Leaders in Literacy

Multi-disciplinary Literacy Research for the Twenty-first Century

MARYLAND LITERACY RESEARCH CENTER • COLLEGE OF EDUCATION • UNIVERSITY OF MARYLAND
<table>
<thead>
<tr>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Message from the Dean of the College of Education  2</td>
</tr>
<tr>
<td>Overview 3</td>
</tr>
<tr>
<td>Chapter One 6</td>
</tr>
<tr>
<td>Successful Readers: Cognitive and Thinking Processes</td>
</tr>
<tr>
<td>Chapter Two 10</td>
</tr>
<tr>
<td>Successful Readers: Motivation and Social Factors</td>
</tr>
<tr>
<td>Chapter Three 14</td>
</tr>
<tr>
<td>Struggling Readers</td>
</tr>
<tr>
<td>Chapter Four 18</td>
</tr>
<tr>
<td>Instruction for Literacy</td>
</tr>
<tr>
<td>Chapter Five 24</td>
</tr>
<tr>
<td>Tools for Learning</td>
</tr>
<tr>
<td>Conclusion 27</td>
</tr>
<tr>
<td>About the College of Education at the University of Maryland  28</td>
</tr>
<tr>
<td>Maryland Literacy Research</td>
</tr>
<tr>
<td>Center Faculty 29</td>
</tr>
</tbody>
</table>
Literacy is a more critical topic of scholarly inquiry than ever before. On an individual level, literacy is the key to societal benefits and opportunities. On a global level, literacy is a prerequisite for much of the knowledge, skills and abilities that fuel the economy. Despite its apparent importance, the development of literacy remains a major challenge for teachers, educators and educational researchers.

At the University of Maryland College of Education, we are fortunate to have an extremely strong cadre of literacy researchers who approach the topic from multiple disciplinary perspectives. These scholars have come together to form the Maryland Literacy Research Center to strengthen their collaboration, stimulate their continued research, and energize their teaching. As dean of the college, it is my very great pleasure to introduce them to you through this publication, Leaders in Literacy.
Overview

What Is Wrong with Reading?

The shocking truth is this: 70 percent of eighth-grade students think reading is boring. Less than 45 percent of them perform above a basic reading level; only 7 percent can read at an advanced level required to critically analyze text or extract information from multiple sources. These are the same children who started their reading education with enthusiasm and interest in first and second grade. The statistics for writing ability and interest are even grimmer.

Literacy is not a goal but a standard in civilized cultures. Reading and writing with fluency are the traditional measures of an educated person. And yet we struggle, as educators and parents, to bring our children to the level of skill that will ensure their literacy.

A serious gap in school performance and achievement persists between African American/Hispanic students and Caucasian/Asian students; it is the first concern of researchers to tackle that gap even as populations shift. We can no longer speak of minority/majority achievement in the current demographic environment, though the characteristics of each of these groups contribute to the problems of teaching. Also contributing are increasing numbers of second-language learners, a growing gap between economic classes, and a culture-wide reduction of interest in reading as a cultural pastime as video, computers and other electronics dominate children’s leisure hours.

Even as the amount of information and knowledge required to be literate is expanding at ever-accelerating rates, children have less exposure to the written word in their lives outside of school and almost no incentive to use writing as a means of self-expression or information-sharing in their personal interactions. Even as the demands in the workplace require ever-more complex comprehension and communication skills, children are turning away from the pleasures and rewards of reading for learning.

Reading for Learning

Statistics confirm a shift in performance and interest in reading just at the point when most children have mastered basic reading skills and begin the transition to reading for learning.

“The problems of beginning reading in grades K–2 have been the center of research focus in literacy for the last 20 years,” explains John Guthrie, director of the Maryland Literacy Research Center in the College of Education. “We’ve gained a good understanding of how children learn to read and how to teach beginning reading. But as performance measurements show, reading for comprehension—especially in grades three through eight—falls far below expectations, and in some cases actually diminishes in later grades.” There is almost no research beyond the anecdotal to explain or ameliorate
this phenomenon. That is a gap Guthrie and his colleagues are working to fill.

What do we know about the processes and practices of reading for knowledge, understanding and critical analysis? How is comprehension tied to motivation, and how is motivation encouraged in young readers? What are the environmental or social factors that influence reading development in elementary and middle school grades?

The knowledge base that might inform these questions is remarkably underdeveloped, says Guthrie, who for five years co-chaired the National Reading Research Center. He now serves as a member of the RAND Panel setting the research agenda for the U.S. Department of Education. He is gratified that reading comprehension as the critical factor in new knowledge acquisition across the K–12 curriculum has surfaced as a key focus for research funding.

Comprehension is built on a complex structure that researchers are just beginning to define—a structure that includes motivation, access, cognitive strategies and prior knowledge as well as decoding skills and vocabulary. The faculty of the University of Maryland's College of Education have deep interest in exploring the many aspects of reading and writing development for both successful and struggling students in the crucial middle school years.

**Maryland Literacy Research Center**

The Maryland Literacy Research Center grew naturally from broad faculty expertise at the University of Maryland in literacy research and education, and from a desire to reach across specializations to share information and ideas. “We realized the importance of cross-fertilization in the areas of human development, educational psychology, special education, and curriculum and instruction in understanding and implementing classroom practices that would enhance learning,” says Guthrie. “Our College of Education faculty are, perhaps uniquely, positioned to make important contributions in the area of reading comprehension research, both in terms of practice and policy.”

Formed in 2000, the Maryland Literacy Research Center brings together 18 of the College of Education’s 100 faculty members. Their interests range from developmental aspects of cognition and thinking to the processes of constructing and analyzing argument and the use of computers in knowledge acquisition. They represent the departments of human development, curriculum and instruction, and special education at the university and are all prominent researchers and contributors to the literature of their fields. (Information about each faculty member begins on page 29 of this publication.)

Guthrie describes the center as a consortium of experts dedicated to addressing some of the key issues of literacy—defined in this publication under five broad topic areas—from perspectives that span the specializations within education research. The center’s faculty meet informally to exchange ideas, findings and current activities, and they conduct a series of seminars each semester to discuss their work. The center’s Web site, [www.education.umd.edu/literacy](http://www.education.umd.edu/literacy), provides a national forum and a resource for the most current research and publications about the problems, factors and methods for improving reading instruction and learning. Using this sharpened focus, researchers hope that the issues of sustained reading achievement and interest will begin to influence teacher education programs and national literacy policy.
Maryland Literacy Research Center faculty have strengths in both quantitative and qualitative research methods. “We have important support from the Interagency Education Research Initiative, which combines the interests of the Office of Educational Research and Improvement, the National Science Foundation and the National Institute of Child Health and Human Development, on the basis of our data-based research in analyzing the factors involved in reading achievement,” Guthrie says. “The federal government is looking for measurable conclusions, and I believe that quantitative methods are crucial to attracting those research funds and impacting national policy.”

However, Guthrie maintains, the true success of the center might well be measured by how effectively this group of faculty can demonstrate the benefits of closing the gulf between the two research camps prevailing in education today. “The two schools of thought—let’s call them the scientific model and the anthropological model—don’t talk honestly and deeply enough.” During the 20 years between the 1960s and 1980s, the scientific model prevailed. It relies on quantitative measures, theory tested with experiment, and conclusions drawn from large correlational data—in other words, measuring the success or failure of a practice or condition by the numbers of students whose success or failure is explained by a given variable. The problem with this method lies in the lack of understanding about the contextual reasons for failure—or success—among the students studied. In the succeeding 20 years, the anthropological model, viewing the individual student as the center of social, environmental and educational factors, gained influence. “The problem with the latter method,” Guthrie maintains, “is that the findings are not usually transferable, generalizable or able to inform policy. We have gained immense amounts of valuable material from these case studies about cognitive, developmental and pedagogical processes. As researchers we have an obligation to integrate the knowledge gained from both quantitative and qualitative methods into a solid foundation for decision-making.”

The potential for groundbreaking cross-disciplinary research, both among Maryland Literacy Research Center members and through external liaison, is tremendous. In the center’s first year, faculty members have received major research awards from the Interagency Education Research Initiative, the National Science Foundation and the Spencer Foundation for studies that relate directly to the center’s mission.

The publication of Engaging Young Readers: Promoting Achievement and Motivation (2000, Guilford Press) in the center’s first year represents the kind of collaborative effort the center hopes to encourage. Edited by Guthrie, Mariam Jean Dreher of the Department of Curriculum and Instruction, and Linda Baker, professor of psychology at the University of Maryland, Baltimore County, this volume contains contributions from many center members as well as other University of Maryland education faculty and experts from around the country. It has been widely hailed as an informative mix of scholarship and practical applications that works to engage children in the process of reading—and writing—for learning.

The following chapters will introduce some of the faculty at Maryland Literacy Research Center and the research they are pursuing in the interest of filling the large knowledge gaps in our understanding of reading and writing development.
Successful Readers:
Cognitive and Thinking Processes

A conversation with Peter Afflerbach, Wayne Slater and Bruce VanSledright, Department of Curriculum and Instruction. Discussion questions: What are the attributes of successful readers in elementary and middle schools? What do we know—and still need to know—about how these attributes are acquired? What factors influence success or lack of success from both the teaching and learning perspectives?
Accepting that the stages “basic,” “proficient” and “expert” are standards for measuring the development of reading skills, one finds a great deal of research that identifies the characteristics of success at each level. “A student at the basic level learns a variety of decoding skills,” says Peter Afflerbach. Among them are word recognition, spelling patterns, strategies for identifying sounds and meaning of new vocabulary, and the understanding of sentence and paragraph structure.

In addition to mastering expanded vocabulary and more complex sentence structure and ideas, more advanced readers “are able to understand and recognize different kinds of text and their purposes, are able to set goals for their reading, and believe in the value of reading, both for knowledge acquisition and social interaction.”

“Knowing the difference between narrative and informational texts, and having the skills to master both, are essential characteristics of the successful reader,” according to Bruce VanSledright. “Children need exposure to expository texts and primary source materials as well as fictional reading. This develops the flexibility needed to adjust comprehension demands among a variety of texts and also gives the student appropriate tools and motivation to fulfill the tasks required in subject area instruction.”

This process is also crucial, says Wayne Slater, to the development of analytical and comparative skills. “The ability to analyze, compare and construct arguments from a variety of texts and points of view, and ultimately to resolve inconsistencies and form conclusions is perhaps the highest order of reading for learning,” Slater says.

Much of the research that informs these standards, especially beyond the basic level, is based on analyzing the processes and performances of already expert readers. “We don’t have a history of research on how these skills and processes develop in young readers, and therefore, we don’t have a firm basis for developing curricula to achieve these results,” VanSledright notes. “The literature is quite clear that we can get most kids to be decent comprehenders, but we need to get them to the level of critical reading, both strategic and tactical.”

Both Afflerbach and VanSledright use the method of verbal protocols, “think aloud” strategies, to analyze the processes of reading comprehension in young readers. Students record on tape what they do and how they think as they read a text, giving direct evidence of their ability to identify the kind of text, predict the kind of subject matter and the way it will be exposed, and what it means to them. This method has revealed that students do not automatically evaluate opinion, notice conflicts or try to integrate an author’s statement with what they know. With teachers’ guidance over months, critical analysis emerges and detection of multiple viewpoints in a topic such as history becomes possible.

“There is no organic difference in individuals to explain the majority of differences in reading achievement,” VanSledright maintains. What surfaces, he and his colleagues believe, is a qualitative and quantitative difference in what they term “prior knowledge.” The conditions of prior knowledge include such variables as vocabulary, exposure to cultural experiences, home environment and attitudes toward reading. “Every child has a store of prior knowledge, but not every child has the richness of experience with language and print that
seems so vital to reading success,” Aflerbach adds.
“And language has to be meaningful. When students get ‘stuck’ in a remedial mode, where decoding, word attack, spelling and vocabulary remain separated from meaning, it kills motivation.” If a student has not found some motivational reason for reading by grade four, Slater says, he or she has most likely tuned out of the process.

“We need to take a look at how elementary teachers are trained and prepared,” says Slater. “They are certified for eight grades and turned out at age 21 to do the best they can. Almost none of them have deep training in subject domains—the history, science, math, civics that comprise curriculum in grades four through eight. Without expertise in those areas, how can they teach students to become truly expert readers?”

“The curriculum doesn’t allow kids to become experts,” Aflerbach adds. “Subject domain curricula are broad rather than deep. The high-stakes tests that prevail throughout the country shape curriculum decisions that don’t always take into account the real goals of educating our children. I see the Maryland Literacy Research Center as a necessary and important catalyst for redefining what teachers teach. We need to remove the ambiguity in policies and educational goals between local, state and federal players.”

“The reality is that teaching is learned on the job,” VanSledright says. “It takes a minimum of three years for a good teacher to get a handle on what works and what doesn’t. Beginning teachers should not be alone in a classroom.”

“The center has one of the most remarkable concentrations of people interested in comprehension and comprehension monitoring in the country,” says VanSledright. “We have the opportunity to initiate research that will influence policy, teacher preparation and curricular strategies.”

“Let’s hope,” says Slater, “that we can restore balance and credibility to the current body of reports and studies. We would like the center to represent the need for detailed and rigorous research in what kids do in the presence of text—both close-up qualitative studies and thorough quantitative and theory-based research.”
Successful Readers: Motivation and Social Factors

Patricia Alexander and Allan Wigfield, Department of Human Development, and Rebecca Oxford, Department of Curriculum and Instruction, direct their research to discover what motivates children to read and to learn from reading. They ask questions about classroom practices, family and peer support, and other social factors that contribute to reading development and comprehension. Why would a child choose to read rather than watch television or play a video game? Can motivation be developed in young readers? What are the factors that stimulate motivation in reading and in achievement in second language comprehension?
Allan Wigfield says, "There is an important distinction between intrinsic motivation and extrinsic motivation." Schools impose a great deal of extrinsic motivation to read—getting the work done, keeping up with peers, being rewarded and recognized for progress or achievement, even threats of failure. The effects of extrinsic motivation are complex; they can facilitate children's initial involvement in reading, but may undermine some children's intrinsic interest. Teachers' goals should be to facilitate that intrinsic motivation to read. "Children who are intrinsically motivated have been shown to feel more competent as readers, are more likely to share reading activities with others and are more likely to read independently of their classroom work," he says.

"Children start becoming readers from the day they are born," Patricia Alexander maintains. "Their parents and family are their first teachers in the way they model and use language. The best thing families can do is read to young children and demonstrate the value and personal pleasure in reading activities."

Research shows that motivation correlates highly to reading achievement and that reading achievement correlates highly to the amount of reading a student does. "So we would define a successfully motivated reader as one who reads often, reads independently and reads at a high level of comprehension," Wigfield explains.

A variety of factors feed motivation, one of the most basic being a strong sense of competence, which is linked, obviously, to skills acquisition. Children in first and second grade are very aware of how they compare to their peers in reading and other skills, whether they are having difficulty completing classroom tasks, what their grades are and how their parents and teachers perceive them as students.

"It is so important that children know that they can learn, that they will make progress. Teachers and parents have to believe that as well, and give the kinds of support that will make progress possible. Without positive support, a child can quickly become discouraged and disengaged," says Wigfield.

"But it is equally important that self-confidence be based on real competence," Alexander warns. "There have been too many years spent on feel-good efforts without real attention to skills acquisition. Students in those environments quickly come to expect high grades and other rewards for minimal understanding."

"Interest is the key to motivating students to learn," Alexander says. "A good teacher knows his students and can find ways to pull the child and the content together." Too much of the attempt to "engage" students consists of "dressing up" a topic in a superficial way, she says, and that often trivializes the content—for example concentrating on George Washington's wooden teeth rather than the quality of his leadership. "I call those teaching tricks cognitive 'highs,' and they often send the message that this subject has to be made artificially stimulating because it is innately dull or unimportant. As John Dewey made clear, you have to find a way to tie the subject to what matters to the child, to get the child invested in knowing and valuing it."

"Researchers have found that as students learn to value learning they become intrinsically motivated and self-directed," Wigfield says. "Classroom environments have a powerful effect on the encouragement or discouragement of motivation to learn, and one of the most important factors is student choice. Giving students opportunities to choose their literacy activities and materials really improves all the characteristics of successful readers: self-regulation, motivation and frequency."
Another key component to motivation is providing interesting texts and challenging tasks. “A variety of reading materials in a variety of formats is more effective than the exclusive use of basal texts,” Wigfield says. “Tasks should be moderately difficult and also varied. Changes in the daily classroom routine are important.”

Reward and recognition programs also need to be carefully evaluated for their effectiveness in supporting motivation. Classroom goal structures are sometimes classified in three ways: 1) individualized structures, where each student is judged on his/her own performance; 2) competitive structures, where there are obvious “winners and losers”; and 3) cooperative structures, where the overall performance of a group of students is measured. Wigfield observes, “With the first method, all students can succeed if each works hard. In the second, differences in competency beliefs are strengthened, and low achievers will suffer. The cooperative method fosters an emphasis on shared effort and interdependence—important values to support. So, teachers should minimize the competitive structures and concentrate on individual and group achievement.”

“One of our real challenges as educators is to make success and achievement valuable,” Alexander says. “In the culture of schooling, being a good student often takes second place to being popular or being athletic. Are teachers conveying the idea of the value of knowing in what they say and teach? Too often the real goals in school are not ‘what did I learn?’ but getting the work done at the highest grade point average—for teachers as well as students.”

For teachers, this often results in “teaching to the bottom,” Alexander explains. “Once a child succeeds, he or she is basically ignored in the curricular program. The money and effort go to lifting the students with problems. This is not a bad thing in itself, but it sends a message about how we value the successful student. The ideal, of course, is optimal learning for everyone.”

“Our research needs to take us deeper into the relationship between achievement and motivation,” Wigfield concludes. “And we need a clearer idea of how motivational factors improve performance in a variety of classroom situations.”

“I would also like us to have a deeper understanding of what should be happening to children throughout their elementary and middle school years,” says Alexander. “What is the continuum of learning for students of different backgrounds and abilities, and how can we enhance that development with classroom practice?”

Contributions of motivation to achievement in second language are similar to those for reading, observes Rebecca Oxford. For instance, the motivation goals of participating in a social group will energize students’ language learning.

When students desire to communicate in the second languages, she says, they learn key strategies. They strive to apply them effectively. “We can see that motivation and language learning strategies are intertwined,” Oxford says, “but how can we address them simultaneously?”
Deborah Speece and Steve Graham of the Department of Special Education focus their research on the “kids who don’t get it.” They address several points. How are we identifying these children? What measures seem most effective in testing and instruction? What do we need to know to better deal with low achievers in reading? How does the child interact with the learning environment? How do our cultural biases reflect the way we label children as learning disabled?
Deborah Speece has been studying children prior to their placement in special education, targeting the development of reading skills. “A central problem in the field of special education is the early identification of children who may experience academic failure,” Speece says. “Frankly, current methods of identifying children as learning disabled don’t work very well. They rely on a ‘wait and fail’ model in which children must demonstrate severe academic problems before we come to their aid.”

It is essential, Speece insists, to take into account the diversity of the children we identify as learning disabled or at risk, and to understand that their problems stem from a multitude of factors. She and Steve Graham point to a combination of possible causes:

- The most obvious symptom of reading problems is difficulty in decoding text—the range of phonetic and alphabet skills, word recognition, word meaning. This not only affects reading fluency and comprehension but also diminishes the student’s interest in reading for learning or entertainment.

- Inflexibility in instructional methods can isolate and alienate some readers. Very little research is devoted to the development of reading comprehension skills and instructional practices that can ameliorate low achievement.

- A student’s background, what they bring to the task, has a strong correlation to performance. It has been shown that children identified as learning disabled have a disorganized, incorrect or incomplete base of prior knowledge, an essential factor in reading comprehension and interest.

- Some research indicates that poor readers do not learn informally as well as successful readers do. Spelling, for instance, is often learned informally through reading and writing, but poor readers are also poor spellers.

- Poor self-regulation skills are characteristic of many struggling learners. They have difficulty “knowing what they know,” monitoring their understanding, self-correcting, and setting goals.

- All of the factors above influence a student’s motivation or interest in reading. Engagement is necessary to comprehension, but many struggling readers have lost interest, not only in reading but also in school itself, by the time they are in third or fourth grade.

“What we don’t know,” says Graham, “is how these factors work in combination to improve reading comprehension. The problem,” he says, “is that the process of learning and understanding takes place in a student’s head. It’s different from student to student, it’s invisible to the teacher, and makes direct intervention really difficult.”

One of the things teachers and researchers have learned to do is impose “think-aloud” strategies to model these processes. While verbal protocols are often used to discover processes by having students talk about what they are doing, for struggling readers a more explicit method of instruction is required.

“We have good evidence that intensive strategy instruction helps struggling students improve their reading and writing skills,” Graham says. “But while good readers may need only a lesson or two in strategies for learning, special ed or learning disabled students may require weeks of training to be able to apply these
strategies usefully.” It is important for teachers to model a variety of these strategies—calling on prior knowledge, visualizing, summarizing, making predictions, asking questions—and give students assistance in applying them to a variety of texts or writing assignments.

“There are three aspects of this ‘scaffolding’ technique,” Graham explains. “First, the teacher presents the strategy as a guide to behavior, then implements the strategy, modeling it for the students. The student has to know the strategy will work and then has to take ownership of it. In this group of readers, the transfer process is sometimes long and requires assistance. The final aspect is having the student be able to generalize and maintain the knowledge of the strategy and be able to modify it to meet new situations.”

“I have been impressed with the importance of interaction between the child and the learning environment,” Speece observes. “For so long, we have defined low achievement as an ‘in child’ problem. We are now finding that different contexts bring out different disabilities and different degrees of severity.” Speece points to a recent article in the journal *Science* where a cross-cultural study of people with reading disabilities in several countries discovered that disabled readers in some countries read much better than those labeled disabled readers in others. The degree of disability was dependent on how closely the letters of the language mapped the sounds of the language. Thus, it was the context that defined the degree of severity.

“The current model of identification of learning disabled doesn’t work,” Speece maintains. Based on a discrepancy between IQ and achievement, the model has several flaws. It doesn’t capture the kids who are testing at lower IQ at all, she says. Their problems are often the same as students identified as learning disabled, and can be treated successfully with the same teaching methods. Also, the identification is not made early enough. It is often not until second through fourth grades that the IQ discrepancies surface.

Speece and her colleagues have just completed a three-year study of an alternative identification model, specifically targeted at reading, that shows real promise. “We call it a Treatment Validity Model; it’s based on a test-teach-test method that continually monitors individual progress toward the goal of reading fluency.” By using an assessment highly correlated to reading achievement and comprehension and custom designing interventions to “treat” deficiencies, the researchers were able to identify and correct problems as they surfaced.

Apart from significant reading improvement in the test group, the research uncovered some astounding differences from the IQ-discrepancy control group. The IQ model has always evidenced an over-representation of minority students. In the treatment validity model, minority student representation correlated almost exactly with its representation in the school population. Similarly, school-identified learning disabled students are about 3-to-1 male to female. In the treatment validity samples, the gender proportion was exactly 50-50. These findings imply a serious racial and gender bias in current school-based identification methods.

The reality, these researchers agree, is that all students can improve performance, all students can be taught. “We are searching for the information about reading comprehension that will help teachers help the kids who need it most,” Graham says. “We have got to overcome the disaffection with learning, and specifically reading, that seems to plague so many of our middle school students.”
Instruction for Literacy

John Guthrie, Human Development, Karen Harris, Special Education, and Mariam Jean Dreher, Curriculum and Instruction, bring their perspectives and research to bear on the ways classroom instruction can be structured to encourage reading engagement, improved comprehension and writing skills. They examine how a diversity of texts can enhance instruction. They also introduce a method that has proven to work well in classrooms with students of diverse skill levels.
Recent research has established some new baselines for literacy education, among them the importance of reading comprehension to overall achievement, the symbiotic relationship between reading and writing, and the value of integrating literacy skills with content areas, especially in the middle grades.

“We’ve been able to identify, through research, a set of factors that lead to success in reading comprehension,” John Guthrie says, “many of which have been discussed in the preceding sections. Among them are reading fluency, which has its basis in decoding skills, and the use of cognitive strategies that include the ability to question, predict, summarize and self-monitor during reading.” Linking reading instruction to content areas such as social studies and science is also valuable, he notes. Providing a diversity of texts—stories, information books and electronic texts—has been proven to enhance instruction. Motivating students through self-directed learning, links to experience and interest and collaborative exercises works.

“We cannot underestimate the importance of creating assessment tools that align with these practices,” Guthrie emphasizes. “If performance measurements are linked to basic skills rather than to critical thinking, innovative practices and higher order reading skills will never prevail. “Each of these factors singly has been shown to be significant in teaching comprehension in grades three through eight,” he continues, “and in any investigation of outstanding teachers and their classrooms you will find these practices being implemented. My own work has shown that all of these elements combined provide an optimal environment for improving reading, knowledge and motivation.”

Guthrie and his colleagues have designed a curriculum called Concept-Oriented Reading Instruction, CORI, which has been tested successfully in a variety of classroom settings. CORI is a comprehensive curriculum that integrates all subject areas into a learning module centered on an important knowledge goal—for instance, the concept of adaptation in science, or the concept of civic participation during a particular historic period. The important elements of the curriculum are:

- Clear presentation of the classroom reading and knowledge goals
- Hands-on or real-life experience to stimulate interest and involvement
- Student-generated learning goals based on their questions
- Group investigation of specific topics, with periodic sharing of information across groups
A wide assortment of reading materials and resources on the general topic/concept that bridges as many as five reading levels.

Activities and assignments that expose students to different types of texts and skills, which might include daily logging of a scientific experiment, reporting orally to a group or the entire class on a specific finding, reading and writing fictional or factual pieces, etc.

Explicit strategy instruction in reading comprehension, the use of materials, the processes of research, and the development of arguments and conclusions.

Celebration of the knowledge gained through publishing and communicating it to others.

Throughout the learning module, student interest, self-regulation and self-direction are emphasized, but they are constantly guided, monitored and assessed by the teacher. Groups are encouraged to establish procedures, work collaboratively to solve problems or conflicts, and provide a synthesized final product, but individual activities are also monitored, through portfolios and other assignments.

“One of the things CORI does successfully,” Guthrie says, “is to call upon a teacher’s interest and expertise as well as the students’. And it provides a solid framework, with a beginning and an end, for attaining learning goals.”

The CORI method works well in diverse classrooms and with students of differing skill levels. The most recent evidence showed an improvement in reading comprehension, reading motivation and science knowledge for multicultural populations in Chapter I schools.

Mariam Jean Dreher points out the importance of “reading to learn” in the CORI example. “For too long, elementary reading instruction has been divided into first ‘learning to read’ and then ‘reading to learn,’ she explains. Evidence indicates that, even at the kindergarten level, children can learn from what they read at the same time they are developing basic skills.”

The expectation that students will automatically make the transition from narrative to informational texts in third or fourth grade is unrealistic, Dreher believes. “Besides,” she says, “for some children information text is a way into the world of reading when stories just don’t seem to engage them.” The assumption that all young children prefer narrative stories is incorrect, she adds.

There are several ways to effectively introduce information text, even at the earliest stages of reading instruction. First, parents and teachers should not shy away from selecting information texts to read aloud to children. Dreher has done research suggesting that the opportunity to interact with information texts can broaden vocabulary and increase children’s motivation to read.

It is important, says Dreher, to introduce instruction about how to read information text as early as possible. She lists several methods that work as well in early grades as in middle school:

K-W-L methods include a discussion between teacher and students on the subject they will be reading about: what they already Know, what they Want to know, and as a post-test, what they have Learned.
Reciprocal teaching involves applying cognitive strategies to a text: predicting, generating questions, summarizing and clarifying through ongoing discussion as the text is shared.

“Question the Author” is another collaborative approach developed from constructing meaning and author’s intent as reading takes place. In this process, students begin to understand that the author is a fallible human being and can be questioned.

Collaborative Strategic Reading allows small student groups to help each other apply their comprehension strategies as they read expository text.

This has proven to be particularly successful in diverse groups, both for comprehension and motivation. This early exposure will lead more naturally into the sophisticated tasks of posing questions, researching answers and writing reports. Dreher emphasizes that writing strategies and skills do not flow automatically from reading comprehension, but must be taught.

“It’s true,” says Karen Harris, “that you can’t be literate without both reading and writing skills.” Harris’s particular challenge is to design writing curricula for special education students with learning or attention disorders. “Though our process was targeted to students with learning disabilities and attention deficit/hyperactivity disorders in second and third grade,” she notes, “general education teachers in the schools where we taught were very interested in adapting our techniques to their classrooms.”

In keeping with research findings about special education instruction, Harris and her colleagues based their curriculum on teaching self-regulated strategies to their instructional groups. “This is an instruction-intensive process and a mastery-based approach to learning,” she explains. “It requires both teacher and student cognitive modeling—demonstrating skills, talking aloud about the process and about what the student is doing at each stage. One of the biggest problems with learning disabled students is that they often misconstrue a given task, so asking themselves ‘What am I supposed to be doing now?’ and helping them frame an answer is the first task.”

“We start with story writing,” she says, “and that starts with story reading. We help them answer the question ‘What is a story?’ by helping them identify the components of story grammar: Who, When, Where, two Hows and two Whats are the simplest components. Then, together, we graphically organize these elements on a chart. When the students have begun to master the components, we give them a blank chart to begin the creation of a story of their own. Once they have these elements filled in, they can write a story that is complete and satisfying.”

The instruction is very explicit, and is scaffolded throughout. That is, each child is monitored and when difficulties or errors occur, the teacher redirects, re-explains or otherwise assists the child in completing the task until the student is able to perform it independently.
“What we’ve learned,” says Harris, “is that the process must be slowed down for this group. It may take 15 to 17 intensive 20-minute lessons to complete the learning goal, while for the general school population the same result can be accomplished in about five lessons.” But the effort has resulted in tremendous success, both for the story-writing module and the follow-up opinion essay module—“a precursor for these young students to expository writing.”

Instruction for literacy, then, contains several required elements: It must include both reading and writing strategies, a diversity of text formats, an element of student choice, training in self-regulation strategies, collaborative learning and strong links to content instruction.

“We know that comprehensive instruction is based on a teacher’s expertise, not on off-the-shelf programs, remedial-only designs or testing accountability,” Guthrie states. “We need to know more about the balance of reading, knowledge development, writing, and transfer of skills across subject areas. We need to know how to train teachers for comprehensive instruction, and most of all we need to know more about coping with an increasingly diverse student population, where language, social and cultural beliefs, and achievement all have an impact on learning.”
Tools for Learning

Three faculty members, Roger Azevedo from the Department of Human Development, and Marilyn Chambliss and William Holliday from the Department of Curriculum and Instruction, discuss the current state of instructional resources and the impact of technology on learning achievement.

“Let’s establish at the outset that literacy—which has to include reading and writing skills—is essential not just for success in school, but in life,” begins Marilyn Chambliss. “Our goals as educators go far beyond preparing students to fill out employment forms and pay their bills. How we develop as fully realized human beings depends a great deal on our understanding of what makes us human—and among those characteristics are the ability to record our history and knowledge and share it with others.”

Bill Holliday agrees. “As a researcher in the subject domain of science, I see the importance of kids being able to read and comprehend science as well as do it, which is the current emphasis. They need to be able to think about what science is and does.” This “big picture” understanding beyond specific content knowledge, comes, he believes, from students tackling texts as well as hands-on projects.

Roger Azevedo points to two important changes that will affect learning achievement. “First,” he says, “we have to broaden our understanding of reading to include multiple representations of text. Students have to know how to integrate text, diagrams, digitized video and other dynamic media into their knowledge acquisition. And they need training and encouragement in self-regulation—planning how to learn and self-monitoring their progress.”

“Kids in the middle grades need to know how to set their own learning goals,” Holliday adds. “That is key to motivation. They need to learn ‘fix-it’ strategies—how to correct errors or gaps in knowledge. I’ve done some research with college-age students on their note-taking and studying skills, and the conclusions point to a tremendous lack of understanding about self-regulation in the learning process. We need to give kids instruction in these skills.”
"It's important to emphasize the need for reading skills in the electronic environment as well," Azevedo points out. "The computer as a cognitive tool is only as valuable as the student’s ability to comprehend text." The computer, he explains, requires a discreet set of skills and processes for extracting knowledge, "but 90 percent of what is accessed is textual information."

Azevedo, who is an expert in the realm of cognitive processes, has been focusing on how computers are most effectively used as learning tools. "Unfortunately, the current research is still very experimental. The activities are not always age appropriate or adaptable. They’re artificial exercises, measured by pre- and post-activity testing, and not necessarily related to what kids need to know or want to know." He and his colleagues have been collecting data on how children learn in the computer environment, using verbal protocols (having the children explain what they are doing and thinking as they proceed through an exercise) and video tracking, which records their actions and reactions. "We need this data in order to design learning tools that work in the computer environment and support the reasoning exchange of students at various levels of ability," he says.

"Speaking of designing effective tools," Chambliss says, "we need to take a close look at textbooks. In spite of cynicism about their future, textbooks are still the central instructional tool in our school systems and will continue to be for many strong reasons—consistency, continuity, longevity among them. There’s been good progress in the development of textbooks and instructional packages in the last 10 years, but there are also chronic problems that have no easy solution."

Chambliss and co-author Robert C. Calfee of the University of California, Riverside, recently published *Textbooks for Learning: Nurturing Children’s Minds* (Blackwell, 1998). Making the point that today’s texts often sacrifice interesting writing, good organization and comprehensibility in favor of the fact-heavy content demanded by curricula, the book offers sound methodologies for improving the teaching potential of subject domain texts.

However, subject domain textbooks have typically not been held to high writing standards. The result has been books that cover the content, but that do not give students models of good writing in the domain or present important ideas with which students can explore. "You have to understand the process of choosing textbooks to make some sense of this," says Holliday. "Some schools have local choice. Others are county- or even state-driven. Committees make recommendations, someone on the administrative side has final say."

"The truth is that no objective research exists on the effectiveness of one textbook over another as learning tools. Publishers do focus groups to get input from teacher ‘experts,’ who are also used as consultants in developing content and format. The writing is done, not on the basis of what best engages the student, but on the basis of teacher needs, in a ‘cottage industry environment,’" according to Chambliss. Add to this the aggressive marketing of textbooks to selection committees, and the fact that a selection must be made from hundreds of available texts, and the problem becomes overwhelming.

The researchers agree. There is a case to be made for involvement of professional associations and federal agencies in developing national standards for texts and textbooks across grade levels.
Conclusion

We are accelerating toward a time when comprehension is recognized as basic. From the beginning, reading comprehension is fundamental to schooling. Students cannot learn history, science, math, literature or art without high-level comprehension.

Those demands increase as the statewide and subject matter standards rise. Further, success on tests relies on reading comprehension.

Assessment is mostly paper and pencil, and reading is the medium for performance. In the best tests, writing is the tool for expression.

For adolescents and adults, literacy in the culture is expanding in scope. Today’s reading involves the Internet, hypermedia and computer-rich microworlds. Literacy is growing as a staple in school, a tool for assessment, and a prerequisite at work. The challenges for comprehending written work are expanding exponentially.
The College of Education at the University of Maryland has been ranked 22nd among the top colleges of education by *U.S. News & World Report* for 2002. Offering undergraduate, master’s and doctoral degrees, the College of Education provides research- and practice-oriented programs through its six departments: Counseling and Personnel Services; Curriculum and Instruction; Education Policy and Leadership; Human Development; Measurement, Statistics and Evaluation and Special Education. College programs prepare educators, counselors, psychologists, administrators, researchers and educational specialists. Graduates work with individuals from infancy through adulthood in schools, community agencies, colleges and universities. Educational programs are accredited and approved by the National Council for Accreditation of Teacher Education, Maryland State Department of Education, American Psychological Association, Council on Accreditation of Counseling and Related Educational Professions, and Council on Rehabilitation Education.

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Peter Afflerbach, Professor
Ph.D., State University of New York-Albany, 1985
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Peter Afflerbach’s reading research interests lie in three areas—reading strategies, the verbal reporting methodology and reading assessment. Specifically, his work examines reading comprehension strategies of accomplished and developing readers. Most recently, he has investigated the critical reading strategies of middle school students as they read. He uses the verbal reporting methodology to produce descriptions of readers’ on-line processing, and also uses verbal reports to investigate teachers’ decision-making processes related to classroom assessment. He is active in the development of reading assessments at the classroom level that provide useful information to teachers, students and parents.

Patricia Alexander, Professor
Ph.D., University of Maryland, 1981
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Patricia Alexander oversees the educational psychology specialization within the College of Education. Her research addresses such topics as learning, individual differences, and the interaction of knowledge, interest and strategic processing. Recent publications have focused on the nature of academic development, particularly as it relates to domain-specific learning and learning from text.
Roger Azevedo, Assistant Professor
Ph.D., McGill University, 1998
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After receiving his Ph.D. from McGill, Roger Azevedo joined the psychology department at Carnegie Mellon University to complete his postdoctoral training. His research interests concern the development of models of learning, knowledge and performance, and determining how to use these models to improve training and instruction.

Marilyn Chambliss, Assistant Professor
Ph.D., Stanford University, 1990
www.education.umd.edu/literacy/Home/Faculty/chamblis.htm
Marilyn Chambliss is an educational psychologist interested in how readers comprehend exposition in social studies and science (particularly argument and explanation), how different text features influence the children’s comprehension, how to develop comprehensible textbook materials and how to develop powerful comprehension instruction.

Mariam Jean Dreher, Professor
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Mariam Jean Dreher’s research interests include effective early literacy instruction. She has investigated ways to improve intermediate-grade students’ ability to engage in research. Her current work deals with primary-grade children reading and using information text. She will be investigating this issue in depth with support from a major research grant awarded by the Spencer Foundation.

Steve Graham, Professor
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Steve Graham’s research has focused primarily on identifying the factors that contribute to the development of writing difficulties; the development and validation of effective procedures for teaching planning, revising and the mechanics of writing to struggling writers; and the use of technology to enhance writing performance and development. He is co-director of the Center on Accelerating Student Learning and co-editor of Contemporary Educational Psychology.

John Guthrie, Professor
Ph.D., University of Illinois at Urbana-Champaign, 1968, www.education.umd.edu/literacy/Home/Faculty/guthrie.htm
John Guthrie is director of the Maryland Literacy Research Center. His research interests are literacy development and environments for learning. In his work, he has studied reading, writing, science and motivational development. He is co-author of the book Engaging Young Readers: Promoting Achievement and Motivation (Guilford Press, 2000), with Mariam Jean Dreher and Linda Baker (University of Maryland, Baltimore County).

Karen Harris, Professor
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Karen Harris’s research focuses on theoretical and intervention issues in the development of academic and self-regulation strategies among students with ADHD, learning disabilities, and other challenges to learning. She is incoming editor of the Journal of Educational Psychology, and is co-director of the federally funded Center on Accelerating Student Learning in collaboration with Vanderbilt and Columbia universities.
William Holliday, Professor
Ph.D., University of Texas-Austin, 1970
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William Holliday's research interests include examining how college students learn from a combination of reading texts, listening to lectures, and examining professor-provided notes in science class—with a focus on students’ note-taking and study habits.

Jamie Metsala, Associate Professor
Ph.D., University of Toronto, 1993
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Jamie Metsala’s general research areas are prerequisites to early reading achievement; development of speech perception; reading acquisition, cognitive models of reading and reading disabilities. (On sabbatical 2000–01)

John O’Flahavan, Professor
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John O’Flahavan’s research interests include early literacy, school change and teacher professional development. He is the author of numerous articles, is a proposal reviewer for the National Reading Conference, and is on the editorial review boards for Literacy, Teaching and Learning: An International Journal of Early Literacy; Research in the Teaching of English; and The Reading Teacher.

Rebecca Oxford, Professor
Ph.D., University of North Carolina at Chapel Hill, 1978
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Rebecca Oxford is a well-known speaker in the United States and has presented keynote talks on almost all continents. She is the author or editor of numerous books, and is editor of the second edition of the Tapestry Program, a book series for ESL college-age learners. Her two surveys, one on learning strategies and the other on learning styles, have been used by other people in dozens of dissertations and published works. She was director of ESL teacher preparation programs at the University of Alabama and, most recently, at Teachers College, Columbia University. She heads the TESOL and Foreign Language Education at the University of Maryland.

Olivia N. Saracho, Professor
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Olivia Saracho’s current research and writing is in the field of early childhood education. She has written several works on early literacy, such as language and literacy in early childhood education, literacy development and the whole language approach, and literacy activities in a play environment.

Wayne Slater, Associate Professor
Ph.D., University of Minnesota, 1982
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Wayne Slater’s academic training is in cognitive psychology, linguistics, reading, composition theory, and research methodology. His research is focused on the structure of argument in reading and writing. More specifically, he is interested in the saliency of the biased assimilation effect.
when readers attempt to resolve conflicting arguments in persuasive text. In addition, he is investigating the problem-solving strategies used by expert and novice writers in the construction of complex arguments for specific target audiences.

Deborah Speece, Professor
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The themes of Deborah Speece’s research are the developmental and contextual factors that place young children at risk for school failure. Her current research is designed to test the impact of a novel identification model on (a) prevailing methods of learning-disabilities identification in the public schools, (b) overrepresentation of minority children in special education, (c) classroom reading contexts of general education teachers, and (d) the reading progress of at-risk children over a period of three years.

Bruce VanSledright, Associate Professor
Ph.D., Michigan State University, 1992
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Bruce VanSledright conducts research on the teaching and learning of history in public schools. Much of his research has been case-based, detailed studies of how teachers go about teaching the subject. His research reports on how students learn history have focused on the ways in which those students read history texts. In 1999, with support from the Spencer Foundation, he taught American history to fifth graders in a local elementary school for four months. This researcher-practitioner study was designed to test reform recommendations that call for teaching young children to study history with greater linkages to what goes on within the discipline.

Kathryn Wentzel, Professor
Ph.D., Stanford University, 1987
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The focus of Kathryn Wentzel’s work is on adolescents’ motivational and emotional functioning, how it is influenced by social relationships with parents and peers, and how it relates to social and academic adjustment at school. Recent work has highlighted the role of emotionally and socially supportive adult relationships in countering the potentially negative effects of peer rejection on the social and emotional adjustment of young adolescents.

Allan Wigfield, Professor
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Allan Wigfield’s research has focused on the development and socialization of children’s achievement motivation in different areas. In several large-scale, longitudinal studies he and his colleagues have examined how children’s motivation develops across the elementary school years, into and through middle school, and into high school. In the literacy area, he has done research on the development of children’s motivation for reading and how different instructional practices influence children’s reading.
The University of Maryland is the flagship institution of the University System of Maryland. With a mandate to become nationally and internationally recognized for excellence in research and the advancement of knowledge, the university serves as the primary statewide center for graduate education and research and offers an extensive array of services and programs to state government, business and industry. The campus is strategically located in the thriving Baltimore-Washington, D.C., corridor, one of the most prosperous and fastest growing areas in the United States.

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