. Palincsar (1987) used this technique in his research on generating questions. Learners were asked to assess a set of questions related to a passage they had just read. They were asked to determine if the questions

related to the most important information in the text. Some of the questions were appropriate, but others reflected common errors that learners make in generating questions, such as writing questions that are (a) too narrowly focused, (b) too broad and general, and (c) not answerable from the information in the text. Learners identified the less effective questions and talked about why they were less effective. This exercise helped the learners to generate more appropriate questions related to subsequent passages.

Using cue cards, checklists, or rubrics

Cue cards that include procedural prompts reduce the burden placed on a learner's working memory by eliminating the need to store the prompts for recall. This can be important in the initial stages when the working memory may be taxed by the attempt to use the new strategy. Once learners have developed an internal structure for using the prompts, the cue cards will no longer be needed.

Checklists or rubrics can provide learners with two benefits. They can serve as sophisticated prompts when given prior to the learner's application of the cognitive strategy, and they can enable the learner to provide his or her own corrective feedback when used to self-check completed work. Davey and McBride (1986) used the following checklist to assist students in completing a self-evaluation of a number of cognitive strategies used to improve comprehension:

- How well did I identify important information?
- How well did I link information together?
- How well could I answer my own questions?
- Did my "think questions" use different language from the text?
- Did I use good signal words?

Terms and concepts in this section:

- **Cognitive strategies**
- **Gradual release of responsibility**
- **Modeling**
- **Procedural prompts**
- **Scaffolding**

Definitions appear in the glossary.

Teaching Comprehension through Reciprocal Teaching

Reciprocal teaching is a powerful technique for teaching comprehension. A central concept in reciprocal teaching is the gradual release of responsibility. Using this approach, the teacher provides strong support in the early stages, when students are practicing new learning, and gradually diminishes that support as students gain competence. The chief form of reciprocal teaching is dialogue with students that includes modeling, first by the teacher and then by the students themselves.

Reciprocal teaching is a systematic approach to the teaching of comprehension that involves teachers and students engaging in dialogue that supports the students' efforts to construct meaning. It provides strong support early in the learning process with the teacher gradually turning responsibility over to the students. This gradual shift in responsibility enables students to experience strategies for comprehending text as they are performed by an expert (the teacher) and then to grow into more independent use of the strategies as they become more skilled.

There are three theoretical assumptions about learning that both support and explain reciprocal teaching. The first assumption contends that tasks that are too difficult for the learner to perform independently may be within his grasp if someone more skilled provides assistance.

The second assumption contends that learning is enhanced by a gradual transition of responsibility from the expert to the novice. This assumption is applied in apprenticeship learning situations in which the expert performs the task while the learner observes, and then the learner begins to actively participate in the task while the expert still performs all but the simplest aspects. Over time, as the novice has seen the expert model the task repeatedly, he is given more and more complex sub-tasks until he reaches a level of proficiency that allows him to work independently. Brown and Palincsar (1989) describe this transition as follows:

> Within these systems of tutelage, novices learn about the task at their own rate, in the presence of experts, participating only at a level they are capable of fulfilling at any point in time.

The third theoretical assumption underlying reciprocal teaching is expert scaffolding. Although closely related to the concept of gradual transition of responsibility, under this assumption the expert more actively guides the learner during the transition of responsibility. A teacher using expert scaffolding keeps the complexity of the task manageable for the learner, provides corrective feedback during guided practice, and refers students back to demonstrations and explanations when she observes students having difficulty with specific aspects of the task.

Based on a study by Palincsar and Brown (1984), Rosenshine and Meister (1994) developed the following checklist for assessing the quality of reciprocal teaching. This checklist can be used to guide teachers in planning lessons using reciprocal teaching.

1. The teacher instructs the students in a repertoire of strategies (two or more) that they can use to help them better understand what they read.
2. The teacher models each of the strategies.
3. The teacher invites students to make comments regarding the modeling and the passage (i.e., the teacher may ask questions such as "Was there more important information?" or "Does anyone have anything more to add to my prediction?").
4. The teacher provides guided assistance as students apply the strategies at whatever skill level they have attained.
5. The teacher supports each child's participation in the dialogue through specific feedback, praise, prompting, additional modeling, paraphrasing, coaching, hints, and explanation.
6. The teacher invites students to initiate discussion and to react to other students' statements. Such participation can include (a) suggesting other questions, (b) elaborating upon a summary, (c) commenting on another's prediction, (d) requesting clarification of material they did not understand, (e) offering additional comments on the content, and (f) helping to resolve misunderstandings.
7. During the reciprocal teaching procedures, there is a gradual shift from the teacher doing most of the work to the child taking over the major thinking role. The teacher gradually transfers control of the dialogues to the students and becomes a supportive observer.
8. During the dialogues, instruction is provided on why, where, and when these strategies might be applied.

Perhaps the best way to understand specific elements of reciprocal teaching is to examine examples of teachers using the approach. The following vignette is part of a reciprocal teaching lesson on how waves are generated. It concisely illustrates the following aspects of reciprocal teaching:

- Modeling of comprehension-fostering strategies by the teacher
- Explanations and directions for comprehension-fostering activities (cognitive strategies such as question generating, predicting, clarifying words and ideas, and summarizing)
- Support for students through feedback, coaching, hints, or explanation

Vignette

An Example of the Use of Reciprocal Teaching

Teacher: Let's get out our science books and pick up where we left off yesterday in looking at the chapter on oceans. We're starting on page 72 at about the middle of the page. What is the heading of that section?...Jeremy?

Jeremy: Making Waves

Teacher: Right. Now, when I see that heading, I get an idea of what this section will be about. Since I know I'm reading an informational book, not a fiction book, I think I'm going to learn about how waves are made. Okay. Read that first paragraph to yourself and then I'm going to start us off with some questions.

students read paragraph silently

Teacher: To help me understand what I've read, I'm going to come up with a couple of questions. Thinking up questions, both before and after I've read something, is a way to make me think more deeply about what I'm reading. I'll start off and then I'll ask you if you thought of any questions from this paragraph. Since the whole paragraph was about how waves get started, one question might be, "How do waves get started?"...Sheila?

Sheila: Waves get started by wind blowing on the surface of the water.

Teacher: That's right, Sheila. The wind transfers some of its energy to the water as it blows across the surface of the water. This kind of question is sometimes called a *locate question* because the answer can be "located" directly in the text. Another locate question I came up with is, "What shape does this energy have as it moves through the water?"...Darryl?

Darryl: It's shaped like a circle.

Teacher: Yes, it's circular. As the energy moves through the water, it rolls along like a wheel. My last question is a *think question*. Remember, *think questions* are those for which you can't locate the answer directly in what you've read. You need to add some of what you already know to get the complete answer. So, my last question is, "How is the creation of a wave similar to what we learned about last week when we studied how light from the sun heats up the earth?"...Billie?

Billie: We learned that the energy in the light gets transferred to the earth and this transfer of energy creates heat. The wind has energy, and it is the transfer of this energy to the water that makes the waves.

Teacher: Great answer, Billie. You looked at the two actions and identified how they were alike. Questions like this one that require you to use prior knowledge are harder to create, but they are very helpful in developing a deeper understanding of what you're reading because they deal with bigger ideas. Okay, before we read the next paragraph, who came up with a question?

Mike: I did.

Teacher: Okay, Mike. What is your question?

Mike: How much wind does it take to make a wave?

Teacher: Good question. That's a *factual question* that can help you remember key details. Who would you like to call on?

Mike: Tisha.

Tisha: It said it doesn't take much wind to make a small wave, but that it takes a lot of wind that blows in one direction to make a really big wave.

Teacher: Mike, did that answer your question?

Continued

Vignette

Mike: Yeah. She's right.

Teacher: Now, we're ready to read the next paragraph. I'm going to look for words that I might want to clarify as I read. Clarifying important words helps me make sure I've gotten the full and correct meaning from what I've read. I can look the word up in a dictionary or glossary, ask someone for help, or look for clues in the other sentences and paragraphs that are next to the word I want to know more about. I'd like you to look for any that you're not sure of as well.

students read paragraph silently

Teacher: I came across the word *velocity*. I want to be sure I know what this word means. So, I can look for clues in the surrounding sentences, or I can look it up in the glossary. Let's have everyone on this side of the room look for clues and everyone on this side find it in the glossary.

pause

Teacher: Okay. Who found a clue to the meaning of *velocity*?...Benita?

Benita: In the sentence right after the one that has *velocity* in it, it talks about how stronger winds make bigger waves, so I think velocity has to do with how strong the winds are.

Teacher: Good detective work, Benita. What did it say in the glossary?...Hannah Marie?

Hannah Marie: It said "speed of motion."

Teacher: So, we can say that the velocity of the wind is the speed of the wind's motion. Good work. Before I ask you if you found words you wanted to clarify, can you tell me why you think I chose the word *velocity* as one I wanted to clarify?...Kyle?

Kyle: I think you chose it because it was a more important word. I know it's more important because they put it in bold letters in the paragraph.

Teacher: Great thinking, Kyle. Kyle used what he knows about textbooks to figure out that *velocity* is an important word in understanding how waves are made. Did anyone else have a word they wanted to clarify?...Kristie?

Kristie: Diameter. I get that confused with the other words that have to do with circles. I can't remember if it is all the way across or just half way

Teacher: Kendra, can you help her?

Kendra: I had to look it up because I get it confused with radius. The diameter is the distance all the way across, from one edge to the other and passing through the center point. The radius is the distance from the center of the circle to the edge.

Jeremy: It said if the diameter of the circle made by the wind is bigger than the depth of the water, then the wave starts to rise up like it's going to break. I don't know how that works.

Teacher: Who can help?...Joel?

Joel: The diagram on the next page helped me understand it. It shows how as the water gets shallower, the wave has nowhere to go but up.

Teacher: Hannah Marie, did you have a question?

Hannah Marie: Yes, Ms. Jester, I came up with a *think question*. What would happen if a big wave, say about 20 feet in diameter, suddenly went from water that was 100 feet deep to water that was only 15 feet deep?

Kendra: I know—it would rise up like the waves at the beach and break with a crash!

An analysis of this transcript appears in the appendix.

Elements of the gradual release of responsibility can be seen in this lesson script, but the gradual nature of this shift of responsibility can be observed more clearly by examining excerpts from several reciprocal teaching lessons. The second set of vignettes shows how the teacher transfers responsibility for the dialogue to students over time.

Examples of the Gradual Release of Responsibility

Week 1

Teacher: There is a lot of information we're expected to learn from what we read. We need to develop strategies for understanding the more important things and remembering them well. One of these strategies is called *summarizing*. When we summarize something that we've read, we pick out the most important information and the supporting details, and we focus on remembering just these more important aspects.

There are four basic rules for summarizing information that we read. I've listed them on this poster so that you can refer to them as we start using this strategy for improving our understanding of what we're reading.

1. Identify the most important information (Have I listed the critical events, actions, or terms that focus on the main idea of the paragraph or passage?)
2. Identify supporting information (Have I included information necessary to define or explain the main idea?)
3. Delete the less important information (Have I included any information that is not needed to define or explain the main idea?)
4. Delete redundant information (Have I used any information more than once?)

I summarized the section of your social studies book that I assigned for you to read last night. Here's my summary. **The teacher puts a handwritten outline on the overhead projector.** Here's how I identified the more important parts of this section. I used the headings that were printed in boldface type as my headings. Then, I read the paragraphs carefully and identified the main idea for each one. These main ideas became my first level items under each heading.

Then, I went back and found the details that supported each main idea. I didn't list everything; that is, I didn't recopy the whole section. I just wrote down what were the more significant details that were related to each main idea.

Now, let's look at the next section, and I'll coach you through using these four rules to summarize the information in that section.

At this point in time, the teacher includes an explanation of the strategy and models it for students. She provides strong support during practice so that they can begin to get the feel of using this strategy.

Week 2

Teacher: I want to review the four basic rules of summarizing with you before we practice using them to summarize the next section in our science book.

Teacher uses the poster to review the four rules.

I've started my summary by creating the major headings. And, you can see how I used the main idea of each paragraph as the next level of the summary. I followed these with the more important supporting details.

Continued

Examples of the Gradual Release of Responsibility

Remember, I make a summary when I want to strengthen my understanding of something that I'm reading and to help me remember what I've read. Like before a test!

Let's see what you come up with in summarizing the next chapter. I'll record what you identify as the main ideas and supporting details on the overhead as you read through the chapter.

What will we use as a heading?...Tim?

Tim: Each section has a subtitle that might work. We just have to look for the darker print.

Teacher: Okay, so what's the first one?... Amy?

Amy: It says, "Plants Need Sunlight."

Teacher: Good. So, I write "plants need sunlight" as my first heading. Now, I want to keep my summary focused just on the more important ideas, so what do I do next?... Hannah Marie?

Hannah Marie: You read through the paragraph and figure out the main idea.

The teacher begins by reviewing the steps of the strategy. As the lesson progresses she continues to provide support for structuring the summary by leading students through the application of the four rules, but more importantly she lets the students do more of the work of filling in the information that will make up the summary.

Week 3

Teacher: You've gotten better at summarizing the key parts of what you're reading. Who can tell us the steps you use to create an effective summary?... Kyle?

Kyle: You start out by using the headings printed in the book, if there are any. If what you are reading doesn't provide headings, then you have to identify the "big ideas" for yourself.

Teacher: Good, Kyle. What then?

Kyle: You identify the main idea of each paragraph and list the supporting details for each main idea.

Teacher: Isn't that just copying from the book?

Kyle: No, you don't write down everything, just the more important things. That's why you summarize something, so you can trim it down to just the most critical things to understand and remember.

Teacher: That's right. Now, what I want you to do is to get with your partner and summarize this article. I copied it out of a science magazine because it deals so well with our current topic. I'll circulate among you while you're working to answer any questions or to help you if you get stuck. I want you to put your summaries on the blank transparencies so you can share them with the class. I'll want you to help each other by commenting on each other's summaries.

By week 3 the teacher requires students to help with the beginning review, and they assume near total responsibility for their work during practice. The dialogue that follows their work in pairs gives students a chance to learn from each other and to gain a deeper understanding of this strategy by analyzing the work of other pairs of students. The teacher's support is nearly completely withdrawn as the students begin to support each other.

Vocabulary Development

Terms and concepts in this section:

- Comprehension
- Internal clues
- Oral vocabulary
- Rewritten definitions
- Word knowledge
- Word recognition

Definitions appear in the glossary.

Vocabulary development impacts both word recognition and comprehension. It impacts word recognition by providing the contents of the reader's oral vocabulary. When a reader encounters an unfamiliar word, there are several processes the reader can choose from to generate an estimate of the word's pronunciation. This trial pronunciation is then used to search the reader's storehouse of words (his oral vocabulary) for a match. If a word is not in the reader's oral vocabulary—that is, if no pronunciation or meaning is stored in the reader's brain—there can be no match and, therefore, no word recognition can occur.

Comprehension depends on both word recognition and background knowledge. If the reader recognizes the words of a text and their meanings are brought into the reader's working memory, then literal comprehension is possible. However, the reader must combine background knowledge to infer anything that is beyond the explicitly stated message of the text. A strong oral vocabulary (word knowledge) and background knowledge (domain knowledge) are the key components needed to interpret most texts. Helping children build a wide oral vocabulary is one of the most important forms of assistance teachers can provide to young readers.

An earlier section cited research by Durkin (1979) in which the focus of reading instruction was measured on a minute-by-minute basis in a number of fourth-grade classrooms. This study found that of the 4,469 minutes of instruction that were observed, only 19 minutes involved vocabulary instruction and another 4 minutes were spent reviewing previously taught vocabulary words. Moreover, most of the vocabulary instruction observed in a study by Shake, Allington, Gaskins, and Marr (1987) focused on providing definitions but did not give students adequate opportunities to use new words. It appears that in many classrooms quality instruction in vocabulary building is quite limited. However, there are several, easily implemented strategies that contribute to vocabulary growth.

Rewriting definitions

We know that students can learn the meanings of new words from definitions. We also know that examples and non-examples that highlight critical attributes are valuable in teaching new concepts (Klausmeier, 1976). Students learn most, however, when these elements are used in combination. A well-written definition combined with two to three examples and non-examples is an effective way to introduce most new vocabulary words (Klausmeier & Feldman, 1975).

What makes a "well-written definition"? McKeown (1993) found that dictionary definitions were less effective than rewritten definitions that highlighted differences between the new word and related words. Rewritten definitions are more detailed and rely less on synonyms. Here are two examples:

Term	Dictionary Definition	Rewritten definition
Extemporaneous	Made, done, or spoken without any preparation	Describing something (usually a speech or spoken remarks) that is made without planning or preparation
Raiment	Clothing; wearing apparel, attire	An unusual way to refer to clothing, one that considers all of the clothing rather than individual pieces

Not every term or new vocabulary word will require a rewritten definition in order for students to understand its meaning. Rewritten definitions can be developed for critical terms from the texts or stories that students are reading. Terms that may be outside of the readers' background knowledge are also candidates for rewritten definitions. Also, when a text contains a large number of new terms, presenting rewritten definitions to students before they read the text can help them avoid becoming bogged down as they read.

Learning words from context

A great deal of research indicates that many of the new words we learn are acquired from reading. This type of vocabulary growth is easier when information in the text that reveals the meaning of the unfamiliar word is in the same sentence or paragraph. The farther away the clues are from the new word, the less likely students are to learn what the new word means. Furthermore, when the text provides synonyms for unfamiliar words, students are better able to understand those words (Carnine, Kameenui, & Coyle, 1984). One strategy that may provide a way for students to test their understanding of new words is to suggest that they identify a synonym based on the clues in the text and replace the unfamiliar word with the synonym. If the synonym makes sense with the rest of the text, the student is probably correct in his understanding of the new word.

Using internal clues

New or unfamiliar words may contain clues to their meanings that students can be taught to discover and use. Prefixes and suffixes are used to modify words, and knowing the impact of a prefix or suffix can pry open the door to the meaning of an unknown word (Nicol, Graves, & Slater, 1984, as cited in Pressley, 1998). For example, the word *precaution* includes the prefix *pre*, which means *before*. Students who know the use of this prefix might be able to come up with an approximate definition by combining *before* with *careful*, a synonym for *caution*, to produce "being careful before something happens."

Studying root words is a fun and useful activity for older children and can be as sophisticated as looking for Greek derivations (*chrom* = color; *monochrome* = a single color) or as simple as understanding that health is related to the word *heal*.

Processing new words in multiple ways

Providing multiple ways for students to work with new words enhances their understanding of those words (McKeown, Beck, Omanson, & Pople, 1985). Below are several examples that are easy to use:

- Associating new words with known words
  - Students can be given "clue words" that connect with new vocabulary words and be asked to identify how these words are related. (How is *crook* related to *accomplice*? Why do these two words belong together?)
- Using new words in a sentence
- Matching definitions to new words
  - Students can compete against one another to see who can match the words to their definitions faster.
  - Student-written definitions can be used to provide variety.
- Using new words outside of class
  - Students who use words in ways that indicate they understand the meaning can be recognized and/or allowed to share those uses in class.

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Where does vocabulary growth come from?

There are two factors that contribute to vocabulary growth outside of formal instruction: the source of new words and the volume of words read. In order for a student's vocabulary to grow, he must come in contact with words that are outside of his current vocabulary. Far more rare words occur in print than in speech or on television. Hayes and Ahrens (1988) conducted a detailed study of the number of rare words per 1,000 words spoken or read. The results may surprise you.

Source	Rare Words per 1,000 Words
Abstracts of scientific articles	128
Newspapers	68.3
Popular magazines	65.7
Comic books	53.5
Adult books	52.7
Children's books	30.9
Cartoon shows	30.8
Courtroom expert witness testimony	28.4
Prime-time adult TV shows	22.7
Prime-time children's TV shows	20.2
Conversations of college graduates with friends or spouses	17.3
Preschool books	16.3

These findings emphasize the importance of reading as a source of vocabulary growth. The other factor, volume of words read, also reveals some surprising numbers:

Students who read just under five minutes per week outside of school (approximately 20 percent of the students in the study read 5 minutes or less per week) will read only 21,000 words in a year. Those who read nearly 10 minutes per day will read 622,000 words in a year, and at 15 minutes per day, the total jumps to over 1,146,000 words per year. The two percent who read over an hour a day will read 4,358,000 words each year.

Additional research findings on teaching vocabulary and its effect on comprehension include the following:

- Teaching key vocabulary words had a strong positive effect on how well fifth-grade students remembered the content of passages they read in a social studies text (Carney, Anderson, Blackburn, & Blessings, 1984).
- Sixth-graders were able to learn a large number of vocabulary words from listening to passages read aloud (Stahl, Richek, & Vandevier, 1991).
- Active engagement was highlighted as an important factor in helping students learn vocabulary words in a number of studies, including a study with pre-kindergarten children who learned more when they answered questions about the story while it was being read than when the story was read straight through without questions (Senechal, 1997).
- Teaching vocabulary directly from text prior to asking students to read those passages helped eighth-graders identify cause-effect relationships (Medo & Ryder, 1993).

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Sources of Comprehension Difficulty

Terms and concepts in this section:

- **Comprehension**
- **Comprehension monitoring**
- **Inference**
- **Word knowledge**
- **Word recognition**
- **Working memory**

Definitions appear in the glossary.

What can explain the difficulties individual readers have in understanding what they have read? Because comprehension is such a complex process, there are many sources of problems for readers who are still developing their comprehension skills. There are many places in which the process of comprehension may break down. Understanding how these weaknesses in the process cause comprehension problems can help you determine the most appropriate support for students experiencing comprehension difficulties. The research findings section that follows divides these sources of comprehension difficulty into two types: those that involve the component parts of comprehension (process factors) and those that involve background knowledge (knowledge factors).

The term *process factors* is used to describe aspects of the active construction of meaning. These factors represent the things readers *do* when trying to construct or understand the meaning of connected text. *Knowledge factors* are more accurately described as what readers *use* to build meaning—they represent the building blocks of comprehension.

Problems in comprehension arise when one or more of the process factors requires too much of the reader's working memory and/or when there is a gap between what the reader knows (the two knowledge factors) and the level of knowledge needed to understand the text. Six of these factors are discussed below.

Process factors:

Working memory

Working memory is the place in the reader's brain where cognitive processes like comprehension and word recognition occur. It is the capacity to hold ideas or thoughts until they can be assembled and/or compared with other ideas or thoughts in order to establish, clarify, and validate their meaning. At a basic level, working memory enables a reader to hold word meanings long enough to assemble the meanings of all the words of a sentence and to construct the meaning of the sentence as a whole. At a more advanced level, it enables a reader to hold sentences until the meaning of a paragraph is constructed and that meaning is compared with the meanings of previous paragraphs as the reader builds and connects ideas.

Working memory is a source of comprehension failure when the reader is not able to hold the meanings of words, sentences, or paragraphs long enough to make sense of them or to identify themes or inconsistencies (Perfetti, Marron, & Foltz, 1996). This problem is made worse when slow, laborious word recognition puts an increased burden on working memory.

Word recognition

Problems with word recognition contribute to comprehension failure by slowing the reader's speed and using large portions of working memory. For example, when too many of the words in a text are not known by sight and the reader must allocate more space in working memory to decoding those words, there is less space available for constructing meaning. This problem can be recognized in students who take so long to identify individual words within a sentence that by the time they reach the end, they have forgotten what they read at the beginning of the sentence.

Making inferences

The term *inference* is used to describe several comprehension processes, such as drawing conclusions, making predictions, detecting implied statements or ideas, and extrapolating from stated facts or ideas to possible explanations for events or actions. The common aspect in all of these processes is the use of prior knowledge to fill in the blanks or go beyond what is printed in the text.

Because many texts are not completely explicit, readers are called upon to add their prior knowledge to what is printed. Readers with poor comprehension skills may fail to make inferences in such cases because they "may have difficulty accessing relevant knowledge and integrating it with what is in the text because of processing limitations" (Oakhill & Yuill, 1996). An additional source of failure in making legitimate inferences is the reader's emphasis on identifying the literal meaning of a text to the exclusion of making inferences, as if adding to the literal message of the text was not necessary.

Comprehension monitoring

Comprehension monitoring is the ability to be aware of instances when comprehension begins to fall off or some part of the text presents a challenge to comprehension. It is the "ability to recognize mistakes and inconsistencies in texts and to understand that they impair a reader's comprehension" (Ruffman, 1996). This monitoring is what tells a reader "I need to go back and reread this sentence because it doesn't make sense." Readers who monitor comprehension think about why they are reading and if they are being successful in terms of that purpose (Am I getting what I need out of this material?).

Comprehension monitoring also takes place when a reader thinks about whether or not a text makes sense. Readers who monitor their comprehension judge internal consistencies (Does this agree with what the writer said earlier?) and external consistencies (Does this agree with what I already know about this topic?). This kind of monitoring may occur as the text is read or after it has been read. It may trigger a number of "comprehension repair" strategies, such as rereading, or it may pass by as a general uneasiness about the text and its meaning.

Numerous possible explanations have been offered for why readers with weak comprehension monitoring ability poorly perform this important skill. The first is based on the assumption that reading is merely recognizing words and that constructing meaning by combining the literal meaning of the text with relevant background knowledge is beyond the scope of reading. This misconception is typical of very young readers (Myers & Paris, 1978). A second explanation is that some readers may be deficient in their ability to create a mental representation of the text. In other words, they may not comprehend much of what they read because they are not able to create an integrated picture using the information from the text. Therefore, because their comprehension is so low, these readers do not monitor or detect changes in their level of comprehension.

Knowledge factors:

Word knowledge

Word knowledge is defined as understanding the meanings of words, and it involves concept development. That is, a reader who understands a concept well will be able to use the definition to distinguish between examples and non-examples and be able to highlight the critical attributes that make something belong to that concept. Word knowledge also includes the ability to recognize shades of meaning and subtle differences in word meanings. For example, word knowledge is what enables a reader to differentiate between a *sad event* and a *tragic event*.

The reader with weak word knowledge will be at a disadvantage when his understanding of a text depends on a clear and in-depth understanding of a concept or of the fine distinction among shades of meaning. The alarming implication of this fact is that a reader who does not possess strong word knowledge is less able to learn from what is read. Therefore, this reader will not grow in word knowledge (and domain knowledge) as fast as the reader who already possesses the depth of understanding needed to fully comprehend the text.

Domain knowledge

Domain knowledge refers to the reader's understanding of the concepts and principles that form a specific area of knowledge or field of discipline. Domain knowledge includes the different pieces of information and the relationships among them that enable the

reader to interpret what is written about a specific subject. For example, having an in-depth knowledge of American history can help a reader interpret a wide range of writings on American politics, economics, geography, and societal trends and events. Domain knowledge is a type of background knowledge that strongly influences comprehension.

As with word knowledge, those readers who have developed wide domain knowledge have an advantage because they are able to adequately comprehend a wider range of writings. This wider reading produces greater domain knowledge and the benefit to the reader continues to increase. Unfortunately, the converse is also true. Stanovich (1986) wrote that children who are less able readers (those who are weak in word recognition, comprehension, and the processes that support these elements of reading) will read less and learn less, thereby falling further and further behind their more able classmates.

Using an understanding of the sources of comprehension difficulty to inform instruction

When the teacher notices that an individual student is having problems with comprehension, she needs to be able to pinpoint the source of that difficulty so that instruction can be provided that is targeted to the student's specific need. By analyzing the student's oral reading and/or his understanding of selected texts, the teacher better identifies the source of the comprehension failure. The following table provides suggestions for how teachers can use the observation of specific reading problems to identify possible sources of comprehension difficulty.

Observed Problem	*Source of Difficulty*	*Helpful Strategies*
Slow, effortful reading that involves frequent decoding of unfamiliar words	Overburdened working memory	Switch reader to text with more appropriate vocabulary or level of difficulty Talk through how the reader uses decoding and provide tips for faster decoding (see the sections on teaching decoding and rime analogies) Allow for repeated reading to build fluency
Inability to draw inferences or extend understanding beyond the literal meaning of the text	Inadequate word knowledge and/or background knowledge	Use of rewritten definitions for key terms Pre-reading activities that build and/or activate prior knowledge
	Ineffective strategies for making inferences	Model how to integrate background knowledge with literal meaning of text to formulate inferences
Failure to notice when comprehension difficulties arise	Inadequate comprehension *monitoring*	Teach reader to generate questions to check his own understanding (see section on procedural prompts as possible scaffolding for this strategy) Supply reader with "fix-up" strategies, such as rereading and use of key terms and phrases, to repair comprehension

Text as a source of comprehension difficulty

In addition to the six sources of comprehension difficulty addressed above, certain characteristics of the text that is being read can create comprehension problems. The following are examples of difficult texts and how the characteristics of each type of text impact comprehension.

Text as a Source of Comprehension Difficulty

One way to begin to understand what goes on in the mind of a skilled reader in terms of comprehension is to think about why different types of text present unique problems for comprehension. Think about the challenges you would face in trying to understand the message or ideas presented in each of the following types of text.

- A technical article on a topic in nuclear physics
- A poorly written first draft of an editorial in which key ideas are omitted and others are not well-organized
- Any text that you are trying to read when there is a great deal of distracting activities going on around you
- A sequel to a book you have not read and know nothing about
- A poem that is nearly all symbolism

Before reading further, ask yourself, "What makes trying to understand these types of text difficult?"

Each type of text presents unique challenges to comprehension.

- Technical writing can include terms and concepts that may be beyond the reader's background knowledge. For example, a scientific article may include specific terms (i.e., sub-atomic particles) and broad concepts (i.e., nuclear fusion) that the reader does not understand. If this is so, comprehension is difficult and may be impossible.
- Poorly written text can also impact comprehension by using up greater amounts of the reader's working memory to piece together or organize the writer's ideas.
- Reading while a lot of distractions go on around you can be very frustrating. Comprehension is reduced by distractions because they interrupt the thought processes involved in assembling the meanings of words in the reader's working memory.
- Trying to read a sequel without having any knowledge of the first book ensures that the reader will encounter situations in which important background knowledge is missing.
- Finally, a poem the uses symbolism may be more difficult than other types of poetry because much more of its meaning is hidden below the literal meaning of the text.

Learning From, With, and For Each Other

Building a Professional Learning Community

Purpose and Structure:

The final sections of this book provide critical insights and helpful activities for creating a professional culture that supports continuous learning and collective action. The activities are intended to help groups of teachers expand the collaboration they established through their collective study of reading. As in the sections of the book devoted to research on reading instruction, each of the following sections provides background reading that sets the stage for open discussion among team and faculty members. The activities provide a structure for that discussion, a way to move from the research to action.

Understanding Professional Learning Communities

What is a professional learning community?

A professional learning community exists when people form a group and commit themselves to continuous learning and to supporting each other in continuous learning. In a professional learning community, professional development is intertwined with the day-to-day work of teachers and ceases to exist as a separate, additional activity that occurs only on designated days of the year. Instead, professional development becomes an integrated function of being a member of a professional learning community. Each of the examples printed below reveals that learning is a joint activity—one that is shared by all.

- Teachers who are seeking to improve classroom practices may engage in action research as a professional learning community activity. In doing action research, teachers (a) identify a problem or need; (b) measure important aspects of the problem and/or collect data that will help them gain insight into how it might be addressed, such as reviewing research findings (like those included in this book) or collecting firsthand data on student learning; (c) analyze the information they collected and develop and implement a plan for changing their instructional practices; and (d) evaluate the results of their action plan so that new strategies can be developed—or old strategies revised—and recommended to other teachers. The key characteristic of action research is the use of a structured inquiry method to find the answer to this question: What would be the results if we did it this way?
- One of the most common forms of learning within a professional learning community is the implementation of new instructional strategies. Implementing new strategies involves taking what is learned through training or some other form of professional development and actually putting it into use in the classroom. For successful teacher learning and implementation to occur, teachers must receive continuous assistance and support after they learn about the initial strategy. Teachers who are part of a professional learning community may form peer-coaching study teams to provide each other with the necessary support and assistance to actually begin using a new instructional strategy. This level of support helps teachers persevere through the initial stages of trying something new, when their performance may be awkward or not up to their usual standards. Key characteristics of continuous assistance are support, clarification of new strategies through observing demonstrations of effective use, collaboration, sharing of ideas, and encouragement.
- Any group of teachers will possess a number of diverse skills and gifts. When teachers open up their instructional practices to the eyes of their colleagues, they share those skills and gifts in a powerful way. Welcoming (not just allowing) others to watch you teach, collectively analyzing your students' work to identify strengths and weaknesses, and sharing the responsibility for student learning dramatically increase teacher learning. Teachers who share what they know and what they do, support one another in learning more effective ways of teaching,

and assume joint responsibility for student learning are demonstrating one of the essential characteristics of professional learning community members: they are learning *from* each other, *with* each other, and *for* each other.

- Throughout the process of becoming a professional learning community, groups of teachers gather to talk about what is important to them about teaching and learning and what they believe about schooling in general. These gatherings—whether you call their product a vision, a mission statement, or a set of tenets or beliefs—are opportunities for teacher learning and professional development. By identifying and coming to consensus on values and beliefs, teachers accomplish another important characteristic of learning within a professional learning community—open dialogue on important issues and concerns.

Dufour and Eaker (1998) list six characteristics of professional learning communities. These characteristics indicate what actions are necessary to build and sustain this kind of professional culture.

1. **Shared mission, vision, and values:** A true learning community is identified by a collective commitment to principles and beliefs that guide the long-range plans and day-to-day learning experiences of all its members.
2. **Collective inquiry:** Members of a professional learning community see the collective pursuit of answers to questions arising from teaching and learning as a way of life.
3. **Collaborative teams:** A professional learning community is made up of smaller teams that are actively engaged in professional development that addresses problems drawn directly from teaching and learning. They focus on increasing the school's capacity to learn and to act collectively on what is learned.
4. **Action orientation and experimentation:** Members of professional learning communities move from ideas and questions to problem solving and implementation. They reflect on what they have learned and on their performance but always in the context of guiding future action. Experimenting with new ways of doing things does not always produce improvements, and a professional learning community recognizes this as a natural event and is not discouraged.
5. **Continuous improvement:** Trying new strategies or practices, evaluating the results, and making further refinements are seen as normal operating procedures, not as one-time events. Dufour and Eaker describe these activities as deriving from a "persistent discomfort with the status quo and a constant search for a better way" (p. 28).
6. **Results orientation:** Improvement efforts are measured in terms of results. Intended results are stated up front and measured so that growth or the lack of it can be clearly determined.

Other benefits of building a professional learning community

In schools where teachers work as a professional learning community, students have before them a consistent model of lifelong learning. They see significant adults seek out learning opportunities and put substantial effort into those experiences. They see their teachers enjoy the satisfaction of acquiring useful, new knowledge. The kind of thoughtful inquiry that is at the heart of a professional learning community provides a good example of a rational, data-driven, collaborative approach to solving problems.

Teaching in today's schools brings extraordinary challenges. In the face of these challenges, a professional learning community can provide moral support and tangible assistance. Milbrey McLaughlin (1994) describes this aspect of the benefits of membership in a professional learning community as follows:

> As we looked across our sites at teachers who report a high sense of efficacy, who feel successful with today's students, we noticed that while these teachers differ along a number of dimensions—age and experience, subject area, track assignment, and even conceptions of pedagogy—all shared this one characteristic:

membership in some kind of a strong professional community. Further, almost without exception, these teachers singled out their professional discourse community as the reason that they have been successful in adapting to today's students, the source of their professional motivation and support, and the reason that they did not burn out in the face of some exceedingly demanding teaching situations.

The impact of a professional learning community on new instructional practices

Working in a professional learning community involves teachers interacting with one another or with other resource persons. Such interaction provides teachers with the following:

- Clarification or additional information about aspects of new skills or knowledge
- Readily available demonstrations of new skills or knowledge
- Collection and analysis of information on how students are responding to new materials or instructional practices
- Collaborative planning and sharing of materials
- Ideas for applying new skills or knowledge in new ways and new situations
- Ideas for materials and how to use them effectively
- Encouragement, support, and (to some extent) pressure

There are several important reasons for building a professional learning community to support the implementation of new reading practices. Research and practice have proven that "practitioners often need more than one year to grow comfortable with any change. For the majority of teachers, the first year is a time of trial and experimentation" (Guskey, 1990). According to Tom Guskey (1986), without adequate support, many teachers will not be able to see how a new strategy or program might benefit students and are less likely to practice the new strategy long enough to gain confidence in their use of it. They "will abandon their efforts and return to the old familiar strategies they have used in the past." Joyce and Showers (1988) reported that developing sufficient skill in using a new strategy "will require 20 or 25 trials and the assistance of someone who can help us analyze the students' responses and enable us to stick with the process until we have executive control over our new skill." Without support, teachers have difficulty overcoming the anxiety they experience when attempting new ways of teaching, and they may not even begin to put those new ideas into practice (Joyce & Showers, 1995).

Support for teachers trying new practices frequently takes the form of coaching, which is a fundamental and valuable feature of a professional learning community. The table below provides data from Joyce and Showers (1988) on the impact of this type of support as a component of the training model.

Impact of Training Components on Teacher Learning and Use

Training Components	Concept Understanding	Skill Attainment (mechanical use)	Application (executive use)
Presentation of Theory	85%	15%	5–10%
Modeling by Trainer(s)	85%	18%	5–10%
Practice and Low-risk Feedback (in the training setting)	85%	80%	10–15%
Coaching	90%	90%	80–90%

Coaching

Joyce and Showers (1988) claim, "The actual organization of peer coaching is relatively simple—peer coaches need time to watch each other work and time to talk." In this brief statement, Joyce and Showers reveal key principles of peer coaching. First, teachers learn by *watching* each other teach. As a teacher watches a colleague's teaching performance, she mentally rehearses the model as it was presented during training and compares it to her colleague's teaching demonstration. She also compares the colleague's teaching to her own use of the strategy or technique. The mental act of observing and analysis increases the understanding of the practices being demonstrated. When a teacher observes a colleague teaching, she is learning from the teaching performance of her partner—she is the one being coached.

The concept of coaching drawn from athletic coaching is not the pattern for peer coaching. In athletic coaching, an older, more experienced person instructs and critiques the performance of a younger athlete while not actually performing himself or herself. In their coaching model, Joyce and Showers (1995) recommend omitting critiques and feedback following observations of teaching. Providing technical feedback requires training that is beyond what could be reasonably expected of teachers who are attempting to learn to use the same practices they are observing others use. Furthermore, eliminating feedback in coaching "has not depressed implementation or student growth" (Joyce et al., 1989).

Other key principles of coaching are the need for a common understanding of the theory and concepts that make up the teaching practices being studied and a common language so that professional discussions are more productive. These principles can be achieved through shared training experiences or through group study of a book such as this one.

What are the direct benefits to teachers of participating in peer coaching?

- Teachers who participate in peer coaching practice new skills more frequently and persist in using them through the difficult early stages of implementation. Teachers who are not involved in peer coaching may say that they intend to use what they learned during training, but there is little evidence that they actually follow through and make the new strategy a part of their repertoire (Showers, 1982).
- Peer coaches are able to apply new strategies to content and situations that differ from those they observed during training. Teachers who are not peer coaches are less able to transfer what they learned to new and different situations (Showers, 1984).
- Peer coaches retain skills and knowledge longer than teachers who are not peer coaches. This trend is probably related to the "uncoached" teachers' lack of continual use of the skills and knowledge (Baker & Showers, 1984). Without the support of a peer coach, teachers frequently return to strategies with which they are more familiar.
- Coaching facilitates the development of professional and collegial relationships based on shared language and a school culture that promotes continuous improvement. It reduces isolation and encourages teachers to explore important issues together in an atmosphere of openness (Little, 1982; Garmston, 1987; Ponticell, 1995).
- Peer coaching provides teachers with a clearer picture of their own teaching performance and where it could be improved (Ponticell, 1995).
- Teachers scored significantly higher on variables associated with self-assessment, planning, and instruction as a result of participating in peer coaching (Phelps, 1986).

Collaboration and collegiality

Working in a study-team structure builds collegial relationships and norms of shared responsibility for teacher and student learning. Study-team functioning is enhanced by new and different strategies for professional development. Hargreaves (1995) writes that one of the most promising of "these emergent strategies of teacher development is the principle of collaboration and collegiality."

What is the principle of collaboration and collegiality? According to Little, this principle "goes well beyond a loosely constructed sense of 'getting along' and 'working well together'" (Little, 1990). Collaboration and collegiality describe interactions among teachers that have the following three characteristics:

- They involve a sharing of the responsibilities for tasks related to teaching and/or the improvement of teaching.
- They demonstrate a willingness to expose one's teaching performance as well as one's beliefs about teaching and learning to the scrutiny of others.
- They produce collective action.

Study-team members collaborate when they work together to develop a unit of instruction — assigning tasks to different individuals so that the final product is constructed of the work of many, and no one person is responsible for all of the pieces. They share the responsibility for creating the unit. Teachers also are collaborating when they share the responsibility for certain outcomes despite the fact that individuals or sub-groups contribute differently to the effort. For example, when a group of intermediate-grade teachers agree to work toward improving students' ability to learn through reading in the content areas (the sciences and social studies), they will not all take the same actions in supporting that goal, but because they share the responsibility for achieving it, they are collaborating.

As teachers enter into an open exchange of ideas for improving students' ability to comprehend more difficult texts, they are opening themselves and their practices up to examination by their peers. This is another form of collaboration and collegiality. Finally, when teachers at an elementary school agree to begin each day by reading aloud to students to enrich their exposure to children's literature, they are collaborating by acting collectively.

How does collaboration benefit teachers and their students? Advocates of collaboration and collegiality describe many worthwhile benefits from engaging in activities like those described above. Some of the benefits that pertain to improving the effectiveness of professional development activities are as follows:

- Collaboration and collegiality **provide moral support** for teachers as they experiment with new strategies. While moral support is described as a "weaker" form of collaboration, it can be significant when you feel you are moving in uncharted waters.
- Collaboration can impact student achievement by improving teaching practices. This **improved effectiveness** can result from being willing to take risks and try new strategies or from having access to a greater variety of strategies and approaches through collaboration with your peers. Collaboration may even improve a teacher's sense of efficacy (Ashton & Webb, 1986).
- Teachers are more likely to **reflect upon their own practices** if they are involved in a collaborative dialogue about teaching. If the collaboration includes observing a fellow teacher's instructional practices, then a teacher will be able to consider her own teaching in the light of what she saw in her colleague's classroom. The observation of another teacher's instructional practices makes reflection on one's own teaching more useful because it provides a concrete model for comparison (Joyce & Showers, 1988).
- Collaboration **promotes a norm of continuous improvement**. By reflecting on current practice and seeking ways to do things better, teachers create a culture that sees planned change as an expectation of the professional staff. Therefore, change is viewed as a never-ending process, and improvement is viewed as a journey, not a destination.

Using collaboration as a way to enhance teacher learning is not without potential problems. Be aware of the following situations, and use care to avoid them:

- Engaging in collaborative activities because it sounds progressive but having no clear or direct link to professional development and the improvement of teaching and learning.

- Confining collaboration to providing moral support and the exchange of materials without interaction about their use. These are safe and comfortable areas that allow teachers to collaborate without addressing classroom practices or topics that might bring confrontation among peers (Little, 1990).
- Using collaboration to produce conformity rather than unity.
- Forcing collaboration as an administrative requirement. Mandating that teachers collaborate during their planning periods is a sure way to make teachers lose interest in the shared work of teaching. Requiring the use of collaboration to aid the implementation of mandated programs is also a form of forced collaboration.

Suggestions for moving from research to action

Consider these steps in translating the idea of a professional learning community from research-based theory into action:

- Identify the kinds of professional learning community activities your group would like to emphasize as you begin the collective study of reading and effective instructional practices.
- Select one or more of the activities you want to emphasize and build time for those activities into your next study-team session.
- Assign the "action responsibility" for leading or guiding each activity to one or more of your team members to ensure that the necessary tasks are completed. (See a suggested format for action responsibilities in the appendix.)
- As your study team becomes comfortable with those activities, add in new activities from your list to continue to build a professional learning community.

One way to begin to reach consensus on the type of professional learning community most suitable for your group or faculty is to list activities that seem to fit your needs. The table below lists activities that represent the day-to-day relationships of teachers in a professional learning community. It also identifies the benefits teachers derive from participating in these kinds of activities. As you read through the list, think about which benefits would be helpful to you and your colleagues.

Collaborative activities like those described in the table do not just happen. They must be planned and those plans must be executed. A good way to ensure that plans are made and completed is to assign the "action responsibility" to one or more of your team members. Action responsibilities

Professional Learning Community Activities	*Direct Benefits*
1. Using shared planning to develop units, lessons, and activities	**Divides the labor, saves time because no one has to do it all, and increases quantity and quality of ideas**
2. Learning from one another by watching each other teach	**Provides concrete examples of effective practices, expands the observer's repertoire of skills, and stimulates analytical thinking about teaching**
3. Collectively studying student work to identify weaknesses and plan new ways to teach to those weaknesses	**Increases quantity and quality of insights into student performance, focuses efforts on "the bottom line"—student learning, and increases professionalism and self-esteem of learning community members**
4. Sharing articles and other professional resources for ideas and insights; conducting studies of books on teaching and learning	**Expands pool of ideas and resources available to members of the professional learning community**

Continued

Professional Learning Community Activities	*Direct Benefits*
5. Talking with one another about what and how you teach and the results your teaching produces	Decreases feelings of isolation; increases experimentation and analysis of teaching practices; increases confidence of teachers; and provides teachers with greater access to a range of teaching styles, models, and philosophies
6. Providing moral support, comradeship, and encouragement	Enables teachers to stick with new practices through the rough early stages of learning to use new skills, decreases burnout and stress, and increases team members' willingness to try new methods and to share ideas and concerns with other members of the professional learning community
7. Jointly exploring a problem, including data collection and analysis, and conducting action research	Improves quality of insights and solutions and increases professionalism
8. Attending training together and helping each other implement the content of the training	Helps professional learning community members get more out of training and enables them to go to one another with questions or to get clarification about what was presented during training
9. Sharing the responsibility for making and/or collecting materials	Allows for more efficient use of time and takes advantage of particular talents or interests of professional learning community members
10. Participating in continuous quality improvement activities	Improves quality of instruction, student performance, and school operations
11. Using collective decision making to reach decisions that produce collective action	Makes a strong statement of shared responsibility and commitment to one another's learning
12. Providing support for "help-seeking" as well as "help-giving"	Helps professional learning community members feel secure in asking for help and advice and enables professionals to give assistance and advice without establishing one-up/one-down relationships

spell out what is to be done and when the tasks are to be completed. This list of tasks can be developed collectively or by the person to whom the action responsibility is assigned. Without clear action responsibilities, even the most effective plans can fail. Another way to organize collaborative activities is to rank them by level of emphasis.

Some activities among those rated as deserving high levels of emphasis may be easier to put into action than others, so it may be wise to select one or two of those as your starting point. As you add to your list of professional learning community activities, remember that some of these activities will be closely related to things you have been doing and, therefore, will operate smoothly from the outset. Others, however, may require some experimentation and adjustment to make them fit your study team's schedule and work style.

Professional Learning Community Activities	Level of Emphasis
Using shared planning to develop units, lessons, and activities	High
Providing moral support, comradeship, and encouragement	High
Collectively studying student work to identify weaknesses and plan new ways to teach to those weaknesses	High
Sharing the responsibility for making and/or collecting materials	Moderate
Learning from one another by watching each other teach	High
Using collective decision making to reach decisions that produce collective action	Moderate

Analyzing Your Current (and Your Ideal) Professional Culture

People who are becoming a professional learning community or who have been functioning as such a community for some time will express their own definition of "community" in terms of several dimensions. These dimensions also represent ways of describing communities of teachers. It can be valuable to think critically about important elements of a professional culture. The insights gained by talking through these ideas with others can help to clarify the type of professional culture the group wants and the direction the group needs to take to get there.

An activity is included here to guide you in creating a picture of your current professional culture and the group's ideal professional culture. As you work through the activity, it is important to remember that the dimensions are merely descriptive. They are evaluative only to the degree that an individual brings his or her values to them. For example, one person may believe that emphasizing collective or shared responsibilities is more highly valued than limiting professional relationships to peer support. But that is only his or her value position, and another person's position may be different but equally as valid.

The idea of dimensions of community and the activity on the following page were adapted from an insightful book by Joel Westheimer (1998) entitled *Among Schoolteachers: Community, Autonomy, and Ideology in Teachers' Work*. Westheimer's book takes a fascinating look at two diverse professional learning communities and how they function. It is an excellent resource and provides more extensive background on this topic.

Suggestions for moving from research to action

- Read through the Dimensions of Professional Learning Communities on the following page.
- Place an X along each dimension to describe your school's or team's current professional culture. For example, if you feel that teachers at your school or on your team are described accurately by the statement in the center column, you would place an X under the middle of that statement. If you feel that your school or team has some elements of the description in the center column and some aspects of the description in the left column, you would place an X between the two descriptors.
- When you have "located" your school or team on each dimension, work with one other person at your table to describe an ideal professional culture using those same dimensions. Use circles or check marks to indicate how you would place your ideal school or team on each dimension.
- To process this activity, a facilitator will use a transparency of the Dimensions of Professional Learning Communities to create a consensus picture of your current professional culture and your desired professional culture.

Dimensions of Professional Learning Communities

Defining Professional Relationships

Limited to certain individuals, more like friendships than professional relationships. Level of support offered through these relationships varies.	Committed to supporting one another, but emphasizing the individual's rights to autonomy as well as professional responsibilities to one another.	Committed to ideals of participation and community, emphasizing collective or shared professional responsibilities.

Using Joint Work

Joint work is limited to large-scale projects or events, most of which are not related to instruction (fund-raising or student activities such as the prom or student government).	Joint work is oriented toward helping others with a project or problem, but ownership of the project or problem remains with the individual. Joint work is a good way to get things done.	Joint work is defined by shared responsibilities—"it's *our* problem"—and is seen as having value in and of itself because it generates participation, interaction, and interdependence.

Talking about Teaching

Discussions focus on incidents or policies that are not related to instruction. Students are discussed primarily in terms of their behavior or attitude, not in terms of learning or achievement.	Discussions focus on teaching practices, sharing ideas, and students. It is problem-oriented and includes help-seeking and advice-giving.	Discussions frequently deal with purposes (why are we doing this—what is our larger purpose for this project?), beliefs (what do we believe about teaching and learning?), and principles (what is the right thing to do?).

Seeing Problems as Public or Private

Classroom problems are ignored by colleagues or viewed as a sign of weakness. Seeking help or advice is very limited, and places the one requesting help in a decidedly subordinate position. No solutions are offered, it is "sink or swim" on your own.	Classroom problems are viewed as private, but help-seeking and advice-giving are encouraged—the individual owns the problem, but colleagues have a responsibility to offer help and support. Solutions are offered.	Classroom problems are public in that what impacts one impacts all—a group owns the problem (a grade-level team, department, or entire faculty) even when it may be occurring in only one classroom. Solutions are developed collectively.

Speaking Up

Decisions are made by a select few with little discussion, and dissent is voiced outside of public forums such as faculty meetings. Dissenting opinions do not impact decisions.	Dissent is registered in private to those who will make the decision. No open opposition is shared, but the decision makers are willing to hear minority views. An appearance of unity and consensus is maintained, even though follow-through on decisions may be uneven.	Dissent is open and public, and it is drawn out if not offered freely. Dissenting opinions are either incorporated into the decision, changed to align with the group's decision, or tolerated. If none of the above is possible, the dissenter may choose to leave the community.

Valuing the Community

Privacy and individualism are valued more than community. We are self-reliant and feel that others should be too.	Community is valued because it is an effective way to do things— we get more done and do it better if we are working together.	Community is valued for its own sake—we prefer to do things together. Working as a collective is the right way to do things.

Facilitator's Notes

1. Make a handout of the page that contains the Dimensions of Professional Learning Communities.
2. Make a transparency of that same page.
3. Give each member of the group a copy of the handout and explain the directions for marking what they think describes the school's professional culture as it is and then as they would like it to be.
4. When the group members have marked both their view of the current professional culture and their ideal professional culture, ask them to watch as you move your transparency marker from left to right across each dimension. Ask them to raise their hand when your marker is on the point along each dimension that matches where they put their mark.
5. Put a mark on the transparency to reflect the majority's response. Proceed to the next dimension until you have marked the current professional culture as perceived by the group.
6. Then, repeat steps 3 and 4 for the ideal professional culture.
7. Use the discussion questions on the preceding page to summarize and clarify the group's responses and to develop action responsibilities where appropriate.

Getting Things Organized

Forming teams and establishing ground rules

A professional learning community can be a single team or an entire faculty comprised of smaller teams. When a schoolwide professional learning community is being created, a clearly defined process for getting faculty members into teams is helpful. This section provides a method for reviewing several approaches to forming new teams and encourages analysis of these approaches that can lead to recommendations for how to form study teams at your school. Once teams have been formed, they should formalize how they will work together by establishing "ground rules" or norms for the team.

Suggestions for moving from research to action

Forming teams can be a sensitive task. It is important to allow faculty to chose teams and teammates, but it is equally important that everyone be invited to join a team. Therefore, defining a process for forming teams is a useful idea. A list of possible methods for selecting study team members is presented below. Review the list of approaches to forming teams and identify the advantages and potential disadvantages of each of the approaches. Then select the approach that best suits your situation.

Methods of Study Team Selection

Composition	Description/Examples
Teachers who work with the same students	More typically found at middle and high schools, these teams cross over subject area lines to bring together teachers who share the same students.
Teachers who teach the same content	Can be found at all levels—grade level teams at the elementary level, and department teams at the secondary level.

Continued

Methods of Study Team Selection

Composition	Description/Examples
Teachers at varied stages of their professional careers	A team may include two veteran teachers and two less experienced teachers or one first year teacher, or two teachers with 5 to 10 years of experience and one teacher with 10+ years of teaching experience.
Teachers who are interested in a particular topic	This arrangement works well when groups are ad hoc and change during the course of a single school year.
Currently existing group structures	Most schools already have some form of grouping of teachers (grade-level teams or departments), and those groupings may be retained.
"Three teachers and an administrator"	This structure enables teachers to see administrators who are committed to continuous learning for themselves as well as for others.

Ground rules, like manners, are intended to make things work more smoothly. They define how people will relate to one another as they work together. They spell out the group members' expectations for themselves and each other. Adherence to ground rules shows respect for fellow team members and enables the group to focus on *what* needs to be done without spending an undue amount of time on *how* things should be done.

The following ground rules are suggested as a model for study teams to utilize in developing their own norms:

- Attend all meetings—if someone can't attend, determine if the meeting can be rescheduled.
- Participate actively in discussions and complete all assignments on time.
- Listen to understand, not to debate or refute.
- Let others know before you get overwhelmed and are not able to complete your tasks.
- Keep it between team members—no critical comments about teammates to others.

Review these ground rules and revise them as necessary to reflect the expectations of the professional learning community as a whole. Individual study teams can further revise these ground rules in order to tailor them to their own situation. Having the study teams begin with a set of ground rules that reflects the consensus of the faculty will make collaboration among study teams easier and more effective. The following are some suggestions for establishing your own set of ground rules:

- Print the examples of ground rules on a handout or poster, and share them with the faculty or study team.
- Using the examples as a starting point, revise, add to, or delete the statements until the list reflects the faculty's or the study team's consensus as to how it would like to operate in the collective study of reading.
- Post the final wording of the ground rules, and make sure that each individual has a personal copy.
- Periodically conduct a check to ensure that the ground rules are serving their purpose. You may find that as your collegiality grows, some of the ground rules could be revised to reflect more effective or preferred ways of working together.

Preparing for new roles

A change in school culture that truly enhances teacher learning will provide opportunities for teachers to be involved in leadership activities that focus on direct interaction with their fellow teachers, peer-coaching study teams, and action research. These roles expand teachers' responsibility for their own learning and the sharing of responsibility for student learning. They contribute to the construction of a professional learning community where all teachers model the types of learning in which they want students to engage. Performing well in these roles enables teachers to make significant contributions to school improvement. Lieberman (1995) identifies three examples of new roles for teachers in professional development: teacher leader, peer coach, and teacher researcher.

Teacher leaders

Fullan and Stiegelbauer (1991) identify teacher leaders as "those interested in playing a larger leadership role" in efforts to produce change. Teacher leaders or study-group leaders should consider the following tasks as they apply to professional development:

- Helping others look critically at proposed study-group activities to determine if the content addresses a priority need and if it has proven effective in similar settings
- Helping the group stay focused on a limited number of change initiatives or projects. If everything is attempted, nothing will succeed
- Interacting with the administration to determine and/or influence the level of support for the project
- Assessing faculty interest in the project
- Involving faculty members in collaborative exchange and experimentation that builds a collaborative culture

Peer coach

A second role that is a critical part of life within a professional learning community is the peer coach. The purpose of peer coaching, as mentioned earlier, has traditionally focused on supporting the implementation of new practices to the extent that their impact on student achievement can be assessed. However, Joyce and Showers (1995) have refined the roles and purposes of peer coaching to include "building permanent structures for collegial relationships." Peer coaching involves

- Sustained use of the new practices being implemented as a part of the study team's activities.
- Help and support of fellow study-team members through shared planning, setting objectives, and developing materials and lesson plans.
- Collection of data on the implementation of new practices and the effects on student learning.

Shared planning, cited by Joyce and Showers as a primary activity of peer coaching, requires time for teachers to talk about objectives and the types of lessons, activities, and materials needed to reach those objectives. During planning meetings, teachers reflect on what they want students to learn and identify ways to divide up the labor involved in creating lesson plans and materials. Shared planning is a primary activity of study teams.

Teacher researcher

The role of teacher researcher is based on the following assumptions (Loucks-Horsley et al., 1987):

- Teachers are inclined to search for data to answer questions that have direct application to a pressing problem in their classrooms and to reflect on the data to formulate solutions.
- By contributing to or formulating their own questions and by collecting their own data to answer them, teachers will develop new understandings that will contribute to their professional growth.

Suggestions for moving from research to action

After reading through the background material, join with others in discussing the new roles for teachers that emerge as the faculty becomes a professional learning community. For each new role, generate a list of things that can be done for and by teachers to prepare them to assume these new roles, and add a second list of ways to provide ongoing support for teachers after they have begun experimenting with these new roles.

Managing Change: Striking a Balance Among Conflicting Advice

Studying reading instruction and revising instructional practices to align them with what is known about teaching reading may represent significant change for many teachers. Learning how to learn from each other, with each other, and for each other as a professional learning community may also mean real change. Managing these kinds of changes so that the results are productive (and less stressful) requires planning and action. The two parts of this section provide insights and tools for managing change at the schoolwide level and supporting individuals on a personal level as they deal with the concerns that change produces.

Dufour and Eaker (1998) include in their excellent book, *Professional Learning Communities at Work*, a list of explanations for why various efforts to change school cultures have failed. This list makes it clear that a good deal of conflicting advice exists about how to make change successful.

The key to navigating the best course between these two sets of opposing ideas is to remember that each of these insights is valid. Change can be made too rapidly, and it can move too slowly. Those who lead their organizations to successful change make an informed judgment on each of these factors, and they monitor the results of their decisions so that adjustments can be made. No one guesses right all the time. Be prepared to revise your course of action if things are not going the way you intend them to go.

Conflicting Advice on Successful Change	
The change moved too fast, and people were overwhelmed.	**The change moved too slowly, and people lost their enthusiasm.**
The change lacked strong leadership from the principal.	**The change relied too heavily on the leadership of a strong principal.**
The change was too big and attacked too much at once; people change incrementally, not holistically.	**The change was too small; organizations need a more aggressive, comprehensive shake-up.**
The change was top-down without buy-in from the faculty.	**The change was bottom-up without the support of the central office or administration.**
Gains were celebrated too soon, and the sense of urgency was lost.	**Gains were not recognized and celebrated, and the initiative lost momentum.**
Schools were unwilling to change; they were steadfastly committed to the status quo.	**Schools embraced every change that came along and careened from fad to fad.**
Leaders failed to develop a critical level of support before initiating change.	**Leaders mistakenly insisted on overwhelming support as a prerequisite for initiating change; this stipulation ensured implementation would never occur.**

Change is difficult

Change is hard for at least four very good reasons. First, people do not like to try new practices when there is a chance (in many cases, a strong chance) that they will be less skilled with the new practices than they are with those currently in use. Even when the new practice offers the potential for greater effectiveness, we resist doing things in a way other than what we already know because we feel we will not be as good at the new way. Second, we do not want to leave what we know and are comfortable with for something unknown and unfamiliar. There is a sense of loss in trading in our "tried and true" practices for something different. Many change efforts do not prepare people for what is essentially a grieving process, and they do not provide the kind of support we know people need when they are grieving a loss.

The third reason people resist change is the emotional concerns that everyone feels as he or she engages in change (see following section for a more detailed discussion of these concerns). Although knowing these concerns are normal makes them easier to deal with, it does not make them go away completely. Finally, we resist change because it takes time, a lot of time. No one, especially those who work at a school, has much free time in his or her schedule. The added time needed to bring about change makes many people feel overwhelmed.

Change of a significant nature is always difficult and almost always more difficult than is imagined when the change is initiated. Steering a course toward successful change involves applying what is known about change and regularly evaluating our efforts to make sure that we are not veering too far off in one direction or another.

Caution: **Prior to answering these questions, it is important that everyone who is participating in the activity has a clear understanding of what change is being discussed. For example, if your school is working to build a professional culture that resembles a professional learning community *and* to improve the effectiveness of the reading program, then *two* major change initiatives are going on at the same time. The group needs to be clear which of the two changes is being addressed as they respond to these questions.**

Suggestions for moving from research to action

After reading through the background information, ask yourselves the following series of questions concerning common obstacles to change and develop an action plan for making a "mid-course correction" if one is needed. These questions, adapted from the work of John Kotter (1996), can help avoid the most common obstacles to change.

- Have we created an adequate sense of urgency? Complacency can stall just about any change effort. Everyone involved must feel a sense of urgency and believe that changing the professional culture is not just something being done to please a few people who are dissatisfied with existing professional development opportunities. Faculty need to feel that becoming a professional learning community is a critical part of reaching their goals for their students and for themselves.
- Do we have a "guiding coalition" who understands the change well and is deeply committed to bringing it about? No one person will know all the answers or be able to provide all of the leadership and support that is needed to help the faculty become a professional learning community. A *group* must be willing and empowered to lead the change. The group's goal should be to develop a "critical mass" of support for the change and to nurture and guide the effort through the difficult early stages.
- Is our vision clear and does everyone understand it enough to use it to guide his or her decisions and actions? A shared vision pulls everyone in the same direction and toward the same goal. It inspires and compels people to action. As such, it must be powerful, clear, and communicated to everyone. Faculty must ask: "Is this decision or action consistent with our vision?"
- Is our vision communicated in what we say and what we do and is our leadership solidly behind it? There is more to communicating the vision than printing it on t-shirts or the school's marquee. It must guide decision making, especially regarding decisions that involve tough choices. Faculty must demonstrate their vision and their commitment to that vision by what they value and emphasize. Finally, the vision must have the support of all of the school's leaders. With these three things in place, a vision can be a powerful tool for change.

- Are we letting structural obstacles block the change process? You need to be flexible and responsive and make it easy for people to act consistent with the vision of the new professional culture. The school's schedule and other structural elements may need to be changed to allow more time for joint work.
- Have we set some short-term goals so that we will have something to celebrate? A sense of urgency will fade if there is no evidence that progress is being made. Build into your goals some short-term changes that can be completed in a reasonable period of time, and provide appropriate recognition for those successes.
- Are we declaring victory too soon? Kotter makes a distinction between celebrating a win and declaring victory. Celebrations need to fuel the desire for further progress, not make people feel that they have crossed the finish line and no longer need to continue to learn and change.
- Is this change becoming a part of our professional culture? Changes in how the faculty operate should be noticeable and should become standard, expected procedure. Until the commitment to joint work and to other forms of community becomes a natural part of how you operate, there is a danger that the vision for a professional learning community might fade.

If when answering one or more of these questions you identify a need for corrective action, then a straightforward action plan is appropriate. Use the format for "action responsibilities" found in the appendix to create an action plan for resolving any issues.

Supporting people as a way of supporting change

When people engage in change they will experience specific concerns (i.e., thoughts, feelings, and reactions) as they try to put new practices into use. These concerns have a significant impact on their use of the new practices and can provide guidance in determining the best way to assist and support these individuals as they work with the new strategies or practices. Hall (1979) identified seven stages of concern through which individuals progress in a predictable sequence. Teachers may feel concerns from more than one stage at any time during the change process. The most intense concerns they are experiencing at the time will indicate what type of assistance would be most appropriate. The table on page 105 names each stage, provides an example of the concerns felt at that stage, and describes one form of appropriate assistance.

Suggestions for moving from research to action

As the members of your study team experiment with new instructional strategies and/or new ways of learning about reading, they will most likely experience the different stages of concern described here. The information in the table that follows may be used to determine what types of assistance to offer others, or it can be used by an individual to assess how he or she is reacting to change. Understanding that these concerns are normal (and unavoidable) may help move the focus from the concerns that study-team members feel to how they can seek out the most helpful types of assistance.

- Begin by reading through the two columns on the left that include the names of each stage and examples of statements made by teachers experiencing the concerns felt during each stage.
- Faculty may experience feelings of concern from more than one stage, but it is most likely that concerns from one stage will be predominant. When faculty members have identified the stage that most accurately reflects the concerns they are feeling, they should read the suggestions for appropriate forms of assistance and determine if those suggestions would be helpful. If one of the suggestions would be helpful, then they should look for opportunities to obtain that form of help (be sure to let others know what you are looking for because they are probably feeling some of the same concerns and may want to join you).

Stages of Concern and Appropriate Assistance

Stage of Concern	Example Statements	Appropriate Assistance
0—Awareness	I am not concerned with this change. I have a lot of other things to do before I start thinking about it. Are we really going to do this?	Involve this person in discussions about the change; share enough information to arouse interest but don't overwhelm. Let everyone know that a lack of awareness is expected and that no question is a "dumb question."
1—Informational	I would like to know more about this change. How will it be different from what we are doing now?	Use a variety of ways to share information; help this person see how the change relates to current practices. Share your enthusiasm for the project and encourage the enthusiasm of others.
2—Personal	How will this change affect me? I worry that I will be the only teacher who doesn't get the hang of it.	Let the person know everyone feels these kinds of concerns; connect him or her with those whose personal concerns have diminished. Use personal notes and day-to-day conversations to provide encouragement. Keep expectations attainable by showing how the innovation can be implemented in stages rather than all at once.
3—Management	I am spending all my time getting ready for the next lesson. I feel hurried to get through each lesson because I don't feel like I should leave anything out.	Provide answers that address specific "how to" issues; demonstrate exact and practical solutions. Attend to the immediate needs of the individual, not to what they will need to know how to do "down the road."
4—Consequence	How is my use of these new practices affecting my students?	Provide opportunities for the teacher to visit other settings where the practices are in use; encourage a study team to look at the effectiveness of the practices.
5—Collaboration	I am concerned about connecting what I am doing with what other teachers are doing. I'd like to see how they are using this strategy.	Bring together others who are interested in collaboration; use this person to provide technical assistance to someone who needs help.
6—Refocusing	I have an idea that might work even better. I think I can integrate this strategy with what I've learned about learning styles to make it more effective with all my students.	Encourage this person to experiment with his or her ideas. Help measure the results of the experiments. Help find the resources he or she needs to put the ideas into practice.

Turning Your Vision into Practice

Creating a Vision for Your Reading Program

A vision has been defined as a "compelling picture of the future that will inspire commitment and action" on the part of each member of your faculty and staff (Mendez-Morse, 1993). A vision for your reading program provides a clear statement of what you believe is important about reading instruction and what you want your reading program to become. It serves as a guide for assessing current practice and determining where resources and professional development should be focused. For new teachers joining your faculty, a clear vision statement will help them understand the expectations and values of their new school.

Suggestions for moving from research to action

To begin creating the vision for your reading program, list the outcomes you want your program to achieve and describe the structure and practices necessary to achieve those outcomes. Read each item on the list and draft several short phrases that capture the ideas you feel are most important. These phrases may be woven into a single paragraph that describes your vision for your reading program or you may keep them in list form. By completing the following "starter" statements, you can begin defining your program's vision:

1. Our reading program provides. . .
2. Our commitment to building strong, enthusiastic readers is reflected in. . .
3. Our students will gain when our reading program. . .
4. Improved student learning is the focus and essence of a reading program that. . .
5. . . .is the essence of our reading program.
6. As members of a professional learning community, we will. . .

The following is a sample vision statement for an elementary reading program that you may use as a guide to creating your own:

> An effective elementary reading program will develop the following five aspects of each learner's capacity as a reader:
>
> - Accurate, rapid, and effortless word recognition through a comprehensive set of strategies for recognition, confirmation, and self-monitoring for accuracy
> - Strong, purposeful comprehension through practical strategies for constructing, analyzing, and monitoring meaning
> - An ever-broadening, ever-deepening oral vocabulary through an enthusiasm for learning new words in meaningful contexts
> - The application of the skills, knowledge, and processes of reading to spelling and writing
> - An enduring love of reading and an appreciation for its varied functions and purposes

Once a vision is established, goals to achieve that vision must be defined. The following are sample goals for the above elementary reading program:

- Developing accurate, rapid, and effortless word recognition
- Strengthening comprehension through useful strategies for constructing, analyzing, and monitoring meaning
- Building an oral vocabulary that is continuously growing deeper and richer
- Connecting reading and the skills and processes of reading to spelling and writing
- Nurturing a love of reading and an appreciation for its varied functions and purposes

The first three goals focus on enabling the reader to gain access to the information and ideas recorded in print. The fourth goal addresses the need for integrating these three aspects of literacy. The fifth goal points to an enthusiasm for reading that leads to more (and more proficient) use of the skills readers need to reach the first three goals.

Developing a Set of Guiding Principles

Once you have developed a strong statement of your vision and goals for your reading program, you will want to create a set of guiding principles that can translate your vision into action. These guiding principles are really a set of behavioral statements that guide faculty decisions and actions so that your day-to-day work is consistent with and moves you closer to the ideal stated in your vision. These principles should articulate how you will work and relate to one another in order to make your shared vision a reality.

Suggestions for moving from research to action

The following is a sample of guiding principles for a reading program:

- Provide positive examples of the qualities and characteristics we want students to develop as readers.
- Demonstrate a commitment to continuous learning about reading for students, colleagues, and ourselves as individuals.
- Use appropriate assessment tools and strategies to monitor student achievement in reading, to inform instruction, and to communicate progress to students and parents.
- Create a challenging classroom atmosphere that includes clearly stated expectations, consistently enforced standards of conduct and effort, and measurable goals.
- Share responsibility for determining students' learning needs and work together to meet them.

Reread the sample vision statement on the previous page and analyze how well this list of suggested guiding principles reflects the values and beliefs that are represented in that statement. Use your own vision statement to create a list of guiding principles that adequately express how you will work and relate to one another in developing the type of reading program described in your vision statement, and reach consensus among the faculty on the wording and meaning of each statement. Once the guiding principles have been established, provide each teacher with a list of them and encourage him or her to post them in the classrooms and work areas. To encourage teachers to follow these principles, find ways to reinforce behaviors that are consistent with your guiding principles, including public recognition and private encouragement for those who exemplify the use of the principles in day-to-day interaction and work.

Glossary

alphabetic principle—the understanding that written words represent spoken words and that the sounds of spoken language are represented in print by letters. This principle is essential to learning to read an alphabetic language such as English.

analogizing—a "bridge" or way to recognize unfamiliar words. The reader recognizes a similarity in a sequence of letters within the unfamiliar word and a sequence of letters in a known word. This information is used to produce a pronunciation for the unfamiliar word that reflects that similarity. For example, if a reader encounters the unfamiliar word *socket*, he may recognize that a big chunk of the word is the same as the word *rocket*, a word he knows. With this insight, he is able to substitute the phoneme /s/ for the phoneme /r/ in *rocket* and come up with a pronunciation he is able to recognize as the word *socket*, a word already in his oral vocabulary but without a strong connection to the word in print.

automatic word recognition—the ability to recognize words in print without conscious awareness or intention through a process that does not interfere with comprehension, even though the two processes occur simultaneously.

big books—greatly enlarged versions of children's books that allow whole class activities in which the teacher can direct children's attention to elements of the illustrations and text with the same ease as an adult could point them out to a single child using a conventional book.

blending—saying the individual phonemes as a unified word; combining the individual sounds represented by the letters of a word into a trial pronunciation.

cognitive strategies—guides or supporting structures that make it easier for the learner to perform a less-structured task. These activities are not a sequence of steps for directly performing the task; instead, they provide something more concrete for the student to do that accomplishes the less-structured task as a by-product.

comprehension—constructing meaning by integrating information from the text with prior knowledge; understanding the literal and hidden meanings and messages of the text; seeing and making connections between the text and the reader's experiences, what has been read in other texts, and what is known about the world; seeing and understanding how the text is consistent or inconsistent within itself.

comprehension monitoring—the ability to be aware of instances when comprehension begins to fall off or some part of the text presents a challenge to comprehension; this is what tells a reader "I need to go back and reread this sentence because it doesn't make sense." Readers who monitor comprehension think about why they are reading, and if they are being successful in terms of that purpose, they judge internal consistencies (Does this agree with what the writer said earlier?) and external consistencies (Does this agree with what I already know about this topic?). It can also serve as a way to identify the source of the drop-off in comprehension (i.e., Is there an external or internal inconsistency? Is the content too taxing on my working memory?).

concepts about print—the key ideas that help young readers understand how print is organized (the fact that it is read from left to right and from top to bottom) and the function of print (to convey meaning). It also includes the recognition that printed words are made up of letters and that it is the words (not the pictures) in a book or in the environment that are read. Awareness of print (its forms and functions) provides a strong motivation to learn to read and a framework within which learning to read and write takes place.

consolidated-alphabetic phase—larger "chunks" of letters have become consolidated into spelling patterns that are used to learn new words by identifying their similarity to known words or word families.

contextual guessing—using what has been read up to the point of encountering an unfamiliar word to narrow the field of possible pronunciations. It is looking for a word that makes sense in the sentence. Contextual guessing can be used in combination with one of the other bridges as a way to confirm word recognition.

conventional spellings—correct spellings; dictionary spellings.

decodable text—print that features spelling patterns and letter-sound relationships that students have been taught and are able to recognize. It provides young readers with opportunities to be successful in applying what they have learned about decoding and the alphabetic principle.

decoding—one of the four "bridges" used to recognize unfamiliar words. Decoding requires the reader to (a) identify the phonemes represented by the letters in a given word, (b) blend those phonemes into an "estimate" of the word's pronunciation, and (c) use that pronunciation to search his oral vocabulary for a word that is similar in how it sounds and has a meaning that fits the context.

decoding sequence—the steps readers follow in "sounding out" unfamiliar words.

developmentally appropriate instruction—instruction and practice activities designed with the cognitive and psycho-motor developmental needs of young children in mind (play-based instruction is an example).

direct code instruction— instruction built upon phonemic awareness activities; phonics instruction that emphasizes blending of phonemes and interaction with good quality literature that contains decodable text. Students learn letter-sound correspondences and spelling generalizations through explicit instruction. The focus is on the use of the alphabetic principle in sounding out unfamiliar words and establishing strong access routes between the sequence of letters that make up words and their associated pronunciations and meanings. The primary goal of this approach is to equip young readers with decoding skills that will enable them to recognize unfamiliar words quickly so that greater attention can be put toward comprehension.

embedded phonics instruction—instruction in decoding skills is presented initially within meaningful text, but the emphasis is on the spelling pattern, not on the text. After specific instruction in the spelling pattern, students are given trade books that contain words utilizing the spelling pattern. Practice activities also involve meaningful reading and writing but place more emphasis on direct practice with specific letter-sound associations and spelling patterns. The primary goal of embedded phonics instruction is to build rapid word recognition through the use of consistent spelling patterns.

environmental print—print that appears in signs, labels, and logos that uses children's knowledge of things in their environment to draw attention to the printed word(s) that name those things (labeling things in the classroom such as chairs, tables, the clock, and the television is one example).

fingerpoint reading—when children follow along with their finger, word by word, as they recite a passage of memorized text.

fluency—the ability to read with speed, accuracy, and expression.

full-alphabetic phase—all of the letters of the word are used to make the necessary connection between the word in print and information about the word stored in the reader's oral vocabulary.

generalizations—rules or conventions of spelling that are useful in increasing the likelihood of producing the correct spelling. Some generalizations are more useful than others (i.e., whenever an English word ends with the phoneme /v/ the word is spelled with *ve* on the end, and whenever a word ends with the phoneme /j/ the word is spelled with *ge* or *dge* on the end).

gradual release of responsibility—refers to an incremental transition of responsibility for a specific task. The teacher begins by demonstrating a task or process and then relinquishes the responsibility for performance of the task or process to students over time as they gain competence.

guided repeated oral reading—an instructional practice that involves providing feedback to students as they reread a passage until it can be read with fluency.

inference—a term used to describe several comprehension processes, such as drawing conclusions, making predictions, detecting implied statements or ideas, and extrapolating from stated facts or ideas to possible explanations for events or actions. These inferences "fill in the blanks" to supply meaning that is not explicitly stated.

internal clues—information found within the text itself that can be used by the reader to determine the meaning of unfamiliar words.

invented spellings—attempts to spell words phonetically without regard to the conventions of spelling; spellings generated by students based on what they know about letter-sound relationships and spelling patterns. Invented spellings allow students to put down their best estimate of how an unfamiliar word is spelled so that the creative process of writing is not slowed down by having to find the correct spelling in a dictionary (often a difficult task when you do not know how to spell the word) or having to ask the teacher for help.

language experience—an approach to language learning in which students' oral compositions are transcribed and used as instructional materials for reading, writing, speaking, and listening; for example, recording verbatim the spoken words of students as they recount real experiences or other forms of language so that they can practice reading meaningful text and can see that print represent spoken language.

less-structured and well-structured tasks—a well-structured task is one that has concrete steps that can be demonstrated and that, if followed, will consistently produce the desired results; a less-structured task is one that lacks concrete steps and is more nebulous in terms of how it actually is performed.

mental representations—readers build mental models or maps as they read as a way of understanding and remembering what they have read. These mental representations may include remembering a sequence of events from the story, the relationships among characters, and themes that appear throughout a passage or text.

metacognition—sometimes used as a synonym for comprehension monitoring, it involves an awareness of both purpose and performance; that is, the reader thinks about why he is reading and how well he is making sense of what is being read.

modeling—using demonstrations that include verbal explanations of each aspect of performing a specific task; demonstrating what fluent reading sounds like and illustrating the various purposes for reading; employing "think aloud" strategies to make the processes the teacher uses as a skilled reader, including comprehension strategies, visible to students. Students get to see and hear a skilled reader's enjoyment of reading as well as the proficient use of various strategies for identifying unfamiliar words and constructing meaning from text.

morphological—having to do with the meaning of a word. This concept includes the idea of using root words that are familiar to assist in spelling an unfamiliar word (i.e., using the root word *heal* to get the correct spelling of *health*).

onsets—the initial consonant (including blends and clusters) of a syllable; in the word *top* the onset is the letter *t*, in the word *trip*, the onset includes the letters *tr*.

oral vocabulary—the stored collection of pronunciations and meanings of words the individual recognizes and understands when he hears them used in spoken language.

over-learned connections—connections between the sequence of letters in print that make up a word (its spelling) and its pronunciation and meaning in the reader's oral vocabulary are said to be "over learned" when practice in reading the word has made the accessing of that word automatic and instantaneous. Reading words by sight is possible when over-learned connections have been made.

partial-alphabetic phase—in this phase, a reader uses some, but not all, of the letters in a word to make a connection between the word in print or in the environment and its meaning and pronunciation stored in his brain.

phonemes—phonemes are the smallest units of sound with words. They are represented by letters; although usually represented by one letter, some phonemes are signified by two or more letters. When teachers talk about "letter-sound" relationships, they are referring to the matching of graphemes (letters) to phonemes (sounds). Frequently, phonemes are difficult to hear in spoken words because they flow almost seamlessly in speech.

phonemic awareness—the understanding that spoken words are made up of small, separate sounds (called phonemes). This understanding is demonstrated by the ability to manipulate phonemes in spoken language; phonemes are the smallest units of sound within words.

phonological awareness—the conscious understanding that spoken language is made up of sequences of sounds; words (with the exception of words like *a* and *I*) are not made up of single sounds, but a string of sounds blended together. These strings of sounds can be divided into smaller and smaller units. The whole string is called a word. The next division or smaller unit is called the syllable. There are many one-syllable words, in which case the word level and syllable level are the same. Syllables that have an initial consonant and a following vowel or vowel-consonant can be divided into onsets and rimes. Finally, the smallest unit of sound is the phoneme. Phonemes correspond roughly to single letters, although there are a number of phonemes that are represented by more than one letter (examples include /ch/, /sh/ and /aw/).

play-based instruction—opportunities for young children to explore uses of language in role-playing sessions.

pre-alphabetic phase—readers who learn new words during this phase of development make connections based on the more obvious visual features of the word; this can even include imaginary clues for remembering words (e.g., the child uses the shape of the letter *h* to remind herself that the word she is learning is *chair*).

predictable books—books that use repetition of patterns of words to help children learn to anticipate or predict upcoming words based on these patterns.

print awareness—a learner's growing recognition of conventions and characteristics of written language; the understanding of the structure of print (how it is organized) and the function of print (to convey meaning); the understanding that printed words are made up of letters and that it is the words (not the pictures) in a book or in the environment that are read; the ability to identify and distinguish the printed forms of individual letters.

print-rich environment—a classroom in which students have ready access to a variety of print formats such as books, magazines, newspapers, student-authored writings, labels, printed directions, etc. It also includes activities that engage students with a wide range of print for an equally wide range of purposes.

prior knowledge—relevant information already known by the reader concerning the content of a text that is used (along with information directly from the text) to construct meaning and make inferences.

procedural prompts—cues or guides that students can follow as they perform a task. These prompts allow students to devote a greater proportion of working memory to actually performing the task.

processing spelling patterns—similar to analogizing, processing spelling patterns involves using sequences of letters that have become consolidated or "fused together" in the reader's mind to recognize unfamiliar words. In processing a spelling pattern, the reader realizes he knows a "family" of words that include the same "chunk" of letters that is contained in the unfamiliar word he is trying to recognize. For example, a young reader who knows several words in the *eed* family, such as *need*, *seed*, and *weed*, can use the *eed* spelling pattern to recognize words like *greed*, *steed*, or *succeed*. Using spelling patterns to recognize longer unfamiliar words reduces the number of letters or syllables in an unfamiliar word that must be "sounded out."

rebus books—books that insert small pictures or drawings in sentences to represent words that are beyond the reading level of the reader.

repeated reading—an instructional practice that involves rereading a passage until it can be read with fluency.

rewritten definitions—definitions that have been revised to include greater detail, such as information about how the word is used, and to promote less reliance upon synonyms.

rimes—the vowel(s) and following consonants that make up the final part of a syllable; in the word *top* the rime is made up of the letters *op*.

running records—a procedure for recording reading behavior during actual reading of connected text.

scaffolding—an instructional practice in which support for the student is more complete during the initial stages of learning the task but is decreased as the student has less need for guidance in performing the task.

sight—the fastest and most efficient type of connection between words in print and their pronunciations, meanings, and functions in sentences in the reader's oral vocabulary. Reading words "by sight" means the connection between the word in print and information about the word in the reader's brain is made instantaneously and with little conscious effort.

spelling patterns—"chunks" or clusters of letters that appear in a number of words. The use of spelling patterns helps students spell unknown words that have the same sound within a syllable as a known word (i.e., using *tion* from the known word *action* to spell *question* or *relationship)*. When a pair or larger group of letters has become consolidated in the reader's mind as a spelling pattern, this consolidation or "chunking" provides for faster word recognition and faster learning of new words.

systematic observation—direct observation and recording of actual performance on an authentic reading task or a task that is closely related to reading so that insights can be gained into how readers approach reading, select and apply strategies to solve reading problems, and deal with failure in reading.

thinking aloud—talking through the demonstration of a specific task and revealing to students the thought processes, decisions, and rationale involved in each aspect of the task.

whole language—an approach to reading instruction in which the emphasis is on helping the child create meaning—reading and writing are studied and practiced as ways of sharing meaningful ideas and events. Instruction seeks to draw attention to new skills and knowledge within the context of what students are interested in reading and writing. The teacher's role is one of facilitating the learning that naturally occurs when children are given opportunities to explore and experiment with reading and writing.

word awareness—the understanding that a word in print is a sequence of letters that represents a single spoken word and that words are separated by white spaces in print.

word knowledge—the depth and breadth of a reader's oral vocabulary.

word recognition—the process by which the reader matchs words in print with their meanings and pronunciations stored in the reader's brain. After accessing this information about words in a text, the reader brings this information to the part of the brain where comprehension occurs.

working memory—the amount of cognitive or mental resources a reader can apply to the various tasks involved in the process of reading (i.e., word recognition, comprehension, drawing inferences, monitoring comprehension); the place in the brain where mental tasks such as word recognition and comprehension occur. Also the capacity to hold ideas or thoughts until they can be assembled and/or compared with other ideas or thoughts so their meaning is established, clarified, and validated.

Appendix

This appendix is designed to structure the activities of a study group. The first section describes possible approaches to structuring study sessions and provides examples as well. The Discussion Questions can be used as they are or adapted to fit the group's interests. They are written generically so that they can be used with any of the content sections. The Follow-Up and Collective Action Activities provide choices for experimenting with what has been studied so that understanding is enhanced and students benefit from the thoughtful application of new ideas and strategies.

The next section provides a brief explanation of how to design and conduct an action research project. An example of such a project is included. Finally, a description is provided of an approach to experimenting with new practices called Refining Lessons through Reteaching: The Plan-Teach-Revise-Reteach Cycle. This description explains how to use collaborative planning and the analysis of actual teaching to develop stronger models of reading lessons.

Recommended Study-Team Session Structure

One forty-five to sixty-minute session per week seems to work well for most study teams. One way these sessions might be organized is to divide the time into three 15 to 20 minute segments. The focus of these segments should include discussion of **results**, learning new **content** and planning a course of **action**. These segments can be remembered by their initials, RCA.

Results: 15 to 20 minutes

Study-team members review the results of completed or current action research projects, informal experimentation, and attempts to use new practices or strategies.

Example

Teacher 1: I'm trying to give students practice decoding the new vocabulary words in science and social studies. And, I brought some of my guided reading notes to show you how things have been going.

Teacher 2: How are you working decoding into content area vocabulary?

Teacher 1: I worked out a sequence.

- First, I talk with them about the pronunciation and definition of each new term or concept. I'm trying to build information about the word so that when we look at its spelling they already have a meaning and pronunciation in their oral vocabulary.
- Next, I write a sentence on the board that includes one of the new words, but I leave a blank where the new word goes. I let them read the sentence up to the point where the blank is.
- Then I write the letter or letters that represent the first phoneme. I ask them to say the sound the letter or letters usually represent. Next, I write the letter or letters for the next phoneme. Then, I get them to blend the two sounds.
- Usually someone will "discover" the word and call it out, but sometimes they have to use most, if not all, of the phonemes and blend them all together before they match the pronunciation to one of the words we talked about.

Teacher 3: What if they use the context of the sentence to guess the word before you put even the first phoneme on the board?

Teacher 1: That does happen, and I tell them that we need to confirm our guess by using our decoding skills. I've even tried to substitute a word with similar meaning, but they always say, "Hey, that can't be one of our words!"

Teacher 2: Have you seen any difference?

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Teacher 1: Definitely! They always had a hard time applying decoding strategies in their content area reading; most of them just assumed that decoding was something you did only in reading the basal. But, now they see it as a tool for recognizing unfamiliar words *and* they have improved their decoding skills because they are getting so much more practice.

In the "Results" section, teachers take turns sharing the results of what they have done to apply ideas and strategies the team has studied. Many times, the results of joint projects are shared. Study-team members who are putting the same new practice or strategy in place in their classrooms will find it very helpful to compare how things are working, the specific things they have done, and how they solved unforeseen problems.

Content: 15 to 20 minutes

The second part of the study-team session should focus on the content of *Advancing Reading Achievement*. Whether the team uses the "group discussion" or "group teach" format, a key aspect of making this part of the study-team session work well is selecting the right amount of content. It should be enough to let the study-team members feel they are making progress, but not so much that it is impossible to cover the content in the allocated time.

Example:

Teacher 1: Our assignment was to read the section that described the four phases of learning new words. Since it was my turn to lead the discussion, I sent you some questions ahead of time. Let's start with the first one—"Which new ideas did you find in this section?"

Teacher 2: I have had students who used visual clues to remember new words and others who used just some of the letters, but I didn't view them as developing their understanding. I just thought of these kids as using a wrong strategy.

Teacher 1: So how will you use this idea?

Teacher 2: My first step will be to get more in tune with the phase each child is in—listening for how they make those connections between the word in print and its pronunciation and meaning. Then, I'll try to focus my explanation during guided reading on how to get to the next phase.

Teacher 3: Some children are not benefiting as much from our practice in segmenting and blending. I think these are the kids that are still in the partial-alphabetic phase.

Teacher 1: What have you used to help them?

Teacher 3: I've given these students more time at the "Making Words" center, and I give them more coaching when we're doing "Making Words" as a class. I'm hoping this extended experience will help them focus on all of the letters as they learn new words.

Teacher 1: Are you working with moving students to the consolidated-alphabetic phase?

Teacher 3: Right after lunch we see who can write the most words using one of our spelling patterns. They know there will be a spelling pattern on the board behind the screen. When they are all in their seats and ready to go, I pull up the screen and they launch into it.

Teacher 2: How does that help them use spelling patterns in decoding unfamiliar words?

Teacher 3: When we review their lists at the end of our contest, I try to focus their attention on how the cluster of letters in the spelling pattern appears in lots of words and, therefore, can save them a lot of time in learning new words. Sometimes an example really helps. If there is a word in that word family they have not included in their lists, I introduce it and show them how to use the spelling pattern to sound it out.

Action: 15 to 20 minutes

The final segment should focus on planning out the actions study-team members will take to apply the new content they worked through in the "Content" segment. Plans can be as informal as looking for ways to try out a new strategy to as structured as an action research project. No matter how the action is organized, the group should talk through what they will do, how the results will be recorded and shared at a subsequent session, and when the planned actions should be completed.

Example:

Teacher 1: I really like the idea of using question frames as prompts to help students come up with better questions. I'd like to try that out with my kids.

Teacher 2: Me, too. But remember that one of the research findings we read indicated that students needed "extensive instruction and practice" on generating questions in order to see improvements in comprehension.

Teacher 3: Okay, so we need to spend some time on it. But, how are we going to know it made a difference?

Teacher 1: We're hoping it will improve comprehension, so let's use it with our social studies reading assignments and keep track of any changes in their ability to answer the comprehension questions from the text.

Teacher 3: Yeah. We've got enough scores recorded now to use as a baseline. Let's practice using the question frames to help them write questions about what they've read and see if the grades go up.

Teacher 2: How should we set up our instruction so our kids get the same amount of explanation and practice?

Teacher 1: I don't know that we have to give them all the same, but it would probably be a good idea to keep track of how much time we do spend on explaining and practicing with the question frames. That way if we did spend differing amounts, we might find out what would be the optimum amount of time to learn how to use the frames.

Teacher 2: Great idea! I was thinking about five half-hour lessons and introducing three or four frames per lesson. That way they could build up to using all of them.

Teacher 1: I've got a 40-minute slot for social studies; I think I'll incorporate using question frames into that time period.

Teacher 3: That sounds good to me also. When do we want to have our results ready to share?

Teacher 1: It should take us several weeks to get them up to speed and then get some grades in the grade book. How about five weeks from now?

Teacher 2: That's fine. We can talk about how it is going during the "results" time of our study session.

Discussion Questions

Review this list of questions and select those that seem the most appropriate to structure your group's discussion of the ideas in any section of *Advancing Reading Achievement.*

- Which of these ideas were you already using in your classroom?
- What new ideas did you find in this section?
- Which new ideas would you like to try out in your classroom? What made these ideas of interest to you?
- How did the ideas in this section clarify your thinking about reading and/or reading instruction?

- How do these ideas connect with other ideas you have read in this book?
- Are these ideas supported in the instructional materials you are using? If so, can you share an example?
- Did you think of individual students while reading this section? If so, what made you think of them?
- Is there something you read that you would like to hear others speak to? If so, what is it?
- What did you question in what you read?
- What else have you read on this topic? What ideas can you share with the group from your other reading?

Follow-Up and Collective Action Activities

Read through this list of activities and select those that fit the needs and interests of your study-team's members.

- Schedule a time to observe someone in your group teaching one or more of the ideas addressed in this section.
- Use shared planning to develop a lesson or activity based on one or more of the ideas addressed in this section. Teach the lesson and schedule a time to talk with the group about how it went and the impact it had on your students' reading skills.
- Identify a student who is having difficulty in reading, describe the difficulty the student is having, and determine if any of the ideas from this section could be useful in working with this student. If so, work together to develop a lesson or activity for this student. Schedule a time to talk through how the lesson went and the impact it had on the student's reading skills.
- Identify a new strategy or activity based on the ideas in this section, and conduct an action research experiment with that strategy or activity. (See the section on designing action research projects to help you put this together.)
- Share articles or other reading on these ideas with your group members.
- Identify the materials you have in your classroom for teaching these ideas and show those materials to others in your group.
  - Are there materials that can be shared or duplicated for use by others?
  - Is there a way to improve these materials?
  - Are other types of materials needed?
- Locate and attend (as a group) a training session on these topics. Prepare a list of questions and submit them to the trainer prior to the session, and make sure the questions are addressed. Get together after the training and compare notes.
  - What made sense?
  - What needs clarification?
  - What can be added to our classroom practice?

Designing Action Research Projects

Action research projects can be organized into five steps. They begin with the identification of a need or problem. In the second step, teachers measure important aspects of the need or problem and/or collect data that will help them gain insight into how it might be addressed. This step might include reviewing research findings or actually collecting data on what is happening in their own classrooms. In the third step, teachers analyze the information they have collected and develop an action plan for changing instructional practices or some other aspect(s) contributing to the problem. Implementing the action plan and collecting data on the results make up the fourth step. Finally, the results of the action plan are evaluated so that the new strategies can be revised and/or shared with other teachers.

Inquiry and action research can be diverse, ranging from a school faculty working with a university-based researcher to study cooperative learning to an individual teacher experimenting with a new idea for teaching students to identify the main idea. The key characteristic of such research is that the participants use a structured, scientific method to answer the question: "What would happen if we did it this way?"

Participating in action research projects produces several benefits for teachers in addition to improving the practices being studied. These include feeling more comfortable experimenting with research-based practices, seeing their own teaching more clearly and objectively, and developing stronger professional relationships with fellow teachers who are also involved in the inquiry.

The basic elements of action research are as follows:

1. The identification of a problem or need
2. An in-depth study of the problem or need that may include measurement or other forms of data collection to gain insight into how the problem might be addressed
3. Analysis of the information collected and development of an action plan
4. The implementation of that plan and collection of data on its impact on student learning
5. An evaluation of the completed action plan's results

An Example of an Action Research Project

Pre-reading Activities Project:

A group of teachers at Peachtree Elementary School became concerned that their students were not reacting positively to the newly adopted basal reader. To investigate this problem, they agreed to begin to categorize the errors their students made in reading aloud. The data they collected led them to focus on the influence of background knowledge on reading success.

One of the teachers asked, "Would our students be more successful if we spent more time on pre-reading activities that laid a foundation for understanding the story they were about to read?" Opinions varied widely among the teachers in the group, so they decided to conduct an informal experiment. Teachers at three grade levels would participate in the experiment. They divided themselves evenly into two groups at each grade level. One group would begin to spend an extra six to eight minutes on pre-reading activities while the other group would move directly to the reading assignment. Both groups would use the same stories and the same practice activities. The experiment would last six weeks and include stories from the basal reader. They would compare the results using students' grades on the practice activities.

At the end of the sixth week, the teachers in the group who had spent more time on pre-reading activities felt confident their students were more successful than they had been previously. A comparison of students' scores on the practice activities confirmed their prediction. The pre-reading activities had contributed to a significant improvement in student performance.

The success of their experiment created a greater interest in research related to the use of pre-reading activities. Several members of the original group of teachers began searching for research studies to expand their understanding of how to use this strategy more effectively. They shared the findings they read with their fellow teachers and continued with informal discussions on using this strategy to improve student performance in reading.

Refining Lessons through Reteaching: The Plan-Teach-Revise-Reteach Cycle

A promising strategy for improving instruction and building collaborative study teams is the practice of refining lessons through reteaching. In this strategy, study team or grade-level team members plan a lesson collaboratively. They agree upon an area of weakness in their students' reading achievement and focus their efforts on developing an effective lesson that addresses this weakness. Once the lesson has been planned, one of the team members teaches the lesson to her students. Other members of the team may observe the lesson directly, or it can be videotaped. The team members review their observations and/or the taped lesson itself to identify how the lesson might be improved. They focus on how students responded to specific aspects of the lesson and suggest modifications based on those observations and insights.

At this point, a refined version of the lesson is planned (once again using the input of all of the team members), and a second member of the team teaches the lesson to her students. Again, the lesson is observed directly by other team members or is videotaped. After the lesson, the team studies the impact of the "refined" lesson and identifies additional modifications.

The cycle of collaborative planning, observing instruction, and refining the lesson based on an analysis of students' responses continues until the group feels that the lesson has been developed to an appropriate level. The group then selects another skill or concept and the process begins again.

The benefits of this strategy are numerous:

- Teachers learn from the exchange of ideas and the creativity that occurs during joint planning of instruction.
- Students benefit from high-quality lessons that pinpoint areas of weakness or need.
- Teachers gain deeper insight into instruction through the analysis of student responses to the lesson.
- If the lessons are videotaped, placing the tape of the final version of each lesson in the school's professional library creates a collection of very high-quality lessons. This can be extremely helpful to new teachers or those who are new to a particular grade level because it gives them access to exemplary models of lessons dealing with relevant skills and knowledge.

This strategy is not without challenges, however. Teachers who have operated with norms of privacy and/or autonomy may find it disconcerting to open up their teaching to the scrutiny of their colleagues. By talking about how the analysis of the lesson will be conducted so that the emphasis will be on constructive suggestions rather than pointing out weaknesses, the group can reduce teachers' apprehensions.

There are technological challenges to videotaping in typical classrooms. The emphasis should be on obtaining an acceptable quality videotape so that the focus is on the teaching and learning that is recorded rather than the quality of sound or picture. Getting assistance from someone who is experienced with classroom videotaping would be well worth the effort.

Analysis of Reciprocal Teaching Script

The transcript of reciprocal teaching that appears on pages 78–79 is an example of how this strategy can be applied to help students enhance their comprehension of a specific text and learn to apply the same comprehension-fostering strategies in their independent reading. The analysis below identifies the specific element of reciprocal teaching that is being demonstrated in each line or set of consecutive lines.

Lines	Elements of Reciprocal Teaching
5–7	• modeling of comprehension-fostering activities by the teacher
10–14	• modeling of comprehension-fostering activities by the teacher • explaining and providing directions for comprehension-fostering activities (question generating, predicting, clarifying words and ideas, and summarizing)
16–19	• modeling of comprehension-fostering activities by the teacher • explaining and providing directions for comprehension-fostering activities (question generating, predicting, clarifying words and ideas, and summarizing)
21–26	• modeling of comprehension-fostering activities by the teacher • explaining and providing directions for comprehension-fostering activities (question generating, predicting, clarifying words and ideas, and summarizing)
31–33	• explaining and providing directions for comprehension-fostering activities (question generating, predicting, clarifying words and ideas, and summarizing)
34	• gradually releasing responsibility for the dialogue to students
38	• supporting students through feedback, coaching, hints, or explanation
45–50	• explaining and providing directions for comprehension-fostering activities (question generating, predicting, clarifying words and ideas, and summarizing)
52–84	• gradually releasing responsibility for the dialogue to students
66–67	• supporting students through feedback, coaching, hints, or explanation

Assigning Action Responsibilities

One of the best ways to ensure that important tasks or actions are completed is to assign the responsibility for completing the task to an individual or group and to establish clear expectations for what is to be done, who is to do it, and when it is to be completed. Some groups find it helpful to specify the person or group to whom completion will be reported. Here is a simple format and an example that can be used to assign action responsibility.

What:

Who:

When:

Completion reported to:

Example:

What: *Locate articles on using reciprocal teaching and make copies for each study-team member*

Who: *Susan and Ruth*

When: *November 10*

Completion reported to: *Roy (study-team leader)*

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Advancing Reading Achievement

Becoming Effective Teachers of Reading through Collective Study

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They live in Orlando, Florida where David works for Orange County Public Schools as Senior Director of Analytical Process Services (a department that creates solutions to complex, districtwide problems). David has over 25 years of experience as a teacher, principal, and district administrator. He earned a Ph.D. from the University of South Florida in 1984. This broad background allows him to understand all aspects of public education. Ann is a full-time researcher, providing research and analysis to authors and organizations on a diverse range of topics. They may be contacted through e-mail at *collind@ocps.k12.fl.us.*

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