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ABSTRACT

Summarizing what is known about reading teaching and learning, this booklet gives those people who must make decisions about reading instruction the most recent and reliable information available from research and practice. Sections of the booklet address such topics as what reading is and why it is important; the status of the "Great Debate" in reading instruction; the role of basal reading programs; how teachers can stimulate prior knowledge; how teachers help readers become thinkers; what strategic reading is and how it is taught; the role writing plays in good reading instruction; the relationship between reading and other language arts; the relationship between reading and other subject matter; the best ways to learn vocabulary; how to motivate students; what research says about grouping children by achievement; what schools can do to help students with special reading problems; how teachers can help students who are not proficient in English learn to read; how standardized tests affect reading teaching and learning; some promising methods of assessment; what professional development opportunities teachers need; the role of technology in effective reading instruction; how television viewing affects reading development; what schools can do to encourage parents to participate in their children's reading; how community resources can encourage reading; and how educators can move forward to improve reading teaching and learning. Contains 53 references. (RS)

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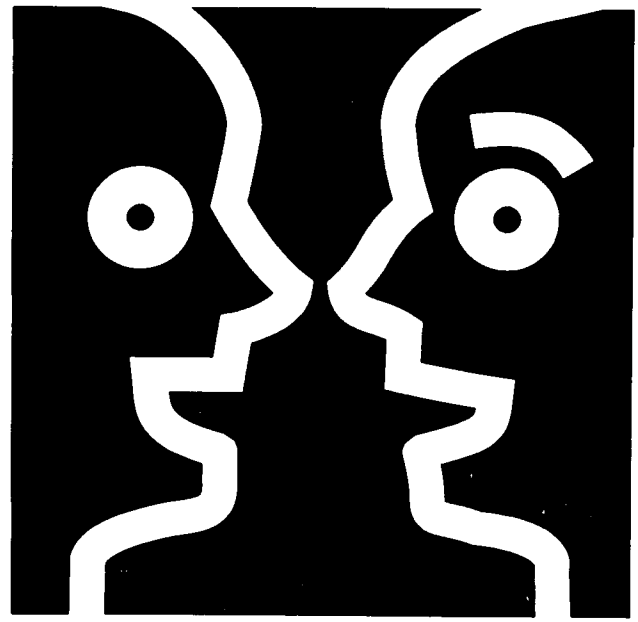

What We Know About Reading Teaching And Learning

EDTALK

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Preface

Reading instruction is awash in controversy. Phonics or whole language? Who should teach reading? Are basal readers effective? Is television a help or hindrance? How about other technologies? The debate shouldn't surprise us. After all, reading is a literate person's most basic skill.

But as schools and communities struggle to come to grips with these issues, deep-seated emotions are rising on all sides of the debate. There is, however, a very rich and robust body of research and successful practice to guide educators, community leaders, and policymakers as they strive to make sound decisions about reading instruction and policy. This *EdTalk* synthesizes findings of that research.

The Council for Educational Development and Research consists of some of the foremost education research and development institutions in the country, including regional educational laboratories and national education research centers. These institutions are helping educators turn findings from education research and development into successful classroom practices. They have incorporated the research reported here into the development of a number of innovative reading programs such as the *Strategic Teaching and Reading Project, Literacy Plus, Success for All,* and *Family Connections.*

By informing a variety of audiences about nationally significant topics in education, the Council's *EdTalk* publication series complements these institutions' work. *What We Know About Reading Teaching and Learning* is a companion to the Council's other very popular *EdTalk* publications, *What We Know About Mathematics Teaching and Learning* and *What We Know About Science Teaching and Learning.*

Our purpose in summarizing what we know about reading teaching and learning is to give those people who must make decisions about reading instruction the most recent and reliable information available from research and practice. The choices they are being called upon to make are as important as the intensity of the debate signals. One way to choose is to employ the best knowledge we have so that every child enters the twenty-first century equipped with the skills and strategies to be a successful reader, learner, and citizen.

What Is Reading and Why Is It Important?

Some people look upon reading as a necessity; for others it is a passion. From either perspective, reading is a fundamental skill. Despite the proliferation of electronic communications media such as television, video disks, and audiotapes, our society still depends on people who can read.

Only in the past couple of decades have researchers begun to understand what the act of reading really is. Reading is the construction of meaning from the written word. It is a monumentally complex mental process that takes place as the reader's knowledge and experience combine with the text. In this process, the reader purposefully uses a range of strategies to draw forth the shapes, sounds, images, and ideas that lead to comprehension.

Only in the past couple of decades have researchers begun to understand what the act of reading really is.

This new understanding of the reader's previous knowledge and experience integrating with the text is very different from more traditional views of the reading process in which the words and sentences on the page fully contained the meaning. According to this older view, readers decoded the words, if they had not already memorized them, and passively absorbed the knowledge and information they held.

Good readers, of course, have always read the way we now understand the process of reading to occur. The act of reading has not changed; only our understanding of it has. Along the same lines, the mark of a literate person is much the same today as it has always been. A literate person is one who is able to make meaning out of many different kinds of information with confidence. A literate individual reads to think and learn, exchange old information for new, find assumptions, create hypotheses, and develop well-formed opinions.

Learning to read starts in infancy and lasts a lifetime. Some studies claim it begins *in utero*, where the rhythms of the mother's heartbeat and speech surround the fetus and become, in essence, the first step to language acquisition.

Children should see themselves as readers at a very early age, even if their reading experience consists of "memorized stories."

These rhythms and cadences of speech continue to surround developing infants as parents express their love and care both physically and through language. Parents initiate the development of their children's reading skills by talking to them and modeling communication processes. They help their children to learn vocabulary, the structure of language, and how voice inflections convey extra meaning in spoken communication. Even the youngest toddlers soon begin to sense that the symbols in the books that their parents read to them represent some sort of sound, that sounds have meaning, and that when sounds join other sounds they create even more meaning. Young children also start to discern the conventions of print — that the way to read a book is from front to back, and the way to read a page is from top to bottom and from left to right. They see that reading is a pleasurable and worthwhile experience.

Children should see themselves as readers at a very early age, even if their reading experience consists of "memorized stories." By doing so, they become conscious of the nature and structure of print, learn new words, and begin to develop strategies that allow them to engage more readily in the reading process.

Experimentation with drawing and writing in all media — with crayons, pens, and pencils and on paper, chalkboards, easels, and keyboards — is another brick in the foundation of learning to read. In preschool, toddlers may learn the shapes of letters or even how to spell their names, which lays more groundwork. Giving children a wide range of experiences helps them expand their knowledge base so that they can draw upon these experiences when reading. Conversely, lack of such experiences drastically obstructs children's ability to read and locks them in a struggle of always having to "catch up."

When children enter school, teachers build on what other adults have begun informally. They show students how to use different strategies for different reading purposes. Students then begin to use diverse strategies for comprehending text and begin to learn

that the way to approach reading a science textbook is different from the way to approach reading a novel. This instruction continues until students grow into facile and fluent readers.

Formal reading instruction continues through the middle grades where teachers usually place more emphasis on learning comprehension strategies and building vocabulary. Students' need to read more proficiently increases as they begin to master the wide world of mathematics, science, the arts, and other subjects. Not knowing how to read limits them to audio and visual ways of learning — useful but still not sufficient for mastery and a peak level of understanding.

Even as students enter adulthood, they must be ready to grasp more knowledge and be able to engage in increasingly complex reasoning processes. Many of today's generation of adults need to brush up on ways of becoming better readers, including becoming cognizant of the fact that reading is a process and how that process takes place. Others find themselves besieged with new vocabulary in disciplines that didn't even exist when they were young. Some adults learn to speed read to handle the workload on the job.

Reading is still one of the most critical skills a person can possess to be a viable employment prospect and to remain employed.

Reading is still one of the most critical skills a person can possess to be a viable employment prospect and to remain employed. The *Adult Literacy in America*, a congressionally mandated study to develop a profile of adult literacy skills in the U.S., makes the economic advantages of reading proficiency clear. The study ranked Americans according to five levels of prose literacy, document literacy (the ability to understand information on charts, tables, and other forms), and quantitative literacy (the ability to understand mathematical computations implicit in printed materials). Almost half the adults surveyed who fell into the lowest level of literacy lived in poverty. In contrast, only four to eight percent of respondents at the two highest literacy levels lived in poverty. Persons at higher literacy levels were more likely to have jobs, work more weeks out of a year, and earn higher wages than those at lower levels of literacy. Adults at the lowest level of

literacy reported working only 18 to 19 weeks during the year prior to the study while those that fell into the three highest levels worked double that amount — from 33 to 44 weeks. Similarly, adults in the lowest literacy level had earnings of $230 to $245 a week, while those at the third level earned roughly $350 a week and those at the highest level earned $650 a week.

Even retired people find that reading helps their minds to remain active and them to stay young.

And the need to read never ends. Even retired people find that reading helps their minds to remain active and them to stay young.

Finally, reading is important because it holds hours of joy. Many of us can recall those first exciting moments in our early lives when the letters on a page became words and the words came alive, whisking us off into far away places and introducing us to a never-ending parade of fascinating people. What a sense of accomplishment and wonder, satisfaction and triumph. Reading opens so many doors in our lives. And the good news is that there is robust research to help teachers and other educators, parents, and community members all share in making it happen.

What Is the Status of the "Great Debate" in Reading Instruction?

Since the mid-1960s, the reading community has held a hot philosophical debate about the nature of the reading process and which of two instructional approaches better promotes the attitudes and abilities that children need to comprehend written language. The older of these approaches is called the skills approach, also referred to as phonics. The other has become known as the whole-language — or the literature-based — approach to reading.

Learning to read has traditionally been viewed as a fairly straightforward skills-based process. Students first learned to recognize the letters of the alphabet, then to decode or translate those letters into their corresponding sounds, and next, by listening to the sounds of the letters, to produce words. Comprehension was the process of making meaning out of a series of phrases or sentences. In this view of reading, the role of the teacher was to systematically teach children a preestablished sequence of discrete skills — recognizing letters, recognizing letter and sound relationships, using phonics rules, breaking words into syllables, and so on, right through to asking students to make inferences about the material they had read. Students did much of their work by completing exercises to enhance the skills in which they were deficient.

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Detractors of the skills approach, however, criticize the isolated, lockstep manner of reading instruction that this approach implies. They argue that the worksheets and low-level activities on which most of these programs depend stem the natural flow of language development and limit growth in comprehension by not giving students sufficient practice in using the skills in the context of real reading materials. As a result, students neither see the relevance of reading nor learn to appreciate its rewards. In addition, they maintain that the rules of phonics are too complex to be useful, with more than 300 correspondences between sounds and letters, not to mention the confusion of single letters representing more than one sound — including silences — and no sound represented by one letter only. These people advocate what has become known as the whole-language approach to reading.

Advocates of whole-language instruction believe that, because the purpose of reading is to make meaning, reading skill develops from children reading books and writing stories about topics that are important to them. In this view, students learn to read "naturally" in much the same way that they learn to speak. They scan a text, picking up semantic and graphic cues that they then combine with their understanding of the topic. This process eventually leads them to figure out the meaning of the piece of reading correctly. There is no prescribed sequence of skills development in whole language. Instruction in phonics and skills development is embedded into the stories children read. The theory is that if children immerse themselves in reading good literature, they will learn discrete reading skills as a by-product. Breaking up reading into the analysis of sounds and words only detracts from such learning. The role of the teacher in the whole-language approach is to facilitate students' learning without being unduly directive.

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Opponents of the whole-language approach like to point out, however, that only students who already know how to read or who can learn to read without much assistance are capable of jumping right into reading books and writing stories. The approach is not very effective with students who cannot figure out for themselves that there is a system of language behind reading and writing, or who do not have a strong understanding of sentence structure and grammar. In addition, research refutes the notion that children have a natural disposition to written language and that they can glean the meaning of words from contextual information often enough to make this an effective way of learning to read. Although learning vocabulary words in context is more effective than learning lists of words and definitions, studies show that even skillful adult readers can intuit the meaning of words only 25 percent of the time.

Other recent research in how the human brain functions reveals that the brain is much more compartmentalized than previously thought. According to this research, in the initial stages of learning to read, students do indeed use distinct, visual, phonological, and

motor strategies and that separate processors in the brain govern each of these. This would appear to argue for a phonics-based approach to reading instruction — at least for the very young.

Which instructional approach a given teacher emphasizes may depend on local school board policy, administrative directives, or the teacher's beliefs about effective instruction. One of the primary lessons from research on this issue is that there are merits to both sides of this reading argument and that the best instruction integrates these approaches as necessary. Teachers, too, are recognizing this. The 1992 National Assessment of Educational Progress reports that most teachers appear to be using a curriculum that balances both approaches to reading instruction. Similarly, the research literature is replete with hundreds of studies showing that when phonics is paired with a program of reading and writing, children achieve at higher levels in word recognition, spelling, and vocabulary.

In this view of reading, which calls for integrating the skills approach to reading with the whole-language approach, the teacher's role is to enhance specific skills that the student may be having trouble with while the student engages in meaningful reading and writing activities.

One of the primary lessons from research on this issue is that there are merits to both sides of this reading argument and that the best instruction integrates these approaches as necessary.

What Is the Role of Basal Reading Programs in Effective Reading Instruction?

Basal reading programs were first developed in the 1840s. They were designed as complete reading packages that offer students and teachers the full range of materials to teach and learn reading. Basal reading programs are organized by grade level starting with kindergarten and running through eighth grade. The materials usually in the programs include a reading curriculum, teachers' manuals, reading selections for children, and practice materials such as workbooks and worksheets. Other optional materials may be tests, visual aids, audiotapes, supplemental books, and software.

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Basal reading programs are an intrinsic part of reading instruction in many of the country's classrooms. One study found that basal reading programs account for 75 to 90 percent of reading instruction in elementary schools. But like the debate between supporters of the skills approach and supporters of the whole-language approach, basal reading programs have both proponents and critics. Proponents of basal reading programs contend that students benefit from the orderly organization of the reading curriculum. Critics, however, caution that these programs teach reading as a fragmented series of discrete skills that can make reading instruction uninteresting and counterproductive to vocabulary development. They maintain that trade books — books not developed specifically for reading instruction — give students wider and more authentic reading experiences.

Many basal reading programs are now responding to criticisms from educators and to the research findings. Newer basals have broadened the scope of students' reading experiences. The basals now contain excerpts from fine literature in place of the contrived articles that characterized basal readers of the past. Books and worksheets have replaced traditional fill-in-the-blank exercises with a variety of activities that extend and integrate reading and writing. For example, an activity may ask students to summarize an article they have read or to enter a personal response into a journal.

In addition, many of the basal reading programs now offer coordinated skills management systems that enable teachers to tailor their instruction to the specific needs of individual students. Skills management systems provide sequentially ordered objectives, criterion-referenced tests, teaching suggestions, and record-keeping methods. Research has indicated that these systems are effective in promoting students' achievement and self-image.

The debate between the skills approach and the whole-language approach aside, there is now a recognition that reading instruction must include some attention to skills development in order to be effective. Therefore, the reading process in newer basal reading programs, and the skills management systems that are a part of these programs, do have the potential to improve reading instruction. Investigations show that students who learned to read with the new basals are indeed developing more independent reading habits and read more accurately than students who learned to read with more traditional basals.

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Despite their benefits, basal reading programs must be viewed and used with care. Administrators under pressure to raise test scores are often accused of using the programs because the publishing companies that write the basals also write standardized tests. Consequently, there is some assurance that the vocabulary, skills, and format in the basals are also on the test.

Critics also fault the programs for robbing teachers of their decision-making powers by encouraging them to follow the dictates of a teacher's manual rather than exercise their own professional skills and experiences. If teachers follow a teaching manual without variation, critics argue, they may make instructional decisions without regard to student needs.

Still, many teachers may be afraid or do not know how to adapt basals to their own purposes, and staff development may not necessarily support a teacher's independence from the basal reading program. Educators must recognize these drawbacks of

basals and take steps to guard against basal reading programs taking over instruction. It is important to understand that using basal reading programs need not be an either-or proposition. Often, supplementing basal reading programs with literature assignments provides students with a fuller program of reading instruction.

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In the hands of a skilled teacher, basal reading programs can provide a stepping stone to teaching reading, even if the teacher is using the whole-language approach. Basal reading programs, used correctly, can provide the crucial skills that can help new readers progress in their reading development and thereby become readers for life.

What Is Prior Knowledge and How Can Teachers Stimulate It?

All students who enter the classroom possess some form of prior knowledge. Their prior knowledge may be about the process of reading and how the reader interacts with the text or it may be on a variety of subjects with which they have had experience either at home or elsewhere. Often students will have both kinds of prior knowledge. The specific kind and level of prior knowledge differs from one student to the next.

Research confirms that readers make meaning from what they read by relating it to what they already know. They then use that information to make predictions and to fill in gaps in their previous learnings. Consequently, prior knowledge strongly influences how well readers comprehend what they are reading. Research studies of readers ranging from third graders to college students show that students with prior knowledge of the topic they are reading about glean more information from the text than students with little or no prior knowledge of that topic. Brain-based research further supports these findings with its own evidence that learning occurs in settings that are stable and familiar. It stands to reason, then, that a critical element of quality reading instruction is stimulating students to obtain and use their prior knowledge.

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Before assigning students to read about a topic, teachers need to know if students' background knowledge corresponds to what the author of the selection assumes readers will know. To determine this, teachers have several strategies available to them. For example, they can brainstorm a topic with students to find out what they know, ask questions about the topic, or even ask what students want to know about the topic. Then, depending on the amount of prior knowledge students have, teachers can introduce new vocabulary and key ideas in the reading selection before students begin to read, preview the text so that students will read it with an eye toward what's important in it, or rely on some other technique to fill in what students need to know before they begin to read. Sometimes, the background that teachers provide does not even have to be specific. Studies indicate that having

background information, no matter how it was presented or how specific it is, helps readers learn from the text.

Finally, to stimulate prior knowledge, teachers must present information that builds background ideas, concepts, and principles. Illustrating ideas with graphics and other media is often useful for this purpose as long as the teacher helps students to understand the information rather than just telling it to them. Teachers can also take students on field trips and invite speakers to come talk to students about the topic. The point is to give students the information they need to fully comprehend and integrate what they are reading into their growing store of knowledge.

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How Do Teachers Help Readers to Become Thinkers?

Good reading instruction is also instruction in thinking. It requires students to use reasoning, problem-solving skills, and logic to evaluate evidence in support of a statement or idea before they accept it as fact. Only evidence that is convincing and from an unbiased source should persuade students to believe a statement or idea in question. Reading specialists call this "reading critically." Critical thinking dates back at least as far as Socrates, whose dialogues focused on rational thinking for the purpose of guiding behavior.

Critical reading and critical thinking have much in common. Critical reading concerns itself with analyzing language in printed form in order to understand its intended meaning. Because critical reading is a component of critical thinking, many of the thought processes in critical reading and critical thinking are similar.

In the past half century, research in cognitive and developmental psychology has illustrated the importance of critical thinking in children's education. Much of the cognitive research points to the complexity of human reasoning ability. Perception, attention, and the learning experience itself influence the ways in which students begin to construct meaning. Language, memory development, and the learner's emotional state are also part of the teaching and learning exchange. When a student learns to read critically, all these factors play a role.

Critical reading and critical thinking have much in common.

Young students just learning to read need help to develop their perceptual abilities, that is, how to listen to various sounds, recognize intricate shapes, and associate discourse with static print forms. Gradually — as the student becomes more attentive, stores many more lessons in long-term memory, intertwines logic and language with experience — the child's interactions with text shift to examining words and phrases, and then sentences, paragraphs, and chapters that carry potent meaning. Critical readers begin to recognize connotations, not just denotations, in the selection of words. They gain awareness of the writer's ability to subtly bury

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meanings in their stories, characters, or descriptions, and they begin to consciously use thinking.

Research points out that students must be taught the skills they need to recognize and think about problems and issues. They do not acquire them automatically. One study found that students whose teachers were coached in critical thinking techniques and made critical thinking part of instruction referred more to texts in their discussions or cited a book or other information as proof of their point of view more often than students whose teachers did not use critical thinking strategies.

One of the first important steps to helping students become good critical readers is to give them the opportunity to refine the component parts of critical thinking ability. Activities that refine critical thinking include comparing, classifying, inducing, deducing, analyzing errors, constructing support, abstracting, and analyzing perspectives about issues.

- *Comparing* shows how things are alike or different. A teacher might ask students to compare characters in a story or to match an event in something they've read against their own experience. Although comparison is considered a basic thinking skill, in a 20-year summary of the National Assessment of Education Progress, only a small percentage of students — 16 percent of eighth graders and 27 percent of twelfth graders — performed adequately or better in comparison tasks.

- *Classification*, like comparison, is a basic thinking skill. It involves forming rules for categorizing things according to certain features. Classifying words according to their semantic features, for example, is considered one of the most effective ways to learn vocabulary.

- *Induction* is the practice of drawing conclusions based on evidence. The practice of generating and verifying hypotheses, for example, is an inductive process. In reading, the teacher

might ask students to make inductions about an author's intent in a piece of writing. To do so, students might analyze the author's use of specific words and other rhetorical devices.

• *Deduction* is similar to induction, but its conclusion is more definitive — or to put it another way, in deductive reasoning the conclusion must be true if the premise is true. A simple example of how a student may use deductive reasoning might take place in a lesson where students select their own reading materials. Upon exploring the bookshelf and picking up a book, the student may reason: (A) This author always writes suspense stories; (B) This book is by that author; (C) This is a suspense story. The ability to use deductive reasoning extends the information that students get from reading to other situations, again helping them uncover unstated information or the logic of arguments.

• *Error analysis* identifies erroneous conclusions. In one kind of error analysis, a reader identifies his or her own errors in thinking about text. This kind of error is most often made when readers look for information that confirms their own biases. Another kind of error analysis helps identify fallacies in arguments that are meant to persuade readers to act in a certain way or to influence their opinion.

• *Constructing support* involves building logical arguments. Students use this thinking skill in discussing what they've read, in debating a point, or in swaying others to come over to their point of view. Constructing support for one's arguments hones students' thinking and helps them organize their content knowledge.

• *Abstracting* is the process that takes place as students look for patterns between events that appear unrelated. Students abstract when they identify the meaning of metaphors or apply the key events in a novel to their own lives, a play they've seen, or another book they've read.

- *Analyzing perspectives* involves students in identifying their own perspective on a topic and considering the perspectives of others. Perspectives are usually based on underlying values that people hold. The ability to understand the reasons behind other people's perspectives is a major intellectual skill.

All of these processes contribute to students' becoming better readers and strengthen their knowledge of subject matter content. They should become regular activities in the reading classroom.

A second important aspect of helping students form critical reading ability is instruction that requires students to think hard. Well-crafted questions ask children to explain why they responded in a particular way and to reflect on and revise an answer when necessary. Open-ended discussions in which children take a stand or argue a point are especially effective in stimulating critical thinking. They allow students to compare their thinking with that of their classmates and to confirm, revise, or reject their initial interpretations of text as necessary. Experience with some of the key critical thinking skills — comparing and analyzing arguments and constructing support — can be interrelated with the basic decoding of text.

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A third important element to of sound instruction in reading is locating exciting and informative materials for student use. Keeping in mind the multiple goals of complex reasoning, teachers need to reach out to find innovative, yet reliable, resources capable of challenging students' thoughts, inspiring their imaginations, and holding their attention.

What Is Strategic Reading and How Is It Taught?

Researchers have been trying to identify the components of reading comprehension since the 1940s. Before that, most people believed that, although a teacher could instruct students in phonics and word identification skills, the level of comprehension a person could achieve was largely a matter of native intelligence and experience and could not be taught.

Today, we know that is not so. All readers can learn to construct meaning from text. Numerous studies into reading comprehension report that expert readers develop strategies to construct meaning. Younger readers and low-ability students, however, tend not to develop or use such strategies unless they are specifically taught them. Strategic reading approaches grew out of this need for all students to develop a repertoire of strategies with which they can construct meaning, i.e., to comprehend text.

Numerous studies into reading comprehension report that expert readers develop strategies to construct meaning.

Strategies are purposeful procedures that individuals use to understand and enjoy a text. For example, a strategy for determining the definition of an unknown word is to use the words around it. Strategies consist of skills — finding the main idea and decoding are skills — and knowing how and when to use such skills. This self-monitoring framework is called "metacognition." Good reading teachers teach both skills and strategies, and help students to monitor their comprehension.

Research shows that it is important that readers use different strategic reading strategies before, during, and after reading. Strategies that students employ before they begin to read prepare them to read the text more critically. Teachers can help by encouraging students to reflect on what they know about the reading process and on their prior knowledge about the subject or literature selection. For example, teachers might talk about the selection with the class, bringing up key vocabulary words and discussing with students which reading strategies work best under which circumstances. Teachers may also ask students to skim the text to get a sense of what is in it, the style of the text, its organization, and its main points. Another pre-reading strategy is for students

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to make some predictions about what might happen in the text and to form hypotheses and questions about the content.

Before students begin to read, teachers may also want to make sure students understand the purpose for which they are reading, including the learning standards or objectives that are expected; discuss with students which reading strategies may be most appropriate to attain these standards or objectives; and define criteria for successful reading.

Strategies that students use *during* reading help them get the most out of the reading selection. Here, metacognition plays a central role as students think about their own thinking, self-monitor their understanding of the text, and change their reading strategies as necessary. Research shows that students tend to understand and remember text that is well-organized. Consequently, if the text is unclear, they themselves may need to impose organization on it. Instructing students in using organizational tools such as outlines, "webs," and other graphical patterns lets students organize material and determine which points are important.

The use of imagery, in which readers mentally picture the ideas and actions in their reading, is another strategy that helps students understand and interpret text. Studies into the use of imagery report significant increases in students' interest in reading, ability to monitor their own reading performance, and ability to recall information. With this strategy, as with others, students must know when, where, and how to use it in order for it to be an effective tool for comprehension.

As students get a sense of the document they are reading, they ought to check the predictions and hypotheses that they made *before* they began to read to see if and why, or why not, their predictions or hypotheses have or haven't come true. Teachers should also remind students to ask themselves questions for clarification as they read, as well as to generate new questions. All of these

strategies help ensure that students are processing the reading material at a deep level.

In addition to knowing when to use which strategies, students need to think about how well the strategies are working. Such "metacognition," or thinking about thinking, helps them monitor their learning. For example, through metacognition, students learn to ask themselves whether they really understand main points, how the points relate to each other, and whether their assumptions are correct.

Strategies to use *after* reading help students take what they've learned one step further. For example, students could apply complex reasoning processes to summarize the information contained in the reading and then to integrate the important points into a coherent whole. Teachers might also have students compare and contrast what they already knew about the content with what they learned in the reading so that students fine-tune their knowledge.

In addition to knowing when to use which strategies, students need to think about how well the strategies are working.

Teachers might conclude by having students discuss not only their responses to and interpretations of a text, but also the strategies they used to understand it. In this way, the focus is not only on learning about the reading for its own sake but also on sharing strategies all students can use to better understand the written word.

Some researchers also recommend that teachers model strategies, such as generating questions or clarifying points in the text, so that students can emulate them. For example, in an instructional technique called "reciprocal teaching," teachers initiate a dialogue with students so students can see how the teacher formulates questions or talks about what in the reading is unclear or confusing. Then, gradually, students take over leading the dialogue, asking the rest of the group questions about the confusing parts of the reading selection. In one study of reciprocal teaching, 71 percent of the students achieved the criterion for successful

performance as opposed to only 19 percent of the students taught without reciprocal teaching methods. Another study showed that in addition to better comprehension, students improved their ability to summarize, predict the kinds of questions teachers and tests ask, recognize incongruities in the text, and talk more meaningfully about what they read.

Another instructional technique is for teachers to "think aloud" about how they are going about understanding a passage so that students can see various strategies in use. Researchers have found that it is helpful to explain whichever approach teachers choose clearly and completely so that students understand what the strategy is, why it is important, how to employ it, when and where it is appropriate, and how to evaluate its use.

Another instructional technique is for teachers to "think aloud" about how they are going about understanding a passage so that students can see various strategies in use.

Strategic reading can boost student achievement in a relatively short amount of time. Third and fifth-grade students showed significant improvement in reading comprehension and other measures after just four months of instruction. Perhaps more important, however, is that students report that they find strategic reading useful in the way they read and think in every subject.

Strategic reading is not just for reading class. Students should develop and practice strategic reading skills for any reading task in any content area.

What Role Does Writing Play in Good Reading Instruction?

From the first moment that a child learns his or her first letter and attempts to draw it, writing and reading become linked. Each skill reinforces proficiency in the other. In daily life, engaging in one very often means engaging in the other, whether it's reading one's own words as they are being written or responding to a letter one has just read. Integrating writing with reading instruction provides a context for learning that mimics the "real-life" relationship between the two and enhances the development of reading comprehension skills.

One study showed that parents whose children learned to read before they entered first grade described their offspring as "paper and pencil kids" who first took an interest in writing. Other research suggests that writing contributes to growth in phonics, spelling, word recognition, memory, and reading comprehension. There is also evidence to support the idea that writing brings children's attention to the details of written language, e.g., that one reads from left to right.

Reading supports writing, on the other hand, by serving as a monitoring process. It helps children decide where to go next in expressing their thoughts and builds confidence in their writing ability as they see their ideas successfully take shape. Students also begin to view the relationship of the reader to the writer and how the writer creates a dialogue in which the reader can interact.

Writers and readers share the responsibility of communicating meaning and ideas.

Both of these processes aim to create meaning. In the most basic sense, the writer's purpose is to construct meaning for the reader and the reader's purpose is to understand what's written. Writers and readers share the responsibility of communicating meaning and ideas. To do so, a writer must be aware of how a reader might interpret the text, and a reader must keep in mind what the writer seeks to convey. When writing is integrated into reading instruction, a child gains experience in one capacity that enhances performance in the other.

Good writing involves a process of refinement. The child rereads and revises what he or she has written to ensure accuracy in meaning, to see what is confusing, or to identify missing pieces. Practicing these elements of writing cultivates reading skills because reading comprehension relies on similar revisionary tasks: a child reads and rereads a text in order to extract its full meaning and refine understanding of what information the text contains. Some researchers believe that until a child writes his or her thoughts and ideas on a given topic, the child's views are not fully formed. Whatever students write — anything from journal entries to first and second drafts of stories — increases their comprehension of the subject because writing requires students to organize ideas and reflect on what they are writing in order to revise it.

...writing, done out of context, does not give children the same opportunities to create or reaffirm meanings for the words they are writing...

In the 1992 National Assessment of Educational Progress, 98 percent of the students being assessed had teachers who, at least at a moderate level, integrated reading and writing instruction. Having the same teacher teach both subjects can help ensure that writing activities correspond to reading activities. However, a study of first, third, and fifth-grade classes revealed that, on average, students spent only 15 percent of the school day in a writing activity. There was little expository writing being done in the classrooms in this study; even expository writings of just one paragraph were rare.

A number of other studies make the point that during whatever time students do spend in writing activities, they are really being drilled in grammar rules or are copying verbatim words from a book or a worksheet. This kind of writing, done out of context, does not give children the same opportunities to create or reaffirm meanings for the words they are writing, and very likely does little to encourage reading comprehension. For a long time educators thought that if children knew the rules of grammar, sentence structure and parts, and punctuation, then they could build reading and writing skills from these sub-skills. Indeed, worksheets often drill students on these very building blocks of skills. Educators are now beginning to realize that activities such

as drill and rote memorization of grammar rules contribute very little to proficiency in reading. Writing can enhance reading comprehension only so long as its purpose goes beyond being an end in itself.

To illustrate: In a language arts class students must read a section in their basal readers. Their next assignment might be to complete a worksheet about the reading. But their teacher may help them more by asking them to write about what they have just read. There are a number of things each student could write: a personal essay about an experience related to the reading, a piece of persuasive writing that takes a position on what the student has just read, or a short story using the reading selection as a jumping off point. This improves students' writing skills and, because writing is related to reading, improves their reading skills.

Writing activities that emphasize sound and symbol associations and letter patterns benefit students' development of automatic language decoding skills. Writing sentences in which every word begins with the same letter or contains the same letter pattern and writing poetry where the same sound dominates is an enjoyable activity for most students that draws them into the world of letters and sounds.

Many educators claim that perhaps the best way to instruct children in reading is to encourage them to read, read, and read more. Integrating meaningful writing instruction in reading provides opportunities for students to learn how to express what they have to say so that their message gets across to others.

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What Is the Relationship Between Reading and Other Language Arts?

Language arts refers to all the uses of language such as reading, listening, speaking, and writing. The previous section has already established the relationship between writing and reading. But reading experts believe that practice and proficiency in any one of these areas of language helps students become proficient in other areas. The interconnectedness of these language arts is what leads many reading specialists to eschew teaching them as discrete skills. It is better, they maintain, to integrate and to teach language arts in a context that is meaningful to students.

...children's oral language competencies correlate strongly with their reading achievement.

For example, research shows that children's oral language competencies correlate strongly with their reading achievement. There are similar findings about listening and reading and writing and reading. Some researchers attribute these associations to the fact that all four processes involve students in the creation of understanding, although the fact that they all share the elements of language structure and vocabulary also appears to play a role.

Oral language, in particular, serves as a foundation for reading. Practically all children have obtained some degree of oral language proficiency by the time they begin learning to read. For example, they've learned from listening to others that a set of sounds can represent real things, such as dog, mother, or truck. They've also made sounds themselves, evaluating which sounds are appropriate to make at a particular time and how to make them. That basic knowledge of oral language enables young readers to progress to translating printed letters and words into familiar sounds. Oral language also gives children a basic vocabulary from which to draw as they begin to read and talk about what they've read.

Research suggests that asking children at all reading levels to reflect orally upon a topic prepares their mental processes for proficient reading. This particularly applies to children whose home conversations focus primarily on the "here and now" mechanics of everyday living as opposed to conversations that ask children to recall and reflect on experiences, give complete descriptions of events, or tell complete stories.

Active listening, too, is a language skill. Many people still confuse hearing with listening when in actuality the two are different. Hearing tends to be a passive activity. Listening, on the other hand, assumes action and involvement on the part of the listener in what the other person is saying. A kindergarten or first-grade student's proficiency in listening, research has found, is a fairly good predictor of that child's level of reading comprehension in the third grade. Research shows even stronger correlations among older students. In a nationwide study of thousands of students, students' level of listening comprehension in fifth grade proved to be a better predictor than anything else of these students' performance on aptitude and achievement tests in high school. This finding is consistent with other studies that show that after students have developed some skill in reading, the correlation between oral language development and reading becomes even stronger. The implication is that at least some of the language skills and knowledge that a child acquires from reading have direct transferability to listening and speaking skills, and vice-versa.

In many ways, the process of listening parallels what students do when they read.

Conversation about a reading selection also improves listening and ultimately reading ability. By conversing, students refine both speaking and listening skills. In listening, students must reflect on what others infer from a given text and integrate some of their classmates' ideas into their own. In many ways, the process of listening parallels what students do when they read.

In short, reading cannot and should not be separated from listening or speaking, nor from writing. Some language arts specialists are also beginning to add viewing to these skills, arguing that viewing contains many of the same processes as reading, writing, listening, and speaking. Finally, it's good to remember that when determining the right balance between reading and the other language arts, the key word is integration. A student who is proficient in all these aspects of language arts is well on the way to becoming a critical thinker and problem solver.

What Is the Relationship Between Reading and Other Subject Matter?

Reading plays an important role in all school subjects — the arts, mathematics, and yes, even physical and health education. Consequently, every teacher can help students succeed by knowing some of the principles of the reading process and helping students use reading materials most effectively.

Most subjects rely to varying degrees on reading textbooks or electronic information, but the question remains whether students are able to comprehend these readings. Many subjects boast vocabulary specific to their subject matter. Students' reading skills — specifically, their ability to comprehend this vocabulary — may very well determine their understanding of that subject. The texts themselves are designed to transmit factual or theoretical knowledge, not to practice reading skills that publishers assume students already possess. Teachers, however, can not make this assumption about students' reading skills.

There is considerable debate among content area teachers about whose job it is to teach reading and writing.

There is considerable debate among content area teachers about whose job it is to teach reading and writing. Many teachers still believe that reading teaching and learning belongs in English class. Indeed, in the earliest grades, this is where young learners receive the bulk of their instruction in both reading and writing skills. But researchers say that by the fourth grade, the natural relationship between reading and English or language arts classes gets off track. Schools often abandon instruction in the reading process at the very time when students need advanced reading skills and strategies to appreciate higher-level literature and more difficult text.

In fact, English may be the most demanding discipline, in terms of reading skills students need to understand various genres of literature. Poetry relies heavily on figurative language, unusual syntax and word order, and very often peculiar vocabulary. In fiction, reading extends beyond following the plot into understanding the characters, predicting outcomes, and analyzing the author's motivations. Reading biographies means being aware of

the author's contemporary world and his or her view of it; essays rely on the reader's ability to sense nuances in arguments and logic.

The ability to construct meaning is important across other subjects as well. Foreign language instruction, no longer ensconced in the practice of vocabulary word drills, is advancing in the direction of developing overall language and thinking skills. Students' abilities to read passages matter most, with grammar and vocabulary getting stronger as a result. True proficiency in a second language results from communicating in all forms — speaking, writing, listening, and reading.

History and social studies classes, particularly at the elementary level, often rely heavily on textbooks. However, as teachers of these subjects know all too well, many students simply do not complete their assigned readings. One reason is that texts are written in expository form — meant to inform, explain, and clarify — a style unfamiliar to students whose early experiences in reading have primarily involved narrative stories. Instruction in reading expository writing can alleviate this problem and help move students' history knowledge, for example, beyond memorized dates and names to a full understanding of historical concepts and the impact of past events.

Reading's place may be less obvious in classes such as mathematics and science.

Many activities designed to relate social studies knowledge can also encourage students to read. For example, teachers can ask students to read copies of historical documents to judge their veracity and importance. Assignments involving reading newspapers can bring a real-world, present-day sense and relevance to issues. Biographies, folklore, and the literature of a specific era convey to students the feelings and attitudes prevalent at that time. The Internet can put students in touch with current events around the globe.

Reading's place may be less obvious in classes such as mathematics and science. Particularly in these subjects, teachers

often feel that reading instruction is too far afield from the content they must cover. But without it, students' study skills will be lacking.

A recurring problem exists in the organization of many mathematics and science texts and websites. Gone is the familiar style taught in "reading" class — topic sentences followed by details. Unimaginative style, few contextual clues, and little repetition of ideas, along with the sheer density of the information presented, complicate a great deal of mathematics and science reading. In addition, average reading levels for a certain grade sometimes are not adequate for reading that grade's mathematics and science texts. It is not unusual to find a third-grade mathematics text written at the fourth-grade level. Furthermore, students need instruction in interpreting the wealth of information often conveyed by figures, graphs, and labeled diagrams. Mathematics and science teachers may know best how to instruct students in reading these kinds of materials.

Lack of sufficient reading skills can cause particular difficulty for students faced with mathematics word problems.

Lack of sufficient reading skills can cause particular difficulty for students faced with mathematics word problems. Information in these problems is often out of order, mixed in with superfluous data, and couched in vocabulary that means something different from everyday usage (e.g., the term "radical" means one thing in mathematics and another in social studies) so that students don't understand what's being asked. Studies indicate that teaching vocabulary and reorganizing word problems into a narrative style increases students' ability to solve these problems. To "read" mathematics requires decoding symbols such as "+" and "-" in addition to words, assigning literal meaning to the symbols and vice-versa, and applying these meanings to the problems. Becoming proficient in this reading process is as important as learning the correct formulas and how to apply them.

It is not necessary for teachers to always restrict mathematics and science reading to texts written exclusively to relate pertinent knowledge. Narrative stories in which characters experiment,

learn, and discuss scientific thought provide students with both enjoyment and knowledge. Researchers believe that reading breeds familiarity with the concepts and may prevent the "fear" of mathematics that hinders so many students. Writing about what they've read in mathematics and science texts helps students articulate, and consequently understand, what the text means.

Finally, the practice of keeping physical development separate from mental learning is outdated. Rather, physical education instructors can encourage students to read by linking sports, for example, to books about athletic training and techniques or to books about the history of a sport or top athlete. Today, health education comprises a new set of problems and concerns. A health instructor assumes the role of information source on everything from sex, pregnancy, and AIDS to gangs, suicide, and drugs. Informing students about these topics is not enough; students need to internalize the information to develop a sense of their own responsibility. Personalized stories, fiction and nonfiction accounts, and other literature that depicts the problems, predicaments, and lessons of adolescent life are more effective than dry textbooks for these purposes.

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What Are the Best Ways to Learn Vocabulary?

Two researchers have estimated that school English contains about 180,000 vocabulary words. Young children just entering school know about 5,000 words while high school seniors typically know about 80,000 words. This means that students learn, on average, more than 5,000 new words every school year — still not nearly enough to fill their vocabulary needs. Building vocabulary is important because the more words students know, the more fluent readers they will be.

A strong speaking and listening vocabulary is vital to the reading process.

Students learn language chiefly in two ways: by listening and speaking, and by reading widely. A strong speaking and listening vocabulary is vital to the reading process. As young children become readers, they are more likely to recognize words in print if they have heard them before. Reading to children and discussing the reading with them builds vocabulary more effectively than simply speaking to a child.

The real vocabulary builder, however, is reading on a wide variety of topics. One researcher believes that reading can be ten times more powerful than direct instruction for acquiring vocabulary. In addition, a review of research on direct instruction versus voluntary reading found the latter to be more efficient in developing vocabulary, comprehension, writing style, grammar, and spelling. Another study estimates that a child who reads one million words every year will find 20,000 that are unfamiliar. If that same student learns just five percent of those unfamiliar words, he or she will have added 1,000 new words to his or her vocabulary. These numbers improve if the child personally selects the reading material or is an avid reader.

Research also indicates that learning weekly lists of new words is probably not a very effective vocabulary builder. This method encourages students to view learning vocabulary as something one does to "pass the test" rather than to become a better reader. In the end, students still learn too few words, and worse, they learn them out of context. Vocabulary words are closely linked with their context. For instance, in a study where researchers taught

fourth graders 104 word definitions in context, students achieved higher gains on the reading portion of the Iowa Test of Basic Skills than did another group that learned definitions of new vocabulary only.

But the most significant drawback of learning vocabulary through lists is that students rarely learn enough about the word to use it in practice. Nor do they learn the strategies for figuring out words that they don't know — strategies that can be useful to them long after they leave school.

Most educators prefer newer, more functional ways of building students' vocabularies. There are four approaches to teaching vocabulary that research has generally found to be effective, and many teachers are discovering that the best approach is a combination of all of these. The first is instruction by "semantic categories." Semantic categories relate new vocabulary words to other words to form networks. For example, the word apple might be associated with a function (food) or with a type of food (fruit). By drawing graphic representations or using analogies, the teacher shows students how words in the same categories have similar definitions or characteristics.

...the most significant drawback of learning vocabulary through lists is that students rarely learn enough about the word to use it in practice.

"Passage context," the second approach, uses the context of familiar words to show readers the meaning of unfamiliar words. Research indicates that, among both able and less-able readers in third and fifth grades, teaching vocabulary in context is more successful in imparting word meanings and correct usage. There are some drawbacks to the use of context, however. In a study where eighth graders read a passage and took a test on it, only average and above-average readers learned the meanings of unknown words as they went along. Students must have sufficient prior knowledge to figure out the context of new words. Also, readers must learn the same word in different contexts or they run the risk of learning only partial definitions of words.

A third approach to teaching vocabulary is through the use of "imagery." Students analyze an unknown word and identify any parts of it that sound familiar. They then imagine a connection between the meaning of familiar and unfamiliar parts of the word. This method builds a strong connection between unfamiliar words and meanings, studies have shown, although it can be a cumbersome method in practice.

Finally, the fourth approach, "morphemics," breaks up words into familiar prefixes, suffixes, bases, and parts of compound words. Research in linguistics has found that numerous words in English stem from morphemes, even if they sound different in different words.

Teachers can help their students become independent learners of new vocabulary by first demonstrating a strategy used to figure out the new word and then discussing it with them. After students hear it discussed and see the strategy put into action, they will gradually begin to use it.

How Can Teachers Motivate Students to Enjoy Reading and to Want to Read?

Motivation is a key factor in ensuring that students become — or stay — interested in what they are learning. Researchers have described motivation as the "skill and will" to learn. According to the latest theories of metacognition, students' expectations regarding success and failure dictate the amount of effort they put into an activity. Students' level of motivation also depends on how much meaning an activity has for them in their everyday lives and how clearly they understand what is expected of them.

Teachers play a critical role in kindling students' interest in reading. One approach, identified in the research, that helps students become lifelong readers is for teachers to create opportunities where students experience success in reading. The critical factor here is making sure that reading lessons are at a level that students can manage with a bit of assistance, but not be so hard that students develop an "I-can't-do-it" attitude. Discussions of which strategies are most appropriate for which reading purposes offer another point at which teachers can reinforce the usefulness of reading. Studies show that with reinforcement at critical junctures, students are more likely to apply the strategies. This contributes more to student success than teachers simply telling students what they should learn and how they are to learn it.

The critical factor here is making sure that reading lessons are at a level that students can manage with a bit of assistance, but not be so hard that students develop an "I-can't-do-it" attitude.

The literature on reading instruction contains a wealth of suggestions for motivating students to read. Chief among them is allowing students to read books based on their needs, interests, and abilities. Reading teachers have an inexhaustible choice of appealing subject matter to offer students of all ages. For example, using young adult novels for teaching the elements of story development such as plot, characters, and setting is less likely to put students off than is exposing them to the "classics" too quickly. Reading a number of texts or finding online information on a topic can also motivate students by broadening their background knowledge and raising their level of curiosity and enjoyment.

To lead reluctant readers to books, teachers can give them selections in which the plot quickly unfolds on the first page and

Introducing conflicting ideas and asking students to take positions on them encourages students to read in order to back up their point.

does not spend too much time setting the scene or developing the characters. Books that have lively dialogue and a small number of characters also tend to draw students into a story. Letting students pick their own books, or teaching them how to select an appropriate book to read may also help develop motivation. Similarly, teachers who read aloud to students demonstrate that reading can be fun. Story telling allows students who may have never finished a book to experience completing one.

Another technique that research suggests as motivational is giving high-interest, lower vocabulary level reading to poor readers. Though these students may find all reading difficult, easy selections will allow them to become more comfortable with the reading process. It is important that teachers remind slow readers to self-monitor their reading so that students know when to reread a paragraph they do not understand or to summarize in their mind what they have just read.

Debate can be an excellent activity to motivate students to read. Introducing conflicting ideas and asking students to take positions on them encourages students to read in order to back up their point. The topics, though, must be meaningful and relevant to the debaters.

Research also shows that one student being tutored by another can have a positive effect on both students' interest in reading. Peer tutoring can take place with students of the same age and grade or where older students help younger ones. These relationships contribute to students' cognitive development, which is critical to reading comprehension, and promote friendship and social growth.

A number of effective programs ask tutors to design their own reading lessons. Other motivational techniques include students reading to their tutors, and then the pair switching roles, or students and tutors writing together about a selection they have just read.

Teachers have a key role to play in facilitating such tutoring programs. One of the most important is making the right pairings — matching students who are eager for instruction with those who are eager to teach. Teachers must give student tutors ample support and guidance and then monitor the pairs' progress once tutoring is underway.

Not surprisingly, children themselves offer clues as to what motivates them to read. Researchers recently interviewed students who identified four factors that influence them to read or reread: (1) prior experiences; (2) social interactions; (3) book access; and (4) book choice. Prior experiences encompassed listening to stories that their parents or teachers read to them, watching television, or enjoying a book in a series and reading the others. Social interactions had to do with other people's attitudes towards books, and hearing about good books from friends, teachers, and parents. Access to books in the home, classroom, and libraries was an important factor because it put books within easy reach. The ability to choose their own reading selections allowed student to follow their own interests or the teacher's suggestions.

Not surprisingly, children themselves offer clues as to what motivates them to read.

The researchers synthesized these students' comments into six implications for schools:

- Children should have plenty of books available to them in the classroom. Students said the classroom was their best source of books.

- Children should receive books as gifts and through school award or incentive programs.

- Children should be able to choose their own books, at least some of the time. This is highly related to their enjoyment of reading and sense of control over their own learning.

- Children need experiences with many books, including books they have heard about from friends, teachers, family members, and on television and through other media.

- Children like series of books to read because they have familiar characters and plot lines.

- Children must have opportunities to talk about books with others through book clubs, brief oral reports, or student-written book reports.

Finally, teachers must be aware of how they correct students when they are reading out loud. Does the teacher immediately correct a mispronounced word or allow the student to pause, think about the word, and then try again? The latter technique produces more confident readers who are less dependent on the teacher for guidance — and therefore, more motivated readers.

Family Fun While Helping Children Learn...

Family Connections

Appalachia Educational Laboratory

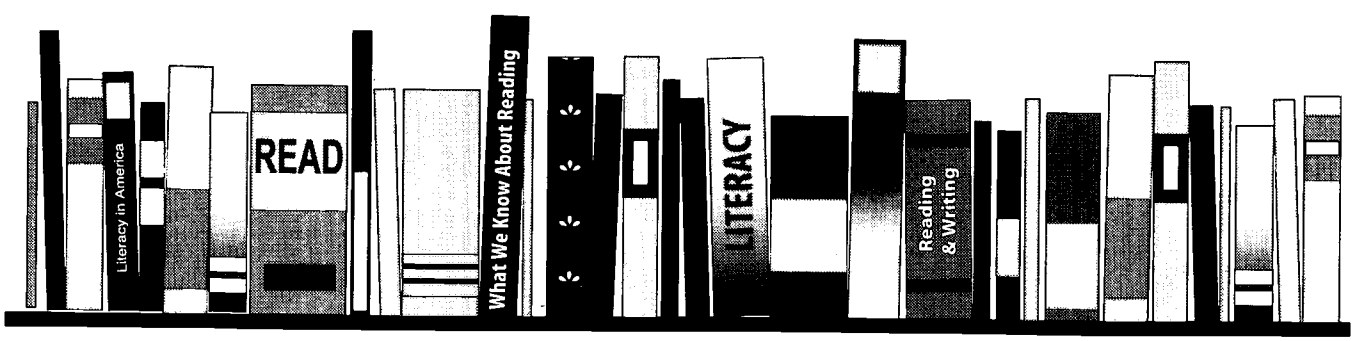
These sets of 30 colorful four-page guides are full of suggestions and opportunities for families to have fun while helping their children learn. There are two versions: **Family Connections 1**, suitable for preschoolers, and **Family Connections 2** for children in kindergarten and early primary grades. The guides cover many topics, but reading is an integral part of each. Each issue includes:

- A message to parents, focusing on topics such as the importance of reading aloud and using the public library;
- Activities that parents can do with children, many of which involve reading together; and
- At least one "Read-Aloud" section of nursery rhymes or original verses.

Family Connections does more than simply provide additional reading opportunities outside the classroom; it fosters a sense of the importance of reading and the value of developing literacy skills. Taking such an integral role in their children's reading development affords parents constant opportunities to praise their children's progress and to convey their expectations for success. Chock full of innovative ideas for practicing reading, the guides help parents illustrate reading as an enjoyable activity, not just a classroom subject.

The guides are also an inviting way for schools to draw parents into their children's education and demonstrate the pivotal role they can play in developing literacy.

*For more information on **Family Connections**, contact AEL, P.O. Box 1348, Charleston, West Virginia 25325; (304) 347-0400.*



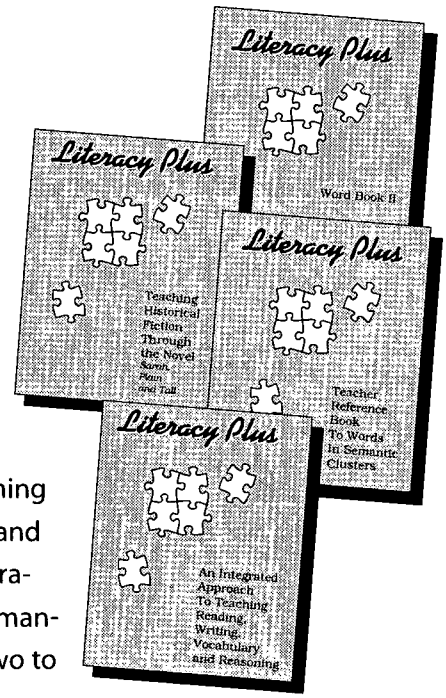
Reading, Writing, Vocabulary, Reasoning...

Literacy Plus

Mid-continent Regional Educational Laboratory

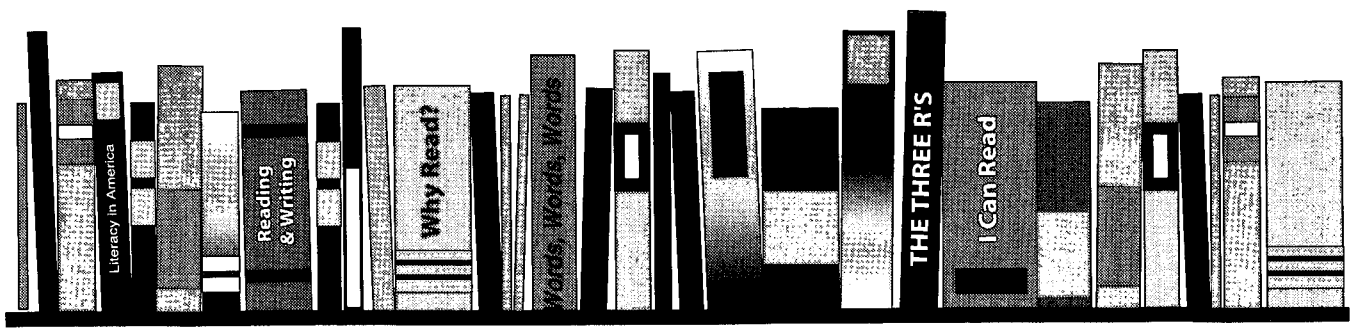
Literacy Plus takes an integrated approach to teaching reading, writing, vocabulary, and reasoning so that students can attain a higher level of literacy. With a goal toward student-centered learning, it follows a workshop approach that combines three distinct elements to create innovative ways to learn language arts skills:

- *Mini-lessons* are teachers' opportunities to introduce new ideas and topics to the class.
- *Activity periods* let students choose exciting ways to apply and demonstrate what they have learned about the new topics.
- During *sharing periods*, students exchange ideas, present their writing to classmates, and learn how to function as a contributing member of a "classroom" community.



Materials include teachers' guides with over 180 strategies for teaching workshops, teacher and student reference books, program videos, and posters. Student word books introduce new words drawn from literature, basal readers, and other subject areas by grouping them in semantic clusters. Students can use their individualized word books for two to three years.

For more information on ***Literacy Plus****, contact Zaner-Bloser Educational Publishers, 2200 W. 5th Avenue, P.O. Box 16764, Columbus, Ohio 43216-6764; (800) 421-3018.*

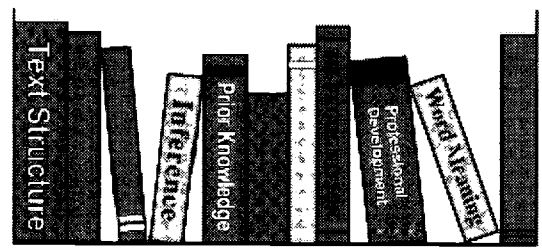


Reading Across Grades and Content Areas...

Strategic Teaching and Reading Project

North Central Regional Educational Laboratory

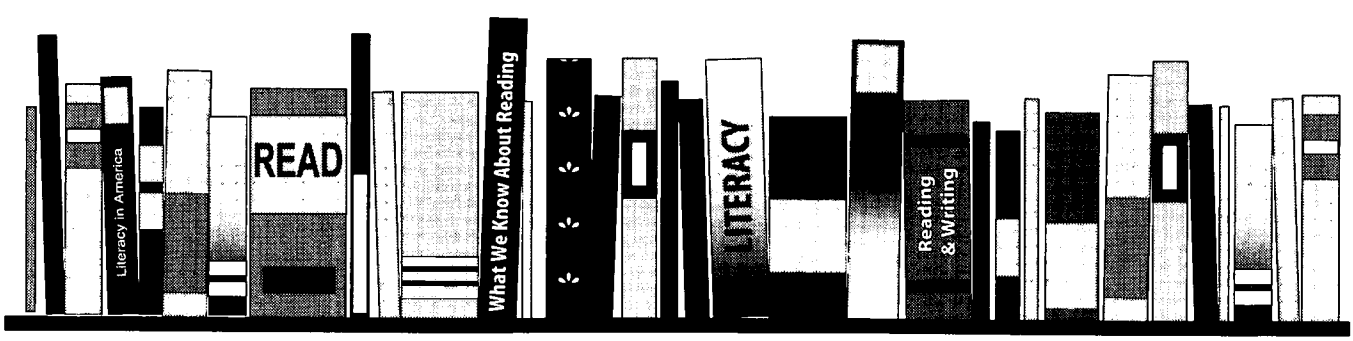
Strategic Teaching and Reading Project (STRP) is a flexible instructional improvement and staff development project that can be adapted for any grade, across all content areas, and within any existing curricular program. It is not a step-by-step prepackaged set of materials; rather, it leaves the creative and instructional choices up to the teacher. Units focus on one of five core comprehension strategies:



- Prior Knowledge
- Text Structure
- Word Meaning
- Inference
- Metacognition

These strategies are presented within an integrated framework so that teachers and students learn how to identify them and when to use them. **STRP** also suggests a five-phase professional development model for teachers to enhance their instruction.

*For more information about **STRP**, contact NCREL, 1900 Spring Road, Suite 300, Oak Brook, Illinois 60521-1480; (708) 571-4700.*



No Child Falls Between the Cracks...

Success for All

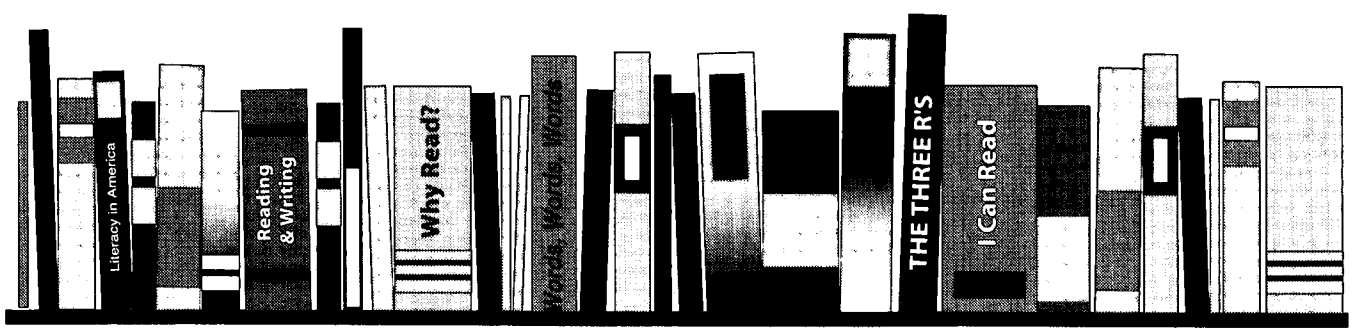
Center for Social Organization of Schools

The goal of **Success for All**, a program designed primarily for use with disadvantaged students at the elementary school level, is to ensure that no child "falls between the cracks." It combines one-to-one tutoring, innovative reading and writing instruction, family support efforts, and frequent student assessment so that students successfully learn basic skills the first time they are taught, or shortly thereafter. *Reading Roots* and *Wings* are crucial components of **Success for All**.

Reading Roots, intended for grades K-2, offers a lesson structure in six parts: "Showtime" lets students know that real reading is what reading class is all about; "Thinking About Reading" focuses on metacognitive strategies such as summarization and understanding the purpose for reading; "Setting the Stage" introduces stories through activating background knowledge or discussing the cover illustration; "Letter Activities and Games" teach students about recognizing letters and understanding sound/letter correspondence; "Story Activities" give students practice opportunities to decode and encode words in the story; and "Celebrations" recognize students' progress.

Reading Wings, for grades 2 and beyond, integrates writing with language arts and combines instruction in listening and reading comprehension with story-related activities. Students work in heterogeneous teams, with individual scores on tests and writing projects contributing to a team total. All lessons follow a routine that includes teacher presentation, team and individual practice, peer and teacher assessment, and finally team recognition.

For more information about ***Success for All****, contact CSOS, Johns Hopkins University, 3505 North Charles Street, Baltimore, Maryland 21218; (800) 548-4998.*



What Does Research Say About Grouping Children by Achievement in Reading Instruction?

Most children in today's classrooms learn to read in groups where all children in the group read at approximately the same level. The purpose of ability grouping, as educators call it, is to reduce the range of students' reading abilities in a classroom by dividing children into low, middle, and high-ability readers. Teachers sometimes give these groups different names — such as robins, bluebirds, and finches — to avoid labeling children by achievement levels. Many children, however, are quick to figure out what their labels mean and remember them well into adulthood.

A statewide survey in Pennsylvania revealed that roughly 95 percent of first-grade classrooms used ability grouping to teach reading. Though ability grouping is pervasive in many other states as well, research findings about whether this is an effective approach for teaching reading show mixed results, at best.

Ability grouping has drawbacks. Some teachers fail to recognize that there may still be differences among students within the same group. Perhaps more important, though, is that teachers tend to have different expectations for groups. In a high-ability group, one study found, students read silently more often and answer more difficult comprehension questions. Teachers frequently focus instruction for these groups on critical thinking. They may even send students nonverbal signals that they enjoy teaching this particular group.

Research shows that, because of these practices, ability grouping may improve the achievement of students in the highest group, but not produce the same result for lower-ability students. The same study found that teachers often expect less from these students and provide less-stimulating instruction. Teachers require students in these groups to read aloud more often, a practice that tends to block comprehension, and correct their mispronunciations more quickly. Teachers also ask these students more questions about words, in hopes of facilitating the decoding process, but again, at the cost of comprehension.

...ability grouping may improve the achievement of students in the highest group, but not produce the same result for lower-ability students.

However, ability grouping as a teaching strategy can have some positive effects on students. Students learn from each other when they read as a group — either out loud or by taking turns and discussing what they've read. Grouping also develops children's social learning. To take advantage of these positive aspects of grouping, educators are increasingly using other, less traditional ways of grouping students.

Many teachers are turning to heterogeneous grouping to respond to children's needs. Heterogeneous grouping allows teachers to form different and more fluid groupings throughout the school year, depending on the assignment or the strengths, interests, and needs of students. Because the groups are constantly changing, children do not feel as if they are being labeled.

Many teachers are turning to heterogeneous grouping to respond to children's needs.

In one form of heterogeneous grouping, called the Joplin Plan, children of similar abilities but from different grade levels are grouped together. A first-semester, second-grade reading group may include first, second, and third graders. Research on the effectiveness of the Joplin Plan supports its use. In a study of first and second graders, students progressed through nine levels of reading while being constantly reassigned according to their performance. After three semesters, reading scores for students in the Joplin Plan were significantly higher than those of the control group.

Small collaborative and cooperative groups are effective when students are concentrating on, for example, literature and the language arts. These groups can be formed randomly or according to common interests, gender, or language. Reorganizing small groups often encourages collaborative work and positive student interactions. In these groups, students can increase their comprehension through reciprocal reading, improve their writing skills in reading and editing groups, practice consensus building in collaborative talk groups, and complete projects in problem-solving groups.

Cooperative learning groups can form to study a specific reading skill regardless of each group member's proficiency in that skill. Groups can form around a fascination with the same subject — such as space, earth, or the zoo — or pair better readers with poorer readers to maximize the reading abilities of all children.

Paired groupings give two students of differing abilities the opportunity to work together on reading activities. In this kind of grouping, the more accomplished reader helps the other to better comprehend a difficult text. The more advanced student reinforces his or her skills, developing the automaticity needed to be an accomplished reader. The less-advanced student benefits from one-on-one instruction. Another version of this grouping, called peer tutoring, pairs students who alternate in the role of teacher.

The more advanced student reinforces his or her skills, developing the automaticity needed to be an accomplished reader. The less-advanced student benefits from one-on-one instruction.

Whole-class groupings may be useful when teachers want to lead read-aloud sessions, give directions for activities students are to do later, or demonstrate the thinking processes of an expert reader. Direct instruction in phonics, spelling, study skills, and comprehension may also be successful in this type of setting. However, there have been relatively few evaluations of whole-class programs, and findings that do exist tend to show no effect on students' reading performance.

What Can Schools Do to Help Students with Special Reading Problems?

The nature of reading problems can be biological, environmental, or a combination of both. Students with reading problems may have a learning disability, lack experience or background knowledge, or possess insufficient skills. Whatever the cause, reading problems should not go unchecked, especially in the early years. Research shows that early success in reading, particularly for first graders, is essential for later success in school. Fortunately, teachers can intervene and ameliorate some reading problems at an early stage to help poorer readers improve their reading skills.

Students with reading problems may have a learning disability, lack experience or background knowledge, or possess insufficient skills.

Many teachers have struggled with very verbal five-year-olds who just can't learn the alphabet or an otherwise bright nine-year-old who hasn't learned to read. These students may have dyslexia, a relatively well-known learning difficulty based on genetic brain dysfunction. Dyslexic students have normal intelligence but face overwhelming difficulty in learning to read, write, and spell, organizing tasks, remembering, and sometimes in such everyday activities as manipulating shoelaces and buttons.

According to one estimate, 2 to 8 percent of U.S. students suffer from this condition. Other estimates are closer to 10 percent. Of those, 40 percent are likely to have problems of such severity as to interfere with learning unless they have special help. The remainder may have noticeable problems such as not being able to spell or frequent forgetfulness, but usually can cope with them.

When most students learn to read, they learn to associate the symbols on a written page with the sounds that form the word. Dyslexic students have trouble connecting the sound of a written word and the word's components. Because students with dyslexia often cannot be taught to read by conventional methods, they pose a special challenge for teachers.

New research on dyslexia is being released all the time, however. Overwhelmingly, it states that dyslexic students can overcome their reading problems. Some research even indicates that dyslexic

students may have advantages in lateral thinking, spatial awareness, and the ability to handle verbal language.

Research on the best way to teach dyslexic students how to read highly recommends a structured approach. Teaching small units of new information is important because it allows the child to learn a little at a time. Another technique that helps dyslexic students learn is over-teaching, or presenting the same information many more times than is usually necessary to teach students who are not dyslexic. This is especially important to do with students who tend to forget information quickly.

A third element that has proven effective in teaching dyslexic students is using all the sensory pathways — sight, sound, touch, and movement. Visual displays can accompany verbal instruction; students can trace letters in a word while reading it and saying it.

Most students — dyslexic or not — need a concrete sense of how to visualize. It is important for teachers to model visualization by describing the sorts of images that they see as they read a story and how these images change and become more precise as they gather more experience. Choosing books with illustrations and subheadings that organize ideas also helps readers better understand the flow of a story.

Finally, dyslexia, by its very nature, places the development of healthy self-esteem at risk. Research shows that like all beginning readers, dyslexic students need to experience success. Success helps students maintain positive attitudes toward reading, and early success breeds future success. To help dyslexic students succeed, it is especially important not to label them poor readers.

Teachers often tend to justify working more intensively with dyslexic and other students with identifiable reading disabilities than with students who are just slow and don't have any organic disorder. It's common to attribute these students' difficulties to attitude or behavior problems that are within their own control.

[An] element that has proven effective in teaching dyslexic students is using all the sensory pathways — sight, sound, touch, and movement.

For example, studies show that poor readers tend to goof around and do things other than reading during reading time. Educators call this time "off task," that is, off the task of reading. Because poor readers spend so much time off task, many teachers perceive these students to be unmotivated, immature, and too easily distracted. But these students, too, need special help in improving their reading skills.

It is paramount that teachers become aware of practices that put poor readers at a disadvantage and replace them with practices that have demonstrated their effectiveness. For example, one way to help poor readers is to ask them to read silently more often. Research finds that the more oral reading students do, the lower their achievement. The factor most strongly associated with high achievement is silent reading. Silent reading allows students to read many more words per minute, making their reading more efficient. This means that good readers tend to read more than poor readers, which may further help them achieve. When students read aloud, however, they read fewer words per minute, putting poor readers at an even greater disadvantage.

...one way to help poor readers is to ask them to read silently more often.

Reading silently helps ensure that students concentrate on reading. Because students reading aloud have to take turns, only one reader at a time is actively a part of the reading process. Oral reading often gives readers the wrong idea that the purpose of reading is performing rather than making meaning of information. Consequently, all the attention is on the student who is reading out loud and other students may see no point in reading along silently.

Teachers tend to focus on poorer readers' accuracy in pronouncing words and tend to interrupt poor readers to correct their pronunciation errors. This not only breaks the flow of thought, but makes poor readers dependent on other people to monitor their performance. Furthermore, this focus on recognizing and pronouncing words over comprehending a passage leads teachers to have poor readers spend a disproportionate amount of time decoding words. While decoding certainly has its place, especially during the early

stages of reading, too much emphasis on decoding, especially later in the learning process, can distract readers from getting the gist of the story. Reading remediation in all grades is more beneficial when, in addition to decoding words, it focuses on comprehending entire passages.

One technique that effectively helps poor readers improve both their decoding and comprehension skills is one-on-one tutoring, either by the teacher or by another adult. Research repeatedly shows that tutoring, especially in the early grades, minimizes reading problems. This is because students can often read more difficult and challenging text when working with a tutor than when working alone. The tutor provides a level of challenge that pushes students beyond their current capabilities but is not so difficult that it only leads to frustration.

The more successful tutoring programs share several common characteristics...

Programs in which teachers tutor students vary in their form and content. The more successful tutoring programs share several common characteristics: Tutors are certified teachers, as opposed to paraprofessionals. The programs target young students in the first through third grades. Students learn to read by reading, as opposed to working on word-recognition or phonics activities. Tutors teach students to monitor their comprehension. Students learn to ask themselves questions such as, "Did I understand what I just read?" Some programs closely integrate tutoring with classroom reading instruction in order to reinforce students' regular reading program. Tutors' lesson plans are flexible, allowing tutors to diagnose each student's individual needs and address those specific needs in a session. The performance of students being tutored is continually reevaluated and, depending on their achievement, they are given more or less tutoring.

These tutoring programs are effective. Students enrolled in these programs have made more gains in reading performance than both students in other tutoring programs and students enrolled in classrooms with lower student to teacher ratios. Studies that have followed these students over a period of a few years have found

that, compared to their peers, these students are neither assigned to special education nor made to repeat grades as often. Although tutoring can be expensive to implement, it is far less expensive than remediating students once other interventions have failed.

How Can Teachers Help Students Who Are Not Proficient in English Learn to Read?

Many teachers who teach reading to students who are not proficient in English wonder whether students should become literate in their native language before learning English, or whether literacy instruction should immediately aim to develop children's literacy in English. Time and time again, studies show that instruction in students' native languages indeed helps them become literate in English. The reason is, according to the research on this topic, because the processes of reading are the same in every language. Therefore, the cognitive skills students learn in their first language transfer to learning their second.

Before students can become literate in English, they must be orally proficient in a language — any language — so that they know what words are and that a combination of sounds make up a word. Students in one demonstration project received most instruction — including literacy instruction — in their native Spanish until third grade. Then their instruction was half in English and half in Spanish. While these students' English language skills lagged behind their native English-speaking peers in the early grades, by the sixth grade they performed above the norm in both English and Spanish. Many other programs have produced similar results.

...the cognitive skills students learn in their first language transfer to learning their second.

Another prerequisite in learning to read in English is a familiarity with oral English. This is because much of basic school and reading instruction is oral. Moreover, reading materials generally assume that students have a base of oral understanding upon which they can build more complex literacy skills. Many bilingual specialists recommend waiting to begin instruction in reading until students have mastered English at the level of a five-year-old native English speaker.

Research shows that to build students' oral proficiency, it is helpful to work on the "big things" first. Successful second-language learners tend to concentrate first on things like keeping their audience interested in what they are saying and conveying their main points, even if they make mistakes. Generally, when

students make mistakes in the second language, it's best that teachers let the mistakes go unless they change the meaning of what the students are saying. Research also shows that when teachers constantly correct students' minor mistakes, students tend to lose their train of thought — and maybe their confidence.

For students too intimidated to speak in class, peers can also help the language learning process. Friendships between native and new students provide non-English speakers with role models and a safe environment in which to take risks. One researcher found that students who were not proficient in English but who played with native English speakers tried hard to become friends with the native speakers and were bolder in their attempts to speak English. These students tended to listen to speakers before they started speaking, to imitate words they heard, to role play, and to use visual clues to comprehend new vocabulary and grammar.

Instruction in both oral language and reading needs an authentic context.

Non-native students who are just beginning to read characteristically spend a great deal of energy "decoding" each word they read. When literate readers read, they don't think as much about each word as they do a group of words together. Students learning a new language try to figure out what each word means, divorced of its context. One study found that the emphasis students placed on decoding words hindered their ability to comprehend a passage. Students who "interact" with the text — that is, think about the text, link it to what they already know, and perhaps even write about it — tend to read more fluently than those who don't. Thus, any instruction that enhances lower-level reading skills also ought to emphasize more active thinking about the text.

Instruction in both oral language and reading needs an authentic context. Instead of focusing on contrived, rote exercises, researchers say, literacy instruction ought to involve students in meaningful activities and encourage them to study topics that are culturally familiar and of interest to them. Organizing instruction around themes — for example, learning vocabulary that shares a common

theme — also helps students learn new information and vocabulary words in a context.

In considering all these cognitive and social factors, researchers suggest a number of practices teachers can employ to help non-native students become successful readers of English. These same practices are just as effective in instructing native speakers of English. They include:

- Reading stories to groups of children. Groups should be small to allow for interaction.

- Having students listen to audiotaped stories as they silently read the accompanying text.

- Having students keep journals that teachers respond to. This allows for more interaction between teacher and student, role modeling, and individualized instruction.

- Integrating oral and written language around meaningful themes.

How Can Standardized Tests Affect Reading Teaching and Learning?

...standardized tests receive the most public attention and arguably, at present, have the greatest impact on students' futures.

Testing students' reading ability is common practice in most education settings, but standardized tests receive the most public attention and arguably, at present, have the greatest impact on students' futures.

Standardized tests are paper and pencil measures, often in a multiple-choice format. Their purpose is to compare an individual student's performance or test result to that of an appropriate peer group. Administrators, school board members, and other policymakers use the results in many different ways. Often, they turn to standardized test scores as indicators of schools' success in teaching reading. The scores may become the basis for evaluating and improving reading programs and for determining programmatic funding levels. Sometimes, test results determine students' placement in reading groups — specifically, they identify poor readers for whom remedial instruction may be appropriate. Parents and teachers also use these scores, along with traditional grades, to measure student progress in reading.

Because the results of standardized tests do indeed hold great significance for students, parents, teachers, administrators, and policymakers, critics charge such tests can have undue influence on the daily operations of schools. Where the public and policymakers hold schools accountable for standardized test scores, the content and format of these tests can often drive reading curriculum and instruction planning and dictate what students must know to be able to perform well on reading tests.

So-called "teaching to the test," some argue, threatens the quality of teaching and instruction. In school settings with a heavy emphasis on high achievement scores, teachers often spend classroom time preparing students for tests (i.e., teaching the "tricks" to guessing correctly on multiple-choice exams) rather than engaging them in authentic reading activities and higher-level thinking.

Historically, the emergence of standardized testing as a primary means of assessing reading comprehension reflected the long-

existing belief that learning to read was a matter of mastering one specific skill after another. From that, it followed that the way to assess reading ability was to test one student's reading skills against those of "average" students in the same age group or grade level, or against established criteria for students at a certain age or grade level. However, such comparisons revealed more about what students lacked as compared to some external measure than they did about the reading skills and knowledge students actually possessed.

More recently, researchers have determined that learning to read involves a thinking process, one that integrates many complementary skills and supportive strategies. Consequently, standardized tests that target individual skills can not accurately reflect students' reading ability. Scores from a test in which students do not employ the full reading process — a deficiency about which many standardized test booklets themselves often warn — are nothing short of invalid. And they may distract teachers from concentrating instruction on integrating skills for reading.

The validity of standardized tests can also be questionable because the very act of taking the test may alter students' thought processes. For instance, students may concentrate on strategies that will improve their scores (i.e., determining when it's best to guess on multiple-choice exams) instead of strategies that are associated with normal reading comprehension. As one researcher states, it's one matter to be able to write a sentence with correct punctuation; it is entirely another to be able to glean meaningful information from that sentence. Similarly, multiple-choice questions are often little more than "matching exercises" that address facts and peripheral details. They do little to point out important facets of reading comprehension such as nuance, plot analysis, style, or possible variations in interpretation. A student familiar with the topic of the reading selection may not even need to read it in order to perform well on such an exam.

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Certainly, standardized tests of reading comprehension do not measure all that is required to understand and appreciate a novel, or a science textbook for that matter. They don't test students use of strategies or their understanding of how to engage in the reading process for various purposes. Today's research shows that reading assessments attuned to the application or demonstration of knowledge are probably more likely to give teachers a sense of their students' progress in reading and language arts. Authentic, practical exercises such as reading extensively, reading aloud, and writing summaries of reading material more accurately assess reading proficiency.

What Are Some Promising Methods of Assessment Being Used in Reading Education?

During the past decade, educators' views on reading assessment have shifted considerably. Assessment, as well as curriculum and instruction, has evolved from a very specific focus on skills and objectives to a much broader pursuit of "the reconstruction of meaning" or, put another way, as a means to higher-level comprehension.

Fueling the effort is the belief that schools should assess students in the same manner in which they teach them. If teachers encourage students to engage in a process of inquiry that offers different perspectives and solutions, assessments must be flexible enough to recognize a number of "correct" answers based on students' range of skills and interpretations.

Recent research supports the notion that the assessment of reading skills becomes more valid and reliable as it becomes more inclusive in scope and incorporates many elements of the reading curriculum. For example, teachers gain great insight about students' reading abilities when students read aloud unfamiliar (but grade-appropriate) material with acceptable fluency, explain plots and the motivations of characters in unfamiliar fiction, and summarize new sections from social studies and science books. One study recently concluded that student essays are the best form of literature assessment. Not only do they show off students' facility with grammar and spelling, but also they demonstrate students' judgment in their selection of essay topics. Meanwhile, the essays themselves supply teachers with material with which to assess such skills as writing ability and analytical thinking.

...assessments must be flexible enough to recognize a number of "correct" answers based on students' range of skills and interpretations.

Several states have redesigned their assessment programs to reflect this new focus on higher-level comprehension. They are including longer reading passages as well as questions that incorporate other elements of the reading process, such as students' prior knowledge, choice of reading strategies, motivation to learn, and reading habits. For example, as a result of education policy changes at the state level, Connecticut teachers now design assessment around classroom projects.

Performance assessments document students' efforts in specific situations, such as debates or dramatic readings of poetry or fictional passages.

Assessments that differ from conventional standardized testing are generally referred to as alternative assessments. Appropriately named, such assessments provide an alternative to the multiple-choice formats of most standardized tests. Alternative assessments offer a much-needed way to observe and take into consideration individual students' social, intellectual, and cultural environments. There are several kinds of alternative assessments, but two of the most common are performance assessments and portfolios.

Many teachers are turning to performance assessments as an alternative to conventional testing. Performance assessments document students' efforts in specific situations, such as debates or dramatic readings of poetry or fictional passages. Performance assessments give students the opportunity to demonstrate the knowledge and skills they have acquired over time. They are particularly useful for teachers trying to determine the learning and skill levels of students who may not perform well on more traditional paper-and-pencil tests, or who are more confident about their speaking abilities than their writing abilities.

Authentic assessment is a type of performance assessment in which students apply knowledge and skills in the same way they use them in the "real world" outside the classroom. Authentic assessments provide examples of real-life problems for students to solve. Reading requires the interaction of many skills; authentic reading assessments reflect this interaction. By incorporating a student's home environment, motivation and expectations, and other social contexts that may affect the learning situation into the assessment process, teachers can attain greater insight into effective learning and teaching.

Portfolios are another increasingly popular form of alternative assessment. Portfolios provide an ongoing record of the depth and breadth of student accomplishments over an extended period of time. Vermont schools, for example, rely heavily upon portfolios of student work to assess the progress of both students and teachers. Typically, language arts portfolios contain samples of

student writings such as works in progress and personal reflections on learning, as well as audio and video tapes of students engaged in classroom exercises. Student essays about books they have read during the school year and the impact of those readings convey individual points of view, emotions, and reactions that standardized testing cannot hope to reveal.

Research shows that portfolios are particularly effective in assessing reading skills because they reflect the reading and writing that students have done over the course of a given year or years. By examining this information, teachers are able to describe the learning that is taking place in an organized way. And because portfolios tend to include finished products — for example, an essay that a student had time to refine and perhaps even rewrite — they provide a great deal more information on student achievement than the one-day, one-time standardized test. By providing such a wide representation of student work, portfolio assessments remove the danger that students simply had an "off" day. In addition, portfolios in other subjects, such as history or science, are good examples of how well students are integrating their new reading comprehension skills into other academic work.

It is important to note that the most promising assessments are built into classroom life and have intrinsic value — ideally, students learn not only from instruction, but from assessment, too. In one rural Vermont school, teachers were eager to design assessments that were in keeping with their individualized, literature-based reading program. In the evaluation process that emerged, students chose a book to read silently, and then participated in numerous assessment activities — reading aloud, retelling the story, word recognition exercises — all of which had been a part of the normal instructional routine. Any time a student chose a book for the assessment that was too difficult, teachers simply turned the assessment into an instructional exercise.

Ongoing classroom assessments — tracking the teaching and learning process on a daily basis — are key to teaching students at

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an appropriate pace and providing them with materials and activities that are appropriate to their reading levels. Furthermore, precisely because alternative assessment activities are part of what goes on everyday in the classroom, teachers can use the information that they yield immediately to improve reading instruction.

What Professional Development Opportunities Do Teachers Need?

Elementary school teachers vary in the amount of preparation they have in reading instruction when they begin their careers. The preservice preparation of most elementary school teachers is necessarily eclectic. Reading is just one of many subjects they must know how to teach. Though states, colleges, and universities differ in their requirements, many teachers have studied only the bare bones of reading instruction. Requirements that teachers take one course in reading instruction and another in language arts are typical in many states. Secondary school teachers, albeit expert in their specialty area, are even less likely to have training in reading instruction.

Attention to professional development opportunities is crucial to ensuring that teachers in America's elementary and secondary classrooms are skilled teachers of reading. Teachers must know how to operate flexibly and be able to use many different instructional strategies and assessment methods depending on their students' needs. Yet, professional development for reading teachers has too often relied on one-shot workshops, been fragmented, focused on isolated skills rather than on the complex relationships that exist among various aspects of the reading process, and had little to do with teachers' immediate classroom needs.

Attention to professional development opportunities is crucial to ensuring that teachers in America's elementary and secondary classrooms are skilled teachers of reading.

Fortunately, today we have a new understanding of professional development. From over 20 years of research and the experiences of thousands of teachers all over the country, we know, for example, that teachers can gain the new knowledge, skills, and self-confidence they need if they engage in effective professional development. Most often, effective professional development is school-based and teacher-driven. A consensus is emerging on other characteristics of effective professional development as well. Effective professional development:

- Allows teachers ongoing and continuous discussion and feedback;

- Relies just as much on teachers' experiences as that of experts;

- Offers teachers lots of opportunities to practice and reflect, and to use their new skills immediately in the classroom;

- Gives long-term support to teachers; and

- Addresses real problems and is tailored to specific teacher and school needs.

Study after study shows that the first year or two of teaching can be particularly difficult for newcomers to the profession. New teachers are often anxious and overwhelmed at having to take day-in and day-out responsibility for an entire classroom of students. At the same time, the instructional methods that teachers use (and the habits they develop) during their first year — despite their degree of effectiveness or possible need for improvement — greatly influence the methods and habits they adopt during the years that follow, setting the stage for the level of effectiveness a teacher is likely to achieve and maintain.

...the instructional methods that teachers use during their first year greatly influence the methods and habits they adopt during the years that follow...

Many schools have encouraged mentor relationships in which veteran professionals monitor beginning teachers' instructional methods and suggest improvements. Videotaping reading sessions so teachers can analyze their own instructional practices is another way to give teachers detailed feedback. Some schools have formed study groups in which teachers work together to improve reading instruction in their school; others have incorporated staff development in reading instruction into the supervisory role.

But all of these activities take time, something that is in short supply in the lives of most teachers. In addition, many content-area teachers see themselves as specialists in particular areas (i.e., history, chemistry, social studies) and are unprepared to respond to the reading needs of their students. Allowing reading specialists

to serve as resources to content-area teachers, in a sense to act as consultants who provide material and information as well as inservice preparation, is a strategy some schools have used successfully to get over this particular hurdle. Finally, giving teachers access to current information from research on reading instruction continues professional development well beyond teachers' initial preparation and hiring and makes teachers into lifelong learners.

Administrators, especially principals, are integral to the success of any professional development program. It is important that administrators work with teachers to develop a systematic, long-term program of professional development in order for real change and improvement to flourish. This includes keeping an eye on the latest research in reading education, releasing teachers to work with one another, and encouraging them to introduce proven innovations into the classroom. Administrators attending summer institutes and inservice days right along with teachers demonstrates the seriousness of the commitment to reading improvement and familiarizes administrators with the challenges teachers face as they strive to improve reading achievement among their students.

Administrators, especially principals, are integral to the success of any professional development program.

What Role Does Technology Play in Effective Reading Instruction?

Good technology programs engage students and put them in charge of the strategies they use to comprehend meaning.

The use of technology for educational purposes has evolved over the years. When computers first entered the classroom, computer classes concentrated on teaching students to understand the programming language itself. The emphasis was on becoming computer literate. Soon afterwards, technological advances effectively eliminated the need for users to understand how computer programs operate. The emphasis turned to using computers to solve specific problems. Now, it has shifted again. Computers play a vital role in presenting students with challenging, interesting instruction. Technology is expanding the very definition of literacy to include not only printed texts but also electronic texts.

Research shows that technology enhances reading instruction, especially in teaching language-impaired students. But educators must be wary of the siren call. Computers can supplement books but not replace them.

Those individuals responsible for selecting computer learning programs for the classroom must do their job with care. Choosing the wrong types of applications can undermine the very strategies that schools hope to develop. For example, one of the central features of appropriate education technology — in reading or in any other discipline — is the ease with which teachers and students can use it. Technology that is too complicated to use or breaks down often will soon lie idle. Similarly, computer reading programs that relegate the student to a passive learner — merely a receiver of information — do nothing but transfer written words from paper onto screen.

Good technology programs engage students and put them in charge of the strategies they use to comprehend meaning. In selecting technology programs, one of the questions to ask is: Will the student have control over the reading activities to maximize learning, rather than the activities predetermining the learning? Reading programs that adapt subsequent activities based on how students respond to previous ones create what is essentially a

dialogue between the reader and the electronic text. Some programs modify text according to the student's speed of reading, accuracy of responses, or the time that it takes to respond.

The creation of hypertext has made it even more possible for students to gain control over their own learning. Hypertext is a non-linear, nonsequential, interactive text system. It is capable of expanding text and personalizing it in a way that the written page cannot do. By simply pointing the cursor and "clicking" on highlighted text in a reading passage, the reader can instantly move through a large database of information. In reading programs, this information can elicit a student's prior knowledge, provide context clues, definitions, and explanations, or allow students to structure their own texts — all of which aid in the comprehension of the original text. And the immediacy of hypertext ensures that there is no interruption in the reading process. One group of researchers report that when they compared the effects of middle-grade students using hypertext to draw up context-specific definitions of unfamiliar words and using printed texts and conventional dictionaries and glossaries, hypertext users investigated more words, remembered the meanings of a greater number of words, and comprehended the text better. Another study showed that students who used hypertext links explored and read on other topics of related interest more often than students who did not use hypertext.

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The infinite number of "links" to information that technology makes possible brings up the issue of access, a central consideration in determining the appropriateness of education technology and its effectiveness in reading instruction. Making a variety of texts accessible to readers, including narrative and expository writing that conveys information as well as fiction, reference, and other types of writing, enhances reading comprehension. Furthermore, working with large chunks of text or information instead of disjointed bits and bytes that share no common threads, helps develop comprehension. Schools whose computer networks provide access to the Internet can tap into a wealth of resources,

including original texts in their entirety, and rare or hard to find information. The more exposure students have to different types of writing, the greater their opportunities to develop and practice reading strategies.

Technology also makes distance learning possible, giving many students access to reading opportunities that they would not otherwise have, as well as providing interaction with reading specialists who can mentor and tutor faraway students. For example, the Smithsonian Institution in Washington, DC, provides access to many projects and curriculum materials that even remote schools can tap. Similarly, many libraries and museums are developing online learning environments for teachers and students to browse through, adapt, and interact with to supplement instruction.

Computers also can promote reading learning by doing. By working through simulated tasks and scenarios, students can monitor their comprehension and correct their mistakes. In addition, students can edit and reorganize sample texts to help them understand plot development and the structure of writing. There is also the possibility of student "users" becoming "producers" by contributing their work to computer networks for others to use. These kinds of reciprocal transmissions — perhaps the most common form being e-mail — increase the likelihood of students getting additional comment on their work and getting a variety of perspectives and reactions to reading material.

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Finally, computers offer a road to integration. They can help integrate reading with math, science, and other subjects and they can integrate many more symbolic elements such as visuals, sounds, digital graphics, and live-action video. A child can request the pronunciation of a new word, for example, or see a story be played out on the monitor. It is important that teachers of other content areas guard against being seduced by videos and other technology-based alternatives to textbooks, however. There is evidence that teachers are already turning too much to audio

recordings, videos, lectures, experiments, and field trips rather than assigning reading. In one study, researchers observed mathematics, science, social studies, and English teachers in eighth and eleventh grades. They found that only mathematics teachers used textbooks more than 50 percent of their teaching time. Only one percent of all of these instructors assigned reading homework. Furthermore, a study of textbooks for history found that visuals — maps, charts, and pictures — occupy nearly a third of the pages. Although all of these are important aids in enhancing meaning and understanding of information, researchers warn against using them in place of text.

At least one researcher posits that average and good readers learn faster and retain more through reading because reading allows students to learn and use strategies not available to listeners. Despite the enticements of the technology age, teachers can not abandon "ordinary" things such as books at the expense of children learning to read.

How Does Television Viewing Affect Reading Development?

Contrary to what many expect, watching television can be beneficial for fledgling readers. However, a little goes a long way, and if children watch too much television, the results can be disastrous.

Studies show that reading achievement can rise if children view 10 hours or less of television a week. Research indicates that viewers, particularly young audiences, are more mentally active and aware while watching TV than previously thought. Television can pique their curiosity and encourage them to explore and read about subjects that interest them. It exposes them to new cultures, events, and ideas that perhaps they would not otherwise discover.

However, as time spent in front of the television increases, reading comprehension drops dramatically. One recent study found that among those students who watched more than 20 hours of television per week, reading comprehension dropped off severely and it continued to fall as the number of hours in front of the television rose. In another study, students who watched 60 hours or more of television a week ranked in the 10th percentile in reading comprehension.

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Similarly, the 1992 National Assessment of Educational Progress noted lower reading proficiency for fourth graders who watched four or more hours of television daily. Eighth graders' proficiency dropped after three hours of television viewing and twelfth graders' after more than one hour of television a night. In all, 61 percent of fourth graders, 65 percent of eighth graders, and 47 percent of twelfth graders reported watching three or more hours of television each day.

Television undermines children's learning in a number of ways. The fast-paced barrage of images on television shortens children's attention spans. And when they are paying attention, ever-prevalent commercials — even during children's programming — may subvert good learning habits children have already developed. Most importantly, television draws students away from many other activities, including reading.

To combat the detrimental effects of television's omnipresence requires more than parents simply restricting the amount of time their children spend watching TV. Educators worldwide now believe that students must learn how to view television critically. Children can learn to watch television in such a way that they develop and practice critical thinking skills that are similar to those used in reading comprehension — figuring out the program creator's intentions, interpreting literal and implied meanings, and following the logic of the program's thesis. They can learn to ask questions while viewing, such as "What is the point of view of this program?" "What assumptions does the program make?" "What evidence is there to support the program's argument?" Children can also ask the same questions of news programs. They can note the order in which the news stories appear on the broadcast, identify what is international, national, and local news, and compare television news to what the print media says about the same topic.

Of course, even when watched critically, not everything on television is appropriate or remotely educational for children. Despite its potential as an educational tool, television is a decidedly adult-oriented medium. Educators agree that television today needs more programming intended specifically for children. Certain programming, most notably that of public broadcasting and local television stations, caters to children and enhances many of the basic skills for school readiness, including reading. Other programs use popular characters to directly encourage children to visit libraries and discover books for enjoyment. And throughout the 1970s and early 1980s, even a commercial network committed programming time during Saturday morning cartoons for "School House Rock," spots that used music and animation to entertainingly teach grammar and other topics to young viewers.

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Besides having effects on reading in the traditional sense, television plays an important role in a new kind of reading and literacy — that of the visual media. Media literacy — in a sense, how to "read" television shows, computer programs, or CD-roms — still

requires comprehension of symbols, information, ideas, values, and messages. The difference is that they emanate from a TV screen or monitor instead of a printed page. As technology plays an increasingly important role in our lives and in our children's education, there is a need for students to become informed viewers who can learn from television rather than be directed by it.

How Can Parents Influence Children's Reading Achievement?

That a parent is a child's first teacher is more than a cliché. Children who do not develop adequate language skills in the first years of life are up to six times more likely to have reading problems than those who receive adequate stimulation. Evidence is also mounting that parental interest and expectations may be more influential than school factors in determining children's achievement.

Among older children, research shows, the amount of reading students do outside schools is the chief predictor of their reading ability. Both the 1992 and 1994 National Assessment of Educational Progress confirm that students who said they read a lot for fun outside school were more proficient readers than those who read less often.

Certainly one of the most important parental influences upon children's reading habits is an attitude that values literacy. A household manifests its literacy in many ways — its members read daily; it contains books and writing materials; it has many items with labels, such as records and games; people speak with an extensive vocabulary; and there is a lot of speaking, listening, and modeling of language use.

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But the most significant thing that parents can do to stimulate young children's interest in reading is to read to them often. It is important when children are being read to that they sit next to or on the lap of the adult. The child can then see the text and the book and note how the reader moves his or her eyes and turns the pages. This closeness and caring promotes the child's healthy development and preparation for learning, and reinforces the idea that reading is enjoyable. Some researchers believe that the interaction between parent and child during reading time matters just as much as the reading itself.

As children learn to read, it is a good idea to continue this activity, with children reading to parents as well as parents reading to them. Each can take turns on alternate pages or chapters. Reading

aloud to an audience is one of the best ways for children to practice reading skills. Grandparents, older siblings, and other relatives and friends can play an important role in this respect. Researchers have found that students who read and write with a variety of family members are better able to reflect on reading, writing, and language. Such reflection is a complex skill necessary for literacy.

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Parents whose own literacy skills may be weak can still do this most essential parent-child activity using picture books. The pictures in the books can serve as cues for the child to make up stories, to talk about the meaning of the illustrations, or to relate the illustrations to their own lives. The parent or other adult can ask questions or prompt the child to keep the story moving. In addition, today many books for both children and adults are available in "read-along" versions with audiotapes. The parents and the child can listen to the tapes and read along.

There are other fun activities that parents and children can do together that stimulate interest in reading and develop some of the skills needed to become good readers, but that don't require the parent to have strong literacy skills. For example, since reading, writing, and speaking all involve symbol manipulation, any manipulation of symbols — playing with colorful shapes, drawing or painting, reciting or singing nursery rhymes, or dancing a set of steps — develops and reinforces reading skills. Currently, less than 40 percent of parents teach their three- to five-year-olds songs or music or occupy them in crafts.

Parental behaviors as fundamental as conveying the belief that children can successfully do things helps children develop confidence in their own abilities to make meaning of information. Parents of good readers praise their children's reading accomplishment. Conversely, they do not punish poor readers. Punishing children who read poorly tends to develop negative attitudes about reading and lower reading achievement.

Attentive listening as children express themselves, along with home conversation overall, is another critical element in children's language development. During conversation, even very young children learn that words represent ideas and objects. For all children, conversation develops vocabulary.

A recent survey, however, reports that parents talk to their children, on average, just a few minutes each day, and even then they are usually giving orders. Such survey results are not encouraging. Parents who talk with their children about their lives and the world around them help children to place ideas in context and to infer meaning from events — both of which are skills that, research suggests, are necessary to reading achievement. This openness to discussion is important both before and after children have learned to read.

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Having the opportunity to talk about books, in particular, sends an important signal to children. It tells them that reading is important. Parents who discuss the books and ask probing questions draw children more deeply into the books and model an attitude of curiosity and a desire to learn. One study found that children whose parents asked thought-provoking questions and related story events to real life achieved better in school than children whose parents asked perfunctory questions or did not discuss the texts at all.

Still another thing that parents can do to stimulate children's interest in reading is to read often themselves, for pleasure and for various other purposes — even reading bills, grocery lists, or assembly instructions. And the more parents can involve children in such daily reading activities, the more interested in reading children become. Some ways for children to participate are to make their own grocery lists, help assemble a new toy or new piece of furniture by following written direction, or read some of the junk mail.

Because reading and writing go hand-in-hand, another way that parents can stimulate interest in reading is by stimulating interest in writing. Even very young children want to imitate their parents. When they see their parents write, they want to do so, too. Providing writing materials and encouraging their use will stimulate interest. For children who cannot yet write with a pencil, magnetic boards and letters may promote development of letter-sound knowledge. It is important to encourage whatever marks children make and not to push them to write discernible letters. Scribbles will, in time, take form — shapes, pictures, then letters and words. Having an audience to share such written communications with encourages further growth. The audience can be as close as those who pass the refrigerator door or as far away as a distant grandparent or other relative.

It is best for parents to refrain from the structured drill and practice activities that children may do in the classroom. It is better for parents to provide enriching, stimulating, and fun activities that reinforce classroom instruction, stimulate interest in and a desire to read, and provide opportunities for success. Some research has shown that children whose parents simply read to them perform as well on beginning reading tasks as those whose parents taught their children more formal tasks such as naming letters and identifying sounds using a workbook.

What Can Schools Do to Encourage Parents to Participate in Their Children's Reading?

A statistician calculated that if every parent of every child between the ages of one and nine spent one hour a day, five days a week, reading or working on schoolwork with the child, American parents would devote at least 8.7 billion hours to supporting their children's reading. If the child's teacher spent the same amount of one-on-one time, it would cost $230 billion — about what the entire K-12 system costs now. Moreover, at least one study showed greater gains by students who practiced reading with parents at home than those who received extra assistance from a reading teacher at school. And the gains the children made were still evident several years later.

Schools can help parents participate in their children's reading in many ways. One of the most important is letting parents know that their involvement is welcome and essential. Studies show that when schools run informational and training sessions to tell parents about the teaching of reading and to encourage their participation, children's attitude toward reading improves and achievement increases significantly.

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Parents want to help their children learn to read, and most do so; however, they also seek specific guidelines on how to best support the learning that is taking place in the classroom. And although no one strategy will work for every parent and every community, several examples of effective home-school literacy programs exist in both rural and inner-city settings. Researchers studying these programs have provided a set of guidelines for schools planning and implementing a parent involvement program in reading. First, the researchers recommend that schools learn what parents want. They can begin by noting the kinds of assistance that parents seek from schools but they should also take a more proactive role, asking parents about how the school can better support home reading activities. Some things to consider are: Do parents need to develop literacy skills themselves? Do they need general information about developing literacy skills or stimulating interest in reading in their children? Do they need specific information about reading techniques? Do they need suggestions of particular books

or video programs that they should encourage their child to read or watch and discuss?

There are several formats to choose from in developing parent participation programs, depending, in part, on whether a program is for an individual classroom, for a whole school, or district-wide. Effective parent involvement programs have employed some of the following: workshops or video presentations on how families can foster specific reading strategies; "make and take" workshops in which parents can make game materials to take home and/or use as classroom volunteers; home visits; reading clubs for the whole family, perhaps conducted in partnership with a local college or university; written materials regularly sent home with students, including suggestions for activities that parents and their children can do together to foster literacy, bibliographies, word games, poetry, and television calendars; a program in the community library; a book fair; summer activity suggestions; daily comment booklets for parents and teachers that travel between school and home; and opportunities for parents to volunteer in the classroom as tutors or paraprofessionals.

The point is to suggest a variety of activities that parents can do with their children and explain why an activity is valuable.

Parents participating in a successful home-school book-sharing program in the Midwest report not only a significant increase in the amount of reading done by student participants, but also a dramatic improvement in family communication because the program encourages conversations, journal writing, drawing, and dramatic improvisations about the books that parents and students read.

The point is to suggest a variety of activities that parents can do with their children and explain why an activity is valuable. Programs exist that show parents how to use games, grocery shopping, cooking, television viewing, and other activities from everyday life to foster reading. In addition, parents may need specific guidelines regarding what kinds of praise encourage further reading or what kinds of questions reinforce reading skills. Schools can provide these guidelines.

Generally, the number of parents participating decreases as the required time and level of commitment increases. There are always parents at every level of the time continuum. Schools should continually reach out to everyone, seeking to match the needs of students and their families with what the school is able to do.

Teachers and administrators can also encourage parents to use school resources whenever possible. Parents need access to school libraries, including collections of videos and print materials about literacy development that they can borrow. Invitations to visit the classroom and to call when they have questions also help. Joint parent and school fundraising projects for books and materials that foster literacy can also bring parents and schools together in literacy development activities.

Lastly, schools should regularly assess their parent involvement programs, seeking information from parents so that they can modify their activities as needed. Parental comments can take the form of written surveys, sample telephone or face-to-face interviews, or focus groups.

How Can Community Resources Encourage Reading?

A few years ago, Baltimore Mayor Kurt Schmoke decided his city was going to become a city of readers. The mayor handed out bookmarks at many civic events and press conferences pitching Baltimore as the city that reads. In this small way, the mayor was turning the city into a place that encouraged reading among its children.

Communities across the country invest money to support their schools. They expect that investment to pay off in skilled workers who will make a better tomorrow for all of us. But the community's involvement in learning — and by extension reading — does not end with tax dollars. Communities must encourage their young people to read. Chiefly, they must become centers of inquiry that allow for a diverse number of opinions and points of view that children can investigate and seek to comprehend.

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As such, communities can encourage reading by supporting libraries that have large collections of books and extended hours for reading. Local newspapers can publish special pages for children. Papers can also run columns for parents on how to help children learn to read. Such articles often highlight the latest trends in reading education or the latest developments in reading research. Through continued education, parents can learn the proven ways to improve their children's reading skills.

Communities can also take an active interest in issues of student assessment. Sometimes, administrators and policymakers who have little contact with classrooms, teachers, or students guide assessments. Their efforts may silence others who have a stake in the assessment process, including parents and the public as a whole. Communities should take an active interest in decisions related to reading assessment, including the types of tests students take and other assessment practices. Only then can members of the community abandon their silence and become vital participants in the decisions affecting our schools.

How Can We Move Forward to Improve Reading Teaching and Learning?

Today's and tomorrow's reader is a critical thinker and problem solver who examines words in context in order to make sense of the whole text. Researchers who have studied learning define this type of reader as an "engaged reader."

Engaged readers demonstrate a number of characteristics:

- Engaged readers are responsible for their own reading and learning. They have a clear sense of the purpose for which they are reading and the problem they are trying to solve, and they set goals for themselves accordingly. They create their own standards of excellence and ways of determining how they measure up.

- Engaged readers are strategic. They use many different strategies to construct meaning from the written word and are constantly refining them. They connect what they've read to their experience and knowledge. They also redirect their efforts when they are wrong or when the information changes, and they know how to work around their own weaknesses. Strategic readers are adept at transforming information from reading into complex, creative problem solving.

- Engaged readers become energized by what they read. They derive excitement and pleasure from reading, which in turn translates into a motivation to read and a lifelong passion for learning. They use new information from reading to reflect on their thinking and to determine what steps to take next.

- Engaged readers are collaborative. They understand that reading is a social activity. They skillfully interact with the text and with a knowledge-building community of readers. Their reading gives them a foundation to put forth their own points of view, while also listening attentively and openly to the views of others.

Engaged readers demonstrate a number of characteristics...

Given the right tools and instruction, all children can become engaged readers. To do so, teachers must draw them away from passive learning tendencies, teach them in ways that build on their natural curiosity, abilities, and real-life situations, and lead them to become active, responsible learners.

Given the right tools and instruction, all children can become engaged readers.

Teachers who promote engaged reading are facilitators and guides. They provide learning environments that are rich in books, experiences, and activities and assign reading tasks that are meaningful to students. They create innumerable opportunities for collaborative reading activities and problem solving. They mediate, model, and coach, all the time adjusting their level of support to students' needs. Often, they are co-readers — reading and learning right alongside their students. In such classrooms, teachers weave reading instruction into everything that children do.

Similarly, parents of engaged readers create such learning environments within the home, taking the ideas of meaningful learning and real-life activities one step further. They encourage the reading skills they see developing within their children by showing enthusiasm and interest in the reading activities of their children, and even taking part. These parents model the behavior of engaged readers, reading often for enjoyment and purpose. They maintain an overall expectation of literacy in the home that, while not holding their children to unrealistic goals, conveys a sense of confidence that their children can achieve.

All of this can be done on a wider scale — throughout the whole community — so that young people are surrounded by an environment that encourages reading for a better future. In this way, children begin to understand that reading is not merely a subject they take in school, but a valuable part of every facet of life.

Good research informs the most interested parties about the knowledge that is necessary to create any effective practice. But as this publication seeks to show, making progress in reading instruction means going beyond research; it requires the

continuous contributions and involvement of not only researchers and practitioners, but also policymakers, parents and family members, and communities as a whole to turn what we know about reading teaching and learning into effective instruction for our children.

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