AMERICAN
Educator

AMERICAN FEDERATION OF TEACHERS
SPRING 2003

The Fourth-Grade Plunge

The Cause. The Cure.

In fourth grade, poor children's reading comprehension starts a drastic decline—and rarely recovers. **The cause:** They hear millions fewer words at home than do their advantaged peers—and since words represent knowledge, they don't gain the knowledge that underpins reading comprehension. **The cure:** Immerse these children, and the many others whose comprehension is low, in words and the knowledge the words represent—as early as possible.

E.D. Hirsch, Jr.
Betty Hart & Todd R. Risley ■ Isabel L. Beck

What if 30 percent of your teachers had a deadly disease?

What if you could do something to help?

THIS YEAR IN SOUTH AFRICA, MORE THAN 1,000 TEACHERS WILL DIE OF AIDS. In Zimbabwe more than 30 percent of the country's teachers carry HIV. Hundreds of thousands of schoolchildren have lost a parent to the epidemic. Throughout Africa, the statistics tell a similar story–**teachers' lives lost and whole education systems endangered.**

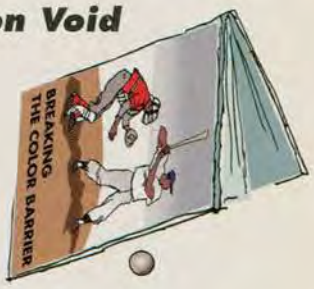
THE AFT LAUNCHED a multi-year, multi-country campaign in partnership with African teacher unions to provide resources to fight the spread of this deadly disease. **But we need your help to make this campaign a success.** Your contribution to the campaign will go directly for union initiatives in Africa to provide resources for HIV/AIDS education, teaching materials, and supplies. To make a tax-deductible contribution, please make your check payable to AFTEF and mail to the address below.

FOR MORE INFORMATION about the AFT-Africa AIDS Campaign, visit the AFT's Web site at **www.aft.org/africa_aids**, or write us at **AFT-Africa AIDS Campaign, AFT Educational Foundation, 555 New Jersey Ave. N.W., Washington, DC 20001**.

AFT-AFRICA AIDS CAMPAIGN
A project of the American Federation of Teachers Educational Foundation

THE AFT-AFRICA AIDS CAMPAIGN IS A PROJECT OF THE AMERICAN FEDERATION OF TEACHERS EDUCATIONAL FOUNDATION, A NON-PROFIT, TAX-EXEMPT 501(c)(3) ORGANIZATION.

AMERICAN Educator
Spring 2003



Cover illustrated by Michael Gibbs

This article is available online at www.nytimes.com/2002/12/29/opinion/a-lost-eloquence.html.

AMERICAN Educator

The Professional Journal of the American Federation of Teachers
Volume 27, No. 1
Spring 2003

American Educator (USPS 008-462)
is published quarterly by the
American Federation of Teachers, AFL-CIO
555 New Jersey Ave. N.W.
Washington, DC 20001-2079
Telephone: 202-879-4420

American Educator is mailed to all AFT teacher, higher education, and other school-related professional members. Annual subscription price: $1.75 (included in membership dues) and available only as a part of membership. Others may subscribe by mailing $8 by check or money order to the address above.

Periodicals postage paid at Washington, DC, and additional mailing offices.
Postmaster: Send address changes to
American Educator
555 New Jersey Ave. N.W.
Washington, DC 20001-2079

Members: To change your address, please cut out your label with code numbers from the back of the magazine and mail it with your new address to the address above.

American Educator cannot assume responsibility for unsolicited manuscripts. Please allow a minimum of four weeks for copyright permission requests.

Letters to the Editor may be sent by regular mail to the address above or via e-mail to amered@aft.org.

Signed articles and advertisements do not necessarily represent the viewpoints or policies of the American Federation of Teachers.

General advertising office
555 New Jersey Ave. N.W.
Washington, DC 20001-2079
Telephone: 202-879-4420

Advertising Sales Representative
Peter Li, Inc.
801 Wells St., Suite 901
Chicago, IL 60607
800-799-5080
312-939-1344

American Educator is produced with the assistance of members of Local 2, Office and Professional Employees International Union, AFL-CIO, and members of AFT Staff Union. Composition and printing are done in 100 percent union shops.

mjklmk

LETTERS

Teachers Need Incentives—and Schools With Discipline

After reading Cynthia Prince's thorough coverage of the need for tangible incentives to keep quality teachers in low-achieving schools ("Attracting Well-Qualified Teachers to Struggling Schools," Winter 2002), I wanted to share my personal experience in this area. I'm in my seventh year in a low-income district plagued, not-surprisingly, with consistently abysmal state test scores. The challenges and stressors of teaching in this environment far surpass any I faced during my former years as a naval officer. Just recently, I had all but made my mind up to take my skills and leave, find a position in a wealthier district—with educated parents for support, dynamic administrators, all those things I fantasized about. As if on cue, I was contacted by the Troops to Teachers program (a federal organization set up to place military veterans as teachers and aides in poor school districts) and offered an attractive bonus if I agreed to stay where I was for three more years. I'm staying. The money is a factor, for sure, in my decision, but I also feel really great about being noticed for what I'm doing and the conditions in which I'm doing it. Please commend Troops to Teachers for what they're doing and promote this as a model to other organizations, both federal and private.

—NANCY E. NEVIL
Waukegan, IL

Cynthia Prince's article on the problems struggling schools face was timely and informative, but gave only glancing mention to an issue that deserves an entire article of its own—disciplining troublesome students.

Students who verbally and physically abuse teachers are probably the single most important reason for the high turnover rate of inner city schools. Inexperienced teachers are placed in low-performing schools because they do not know better and they have no tenure. Experienced teachers simply refuse to work in low-performing schools because they know there is a correlation between low academic performance and verbal and physical violence in these schools.

In addition, experienced teachers know that the rights of the child take precedence over the rights of the teacher. Experienced teachers know that the ones who make the rules—child advocates, administrators, and district superintendents—are all safely out of the classroom and tucked away in offices. While they advocate for the rights of every child to a proper education, no one ever thinks to teach these children an important lesson: that with rights come responsibilities. Everyone has rights in this world, not just children. As a teacher, I have a right to a safe work environment, free from harassment and abuse. Unfortunately, the system doesn't see it that way.

The consequences are revealed in one horror story after another. Teachers are threatened, verbally abused, and physically attacked with little or no consequences for the student. The most troublesome students receive the most attention, while the vast majority of students who want to learn are left to make do with what little attention they can get. If a teacher attempts to have a student removed from the classroom for even one day, the paperwork alone proves draining and ultimately pointless, as the student is returned to the classroom in a day or two. The student remains unchanged, except the student now knows that the penalties for misbehavior are indeed quite painless. For an

institution that is supposed to prepare our youth for the real world, this is a terrible betrayal of the student and our society.

Loan forgiveness, additional bonuses, and housing incentives may work for a short while, but until the problem of violence and discipline is confronted honestly in our cities' schools, struggling schools will continue to lose their best teachers.

SCOTT WALSH
Richmond Hill High School
Queens, NY

Heroes Inspire Admiration and Debate

I want to praise the *American Educator* for publishing Peter Gibbon's article, "Heroes for Our Age" (Winter 2002). He and I are kindred spirits in our belief and our work to bring REAL heroes back into the classroom—and into our homes.

The doubters may say that teaching about heroes "sugarcoats" our history. But it can do just the opposite when we allow our students to meet these real individuals and learn about their struggles to make a positive difference in our world.

Hooray also for the two sidebars on George Washington (becoming a "lost" hero in our country) and Eugenia Ginzburg (a "real" survivor story).

—DENNIS DENENBERG
Co-author,
50 American Heroes Every Kid Should Meet
www.heroes4us.com

The articles that appear in the *American Educator* usually impress me. They often are right on the money as far as educational good sense. But Peter Gibbon's article "Heroes for Our Age" espouses teaching our youth values that are destructive to society. Why honor "heroes" who led in the wrong direction (i.e., Buffalo Bill, General George Custer, Abraham Lincoln, Robert E. Lee, Ulysses S. Grant, etc.)? The last three of these "heroes" led the country through the Civil War, a war that should never have been fought. It surely wasn't worth 400,000 lives just to preserve the union. Many countries have split up and survived. Killing is not to be celebrated.

—ROBERT HETZEL
Curie Metropolitan High School
Chicago, IL

The Early Catastrophe

The 30 Million Word Gap by Age 3

By Betty Hart and Todd R. Risley

During the 1960's War on Poverty, we were among the many researchers, psychologists, and educators who brought our knowledge of child development to the front line in an optimistic effort to intervene early to forestall the terrible effects that poverty was having on some children's academic growth. We were also among the many who saw that our results, however promising at the start, washed out fairly early and fairly completely as children aged.

In one planned intervention in Kansas City, Kans., we used our experience with clinical language intervention to design a half-day program for the Turner House Preschool, located in the impoverished Juniper Gardens area of the city. Most interventions of the time used a variety of methods and then measured results with IQ tests, but ours focused on building the everyday language the children were using, then evaluating the growth of that language. In addition, our study included not just poor children from Turner House, but also a group of University of Kansas professors' children against whom we could measure the Turner House children's progress.

All the children in the program eagerly engaged with the wide variety of new materials and language-intensive activities introduced in the preschool. The spontaneous speech data we collected showed a spurt of new vocabulary words added to the dictionaries of all the children and an abrupt acceleration in their cumulative vocabulary growth curves. But just as in other early intervention programs, the increases were temporary.

We found we could easily increase the size of the children's vocabularies by teaching them new words. But we could not accelerate the rate of vocabulary growth so that it would continue beyond direct teaching; we could not change the developmental trajectory. However many new words we taught the children in the preschool, it was clear that a year later, when the children were in kindergarten, the effects of the boost in vocabulary resources would have washed out. The children's developmental trajectories of vocabulary growth would continue to point to vocabulary sizes in the future that were increasingly discrepant from those of the professors' children. We saw increasing disparity between the extremes—the fast vocabulary growth of the professors' children and the slow vocabulary growth of the Turner House children. The gap seemed to foreshadow the findings from other studies that in high school many children from families in poverty lack the vocabulary used in advanced textbooks.

Rather than concede to the unmalleable forces of heredity, we decided that we would undertake research that would allow us to understand the disparate developmental trajectories we saw. We realized that if we were to understand how and when differences in developmental trajectories began, we needed to see what was happening to children at home at the very beginning of their vocabulary growth.

We undertook 2 ½ years of observing 42 families for an hour each month to learn about what typically went on in homes with 1- and 2-year-old children learning to talk. The data showed us that ordinary families differ immensely in the amount of experience with

Betty Hart is professor of Human Development at the University of Kansas and senior scientist at the Schiefelbusch Institute for Life Span Studies. Todd R. Risley is professor in the Department of Psychology at the University of Alaska Anchorage and director of Alaska's Autism Intensive Early Intervention Project. The two have collaborated on research projects for more than 35 years. This article is excerpted with permission from Meaningful Differences in the Everyday Experiences of Young American Children, © 1995, *Brookes; www.brookespublishing.com; 1-800-638-3775; $29.00.*

ILLUSTRATED BY NENAD JAKESEVIC

language and interaction they regularly provide their children and that differences in children's experience are strongly linked to children's language accomplishments at age 3. Our goal in the longitudinal study was to discover what was happening in children's early experience that could account for the intractable difference in rates of vocabulary growth we saw among 4-year-olds.

Methodology

Our ambition was to record "everything" that went on in children's homes—everything that was done by the children, to them, and around them. Because we were committed to undertaking the labor involved in observing, tape recording, and transcribing, and because we did not know exactly which aspects of children's cumulative experience were contributing to establishing rates of vocabulary growth, the more information we could get each time we were in the home the more we could potentially learn.

We decided to start when the children were 7-9 months old so we would have time for the families to adapt to observation before the children actually began talking. We followed the children until they turned three years old.

The first families we recruited to participate in the study came from personal contacts: friends who had babies and families who had had children in the Turner House Preschool. We then used birth announcements to send descriptions of the study to families with children of the desired age. In recruiting from birth announcements, we had two priorities. The first priority was to obtain a range in demographics, and the second was stability—we needed families likely to remain in the longitudinal study for several years. Recruiting from birth announcements allowed us to preselect families. We looked up each potential family in the city directory and listed those with such signs of permanence as owning their home and having a telephone. We listed families by sex of child and address because demographic status could be reliably associated with area of residence in this city at that time. Then we sent recruiting letters selectively in order to maintain the gender balance and the representation of socioeconomic strata.

Our final sample consisted of 42 families who remained in the study from beginning to end. From each of these families, we have almost 2 ½ years or more of sequential monthly hour-long observations. On the basis of occupation, 13 of the families were upper socioeconomic status (SES), 10 were middle SES, 13 were lower SES, and six were on welfare. There were African-American families in each SES category, in numbers roughly reflecting local job allocations. One African-American family was upper SES, three were middle, seven were lower, and six families were on welfare. Of the 42 children, 17 were African American and 23 were girls. Eleven children were the first born to the family, 18 were second children, and 13 were third or later-born children.

What We Found

Before children can take charge of their own experience and begin to spend time with peers in social groups outside the home, almost everything they learn comes from their fami-

Eighty-six percent to 98 percent of the words recorded in each child's vocabulary consisted of words also recorded in their parents' vocabularies.

lies, to whom society has assigned the task of socializing children. We were not surprised to see the 42 children turn out to be like their parents; we had not fully realized, however, the implications of those similarities for the children's futures.

We observed the 42 children grow more like their parents in stature and activity levels, in vocabulary resources, and in language and interaction styles. Despite the considerable range in vocabulary size among the children, 86 percent to 98 percent of the words recorded in each child's vocabulary consisted of words also recorded in their parents' vocabularies. By the age of 34-36 months, the children were also talking and using numbers of different words very similar to the averages of their parents (see the table below).

By the time the children were 3 years old, trends in amount of talk, vocabulary growth, and style of interaction were well established and clearly suggested widening gaps to come. Even patterns of parenting were already observable among the children. When we listened to the children, we seemed to hear their parents speaking; when we watched the children play at parenting their dolls, we seemed to see the futures of their own children.

Families' Language and Use Differ Across Income Groups

	Families					
	13 Professional		23 Working-class		6 Welfare	
Measures and scores	Parent	Child	Parent	Child	Parent	Child
Pretest score[a]	41		31		14	
Recorded vocabulary size	2,176	1,116	1,498	749	974	525
Average utterances per hour[b]	487	310	301	223	176	168
Average different words per hour	382	297	251	216	167	149

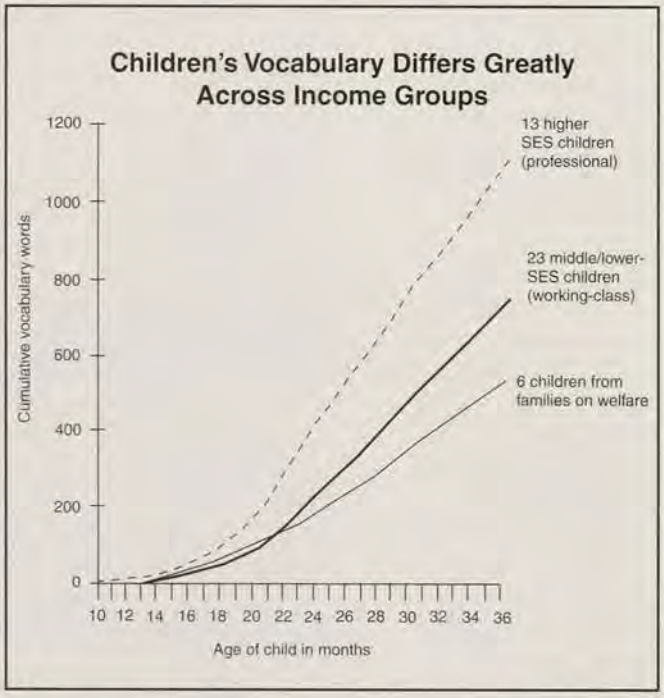
[a]When we began the longitudinal study, we asked the parents to complete a vocabulary pretest. At the first observation each parent was asked to complete a form abstracted from the Peabody Picture Vocabulary Test (PPVT). We gave each parent a list of 46 vocabulary words and a series of pictures (four options per vocabulary word) and asked the parent to write beside each word the number of the picture that corresponded to the written word. Parent performance on the test was highly correlated with years of education ($r = .57$).

[b]Parent utterances and different words were averaged over 13-36 months of child age. Child utterances and different words were averaged for the four observations when the children were 33-36 months old.

We now had answers to our 20-year-old questions. We had observed, recorded, and analyzed more than 1,300 hours of casual interactions between parents and their language-learning children. We had dissembled these interactions into several dozen molecular features that could be reliably coded and counted. We had examined the correlations between the quantities of each of those features and several outcome measures relating to children's language accomplishments.

After all 1,318 observations had been entered into the computer and checked for accuracy against the raw data, after every word had been checked for spelling and coded and checked for its part of speech, after every utterance had been coded for syntax and discourse function and every code checked for accuracy, after random samples had been recoded to check the reliability of the coding, after each file had been checked one more time and the accuracy of each aspect verified, and after the data analysis programs had finally been run to produce frequency counts and dictionary lists for each observation, we had an immense numeric database that required 23 million bytes of computer file space. We were finally ready to begin asking what it all meant.

It took six years of painstaking effort before we saw the first results of the longitudinal research. And then we were astonished at the differences the data revealed (see the graph below).



Like the children in the Turner House Preschool, the three year old children from families on welfare not only had smaller vocabularies than did children of the same age in professional families, but they were also adding words more slowly. Projecting the developmental trajectory of the welfare children's vocabulary growth curves, we could see an ever-widening gap similar to the one we saw between the Turner House children and the professors' children in 1967.

While we were immersed in collecting and processing the data, our thoughts were concerned only with the next utterance to be transcribed or coded. While we were observing in the homes, though we were aware that the families were very different in lifestyles, they were all similarly engaged in the fundamental task of raising a child. All the families nurtured their children and played and talked with them. They all disciplined their children and taught them good manners and how to dress and toilet themselves. They provided their children with much the same toys and talked to them about much the same things. Though different in personality and skill levels, the children all learned to talk and to be socially appropriate members of the family with all the basic skills needed for preschool entry.

Test Performance in Third Grade Follows Accomplishments at Age 3

We wondered whether the differences we saw at age 3 would be washed out, like the effects of a preschool intervention, as the children's experience broadened to a wider community of competent speakers. Like the parents we observed, we wondered how much difference children's early experiences would actually make. Could we, or parents, predict how a child would do in school from what the parent was doing when the child was 2 years old?

Fortune provided us with Dale Walker, who recruited 29 of the 42 families to participate in a study of their children's school performance in the third grade, when the children were nine to 10 years old.

We were awestruck at how well our measures of accomplishments at age 3 predicted measures of language skill at age 9-10. From our preschool data we had been confident that the rate of vocabulary growth would predict later performance in school; we saw that it did. For the 29 children observed when they were 1-2 years old, the rate of vocabulary growth at age 3 was strongly associated with scores at age 9-10 on both the Peabody Picture Vocabulary Test-Revised (PPVT-R) of receptive vocabulary (r = .58) and the Test of Language Development-2: Intermediate (TOLD) (r = .74) and its subtests (listening, speaking, semantics, syntax).

Vocabulary use at age 3 was equally predictive of measures of language skill at age 9-10. Vocabulary use at age 3 was strongly associated with scores on both the PPVT-R (r = .57) and the TOLD (r = .72). Vocabulary use at age 3 was also strongly associated with reading comprehension scores on the Comprehensive Test of Basic Skills (CTBS/U) (r = .56).

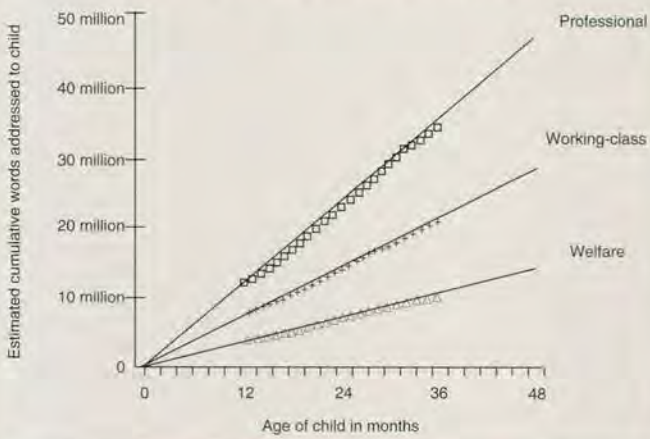
The 30 Million Word Gap By Age 3

All parent-child research is based on the assumption that the data (laboratory or field) reflect what people typically do. In most studies, there are as many reasons that the averages would be higher than reported as there are that they would be lower. But all researchers caution against extrapolating their findings to people and circumstances they did not include. Our data provide us, however, a first approximation to the absolute magnitude of children's early experience, a basis sufficient for estimating the actual size of the intervention task needed to provide equal experience and, thus, equal opportunities to children living in poverty. We depend on future studies to refine this estimate.

Because the goal of an intervention would be to equalize children's early experience, we need to estimate the amount of experience children of different SES groups might bring to an intervention that began in preschool at age 4. We base our estimate on the remarkable differences our data showed in the relative amounts of children's early experience: Simply in words heard, the average child on welfare was having half as much experience per hour (616 words per hour) as the average working-class child (1,251 words per hour) and less than one-third that of the average child in a professional family (2,153 words per hour). These relative differences in amount of experience were so durable over the more than two years of observations that they provide the best basis we currently have for estimating children's actual life experience.

A linear extrapolation from the averages in the observational data to a 100-hour week (given a 14-hour waking day) shows the average child in the professional families with 215,000 words of language experience, the average child in a working-class family provided with 125,000 words, and the average child in a welfare family with 62,000 words of language experience. In a 5,200-hour year, the amount would be 11.2 million words for a child in a professional family, 6.5 million words for a child in a working-class family, and 3.2 million words for a child in a welfare family. In four years of such experience, an average child in a professional family would have accumulated experience with almost 45 million words, an average child in a working-class family would have accumulated experience with 26 million words, and an average child in a welfare family would have accumulated experience with 13 million words. By age 4, the average child in a welfare family might have 13 million fewer words of cumulative experience than the average child in a working-class family. This linear extrapolation is shown in the graph below.

The Number of Words Addressed to Children Differs Across Income Groups



HART & RISLEY, 1995

But the children's language experience did not differ just in terms of the number and quality of words heard. We can extrapolate similarly the relative differences the data showed in children's hourly experience with parent affirmatives (encouraging words) and prohibitions. The average child in a professional family was accumulating 32 affirmatives and five prohibitions per hour, a ratio of 6 encouragements to 1 discouragement. The average child in a working-class family was accumulating 12 affirmatives and seven prohibitions per hour, a ratio of 2 encouragements to 1 discouragement. The average child in a welfare family, though, was accumulating five affirmatives and 11 prohibitions per hour, a ratio of 1 encouragement to 2 discouragements. In a 5,200-hour year, that would be 166,000 encouragements to 26,000 discouragements in a professional family, 62,000 encouragements to 36,000 discouragements in a working-class family, and 26,000 encouragements to 57,000 discouragements in a welfare family.

In four years, an average child in a professional family would accumulate experience with almost 45 million words, an average child in a working-class family 26 million words, and an average child in a welfare family 13 million words.

Extrapolated to the first four years of life, the average child in a professional family would have accumulated 560,000 more instances of encouraging feedback than discouraging feedback, and an average child in a working-class family would have accumulated 100,000 more encouragements than discouragements. But an average child in a welfare family would have accumulated 125,000 more instances of prohibitions than encouragements. By the age of 4, the average child in a welfare family might have had 144,000 *fewer* encouragements and 84,000 *more* discouragements of his or her behavior than the average child in a working-class family.

Extrapolating the relative differences in children's hourly experience allows us to estimate children's cumulative experience in the first four years of life and so glimpse the size of the problem facing intervention. Whatever the inaccuracy of our estimates, it is not by an order of magnitude such that 60,000 words becomes 6,000 or 600,000. Even if our estimates of children's experience are too high by half, the differences between children by age 4 in amounts of cumulative experience are so great that even the best of intervention programs could only hope to keep the children in families on welfare from falling still further behind the children in the working-class families.

The Importance of Early Years Experience

We learned from the longitudinal data that the problem of skill differences among children at the time of school entry is bigger, more intractable, and more important than we had thought. So much is happening to children during their first three years at home, at a time when they are especially malleable and uniquely dependent on the family for virtually all their experience, that by age 3, an intervention must address not just a lack of knowledge or skill, but an entire general approach to experience.

Cognitively, experience is sequential: Experiences in infancy establish habits of seeking, noticing, and incorporating new and more complex experiences, as well as schemas for categorizing and thinking about experiences. Neurologically, infancy is a critical period because cortical development is influenced by the amount of central nervous system activity stimulated by experience. Behaviorally, infancy is a unique time of helplessness when nearly all of children's experience is mediated by adults in one-to-one interactions permeated with affect. Once children become independent and can speak for themselves, they gain access to more opportunities for experience. But the amount and diversity of children's past experience influences which new opportunities for experience they notice and choose.

Estimating, as we did, the magnitude of the differences in children's cumulative experience before the age of 3 gives an indication of how big the problem is. Estimating the hours of intervention needed to equalize children's early experience makes clear the enormity of the effort that would be required to change children's lives. And the longer the effort is put off, the less possible the change becomes. We see why our brief, intense efforts during the War on Poverty did not succeed. But we also see the risk to our nation and its children that makes intervention more urgent than ever. □

Reading Comprehension Requires Knowledge—of Words and the World

Scientific Insights into the Fourth-Grade Slump and the Nation's Stagnant Comprehension Scores

By E. D. Hirsch, Jr.

While educators have made good progress in teaching children to decode (that is, turn print into speech sounds), it's disheartening that we still have not overcome the "fourth-grade slump" in reading comprehension. We're finding that even though the vast majority of our youngest readers can manage simple texts, many students—particularly those from low-income families—struggle when it comes time in grade four to tackle more advanced academic texts.

To help these students, we must fully understand just where this "fourth-grade slump" comes from. The "slump" was the name that the great reading researcher Jeanne Chall used to describe the *apparently* sudden drop-off between third and fourth grade in the reading scores of low-income students. In her research, Chall found that low-income students in the second and third grades tended to score at (and even above) national averages in reading tests and related measures such as spelling and word meaning. But at the fourth grade, low-income students' scores began a steady drop that grew steeper as the students moved into the higher grades.[1] (For a more detailed discussion of Chall's landmark study, see "The Fourth-Grade Slump" on page 14.) I describe this drop-off as *apparently* sudden because there is now good evidence that it is there, unmeasured, in earlier grades. A large language gap—not just a reading gap—between advantaged and disadvantaged students exists also in third-grade, not to mention second, first, and even earlier.

Researchers have known about the fourth-grade slump in poor children's reading comprehension for several decades, but it was only recently, especially in the work of Betty Hart and Todd Risley, that solid data on children's early language development have been available.[2] We now believe that reading tests make the comprehension gap *seem* much greater in fourth grade because the tests used in earlier grades are heavily focused on testing early reading skills (like decoding) and do not try to measure the full extent of the vocabulary differences between the groups.

Yet it would be a mistake to assume that problems with comprehension are limited to disadvantaged students. According to the most recent evidence from the National Assessment of Educational Progress, most students' reading comprehension scores remain low despite many years of concentrated efforts to improve reading instruction.[3] Effective teaching of reading comprehension to all children has turned out to be a recalcitrant problem. Now that we have good programs that teach children to decode text accurately and fluently, the task of creating programs and methods that teach students to *comprehend* text accurately and fluently is the new frontier in reading research.

It's a challenging problem. The U.S. Department of Education is currently soliciting research proposals to help solve it. That's a very good sign. With renewed scientific attention to this fundamental problem, we can expect real progress in equity and in student achievement—some day. Meanwhile, we already know things about reading comprehension that have immediate implications for teachers. I will try to sum-

ILLUSTRATED BY MICHAEL GIBBS

E. D. Hirsch, Jr., is founder of the Core Knowledge Foundation and professor emeritus of education and humanities at the University of Virginia. He has written several acclaimed books, including the bestseller Cultural Literacy: What Every American Needs to Know *and* The Schools We Need and Why We Don't Have Them, *and served as editor of the seven-volume Core Knowledge Series, which ranges from* What Your Kindergartner Needs to Know *to* What Your 6th-Grader Needs to Know. *The Core Knowledge Foundation is dedicated to the idea that high-quality and equitable elementary education is based on a common core of learning. The Foundation develops curricula, conducts workshops for teachers, and supports the growing network of Core Knowledge schools.*

marize some of the most important findings and their implications for classroom practice.

I. A Growing Scientific Consensus

For most of my scholarly life (going back to my first technical publication on the subject in 1960) my research has been concerned with the nature of text comprehension: How do we know we have correctly understood a text? Is reading a displaced version of ordinary oral communication? My active interest in relating that subject to student achievement and educational equity dates to the '70s when I began to study some of the advances being made in cognitive science and psycholinguistics (the study of how our minds produce and comprehend language spoken and written). Now, after several decades of researching this difficult subject of reading comprehension from varied angles in the humanities and sciences, I can report that although what we don't know still far exceeds what we do, there is current scientific agreement on at least three principles that have useful implications for improving students' reading comprehension. The three principles (which subsume a number of others) are these:

1. Fluency allows the mind to concentrate on comprehension;
2. Breadth of vocabulary increases comprehension and facilitates further learning; and
3. Domain knowledge, the most recently understood principle, increases fluency, broadens vocabulary, and enables deeper comprehension.

Fluency Is Important

"Fluency" means "flowing," and in this context it also means "fast." There is a general, though not perfect, correlation between how fast you can comprehend a text and how well you can comprehend it. To most psychologists, including those who don't specialize in reading, it would be surprising if that weren't the case. A person who reads fast has "automated" many of the underlying processes involved in reading, and can, therefore, devote conscious attention to textual meaning rather than to the processes themselves. What's more, fluency is greatly enhanced by word and domain knowledge: While word knowledge speeds up word recognition and thus the process of reading, world knowledge speeds up comprehension of textual meaning by offering a foundation for making inferences.[4] A few of the principles underlying the relationship between fluency and comprehension are explained below.

If decoding does not happen quickly, the decoded material will be forgotten before it is understood. Have you ever tried to understand what is being said in a movie in a foreign language (say in French) that you have studied in school? Even if you know the words, isn't it frustrating that they speak so fast? While you are trying to work out what the actors just said, they are already saying something else, and your mind gets overloaded. The basic difficulty regarding speed and reading comprehension is even more serious than that. If you were able to slow down the movie so that you could concentrate on identifying the words and translating them, you would find in that situation, too, that your understanding would *still* be less than adequate. By having to focus on the sounds, turn them into French words and subsequently into English ones, you tend to lose track of the connections between one sentence and another, and between groups of sentences. You are in the same position as a child who has to translate consciously and slowly from print to sound. Things disappear from your mind before you have a chance to ponder the significance of what is being said. In slowly translating from French to English, you have been handicapped by the severe limits of what cognitive scientists call your "short-term memory" or "working memory."

I vividly remember when I first learned about the severe limits of human working memory and their importance in communication. It was in a wonderful book called *The Psychology of Communication* by the distinguished cognitive scientist George A. Miller.[5] The second chapter was one of the most famous articles ever written in the field of psychology, "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information." The "magical number seven" turned out to be the approximate number of items (whether simple facts, or numbers, or words representing complex concepts) that you can hold in your conscious mind at one time before they start evaporating into oblivion. This "magical number seven" is a limitation that (with some variation) afflicts everyone—including geniuses. One way we overcome this limitation of working memory while reading is by learning how to make a rapid, automatic deployment of underlying reading processes so that they become fast and unconscious, leaving the conscious mind (i.e., the working memory) free to think about what a text means.

This is why fast and accurate decoding is important. Experiments show that a child who can sound out nonsense words quickly and accurately has mastered the decoding process and is on the road to freeing up her working memory to concentrate on comprehension of meaning. Decoding fluency is achieved through accurate initial instruction followed by lots of practice. Typically, it takes several years of decoding practice before children can process a printed text as rapidly as they can process that same text when listening to it.

Students also overcome the limitations of working memory by rapidly grasping what kind of text this is, rapidly identifying words, and by understanding the grammatical connections between them at the basic level of the sentence.[6] This kind of fluency at the sentence level increases with practice and with knowledge of different kinds of writing. Such general language fluency is also intimately connected with well-practiced vocabulary knowledge, meaning how familiar the words and their various connotations are to the student. Take, for example, the following sentence: "Besides having had a lot of useful time in the trenches, Claire will also make a good assistant principal because she is able to keep her eyes on the ball." Educators, with their knowledge of the conventions of language and vocabulary use, will have no problem surmising that Claire has worked with students (probably as a classroom teacher) and is good at staying focused. But notice that to process this simple sentence, you had to interpret two metaphors

A big difference between an expert and a novice reader is the ability to take in basic features very fast, thereby leaving the mind free to concentrate on important features.

(trenches and ball); and if you were to make a judgment regarding Claire's qualifications to be an assistant principal, you would draw on your domain knowledge as to the demands of that particular job.

Finally, fluency is also increased by domain knowledge, which allows the reader to make rapid connections between new and previously learned content; this both eases and deepens comprehension. An expert in a subject can read a text about that subject much more fluently than she can read a text on an unfamiliar topic.[7] Prior knowledge about the topic speeds up basic comprehension and leaves working memory free to make connections between the new material and previously learned information, to draw inferences, and to ponder implications. A big difference between an expert and a novice reader—indeed between an expert and a novice in any field—is the ability to take in basic features very fast, thereby leaving the mind free to concentrate on important features.

This insight was dramatized in a famous experiment. A Dutch psychologist Adrian de Groot[8] noticed that chess grand masters have a remarkable skill that we amateurs cannot emulate. They can glance for five seconds at a complex mid-game chess position of 25 pieces, perform an intervening task of some sort, and then reconstruct on a blank chess board the entire chess position without making any mistakes. Performance on this task correlates almost perfectly with one's chess ranking. Grand masters make no mistakes, masters very few, and amateurs can get just five or six pieces right. (Remember the magical number seven, plus or minus two!) On a brilliant hunch, de Groot then performed the same experiment with 25 chess pieces in positions that, instead of being taken from an actual chess game, were just placed at random on the board. Under these new conditions, the performances of the three different groups—grand masters, masters, and novices—were all exactly the same, each group remembering just five or six pieces correctly.

The experiment suggests the skill difference between a master reader who can easily reproduce the 16 letters of "the cat is on the mat" and a beginning reader who has trouble reproducing the same letters: t-h-e-c-a-t-i-s-o-n-t-h-e-m-a-t. If, instead of providing expert and child with that written sentence, we change the task and ask them to reproduce a sequence of 16 random letters, the performance of the first-grader and master reader would be much closer. On average, neither would get more than a short sequence of the random letters right. Practiced readers, chess grand masters, and other experts do not possess any special brain centers that novices lack, and they do not perform any better than novices on structurally similar yet unfamiliar tasks. Nonetheless, experts are able to perform remarkable feats of comprehension and memory with real-world situations such as remembering mid-game chess positions or the meanings and even spellings of actual sentences and paragraphs. How do they manage?

They do so partly by chunking—a word used by George A. Miller to denote the way knowledgeable people concentrate multiple components into a single item that takes up just one slot in working memory. "The cat is on the mat" is an easily remembered sentence, and expert readers can easily reproduce the 16 letters not because the letters are individually remembered, but because the sentence is remembered as a chunk out of which the sub-elements can be reconstructed from prior knowledge of written English. Remember, working memory can hold roughly seven items—but those items can be anything from simple numbers to complex previously-learned concepts that can be concentrated in a single word or image. What de Groot found, and what subsequent research has continually confirmed, is that the difference in fluency and higher-order skill between a novice and an expert does not lie in mental muscles, but in what de Groot called "erudition," a vast store of quickly available, previously acquired, knowledge that enables the mind to take in a great deal in a brief time. So, when shown a mid-game board, the chess grand masters were not *separately* remembering the placement of 25 pieces—they were able to draw quickly on previous knowledge of similar past games and the one or two ways in which the pieces were aligned differently from those games.

Experiments have shown that when someone comprehends a text, background knowledge is typically integrated with the literal word meanings of the text to construct a co-

(Continued on page 16)

The Classic Study on Poor Children's Fourth-

By Jeanne S. Chall and Vicki A. Jacobs

Administrations of reading tests by NAEP (National Assessment of Educational Progress) have since 1971 confirmed what has long been part of the commonsense and intuitive knowledge of both teachers and laypeople: Children from more economically advantaged families score significantly higher than the less advantaged at all ages tested (nine, 13, and 17), and the gaps become greater with increasing age. The questions are: Why do these differences occur? Why are they so enduring and so universal?

A Developmental Model of Reading

In Chall's stages of reading development (1983, 1996), reading is conceptualized not as a process that is the same from beginning stages through mature, skilled reading, but as one that changes as the reader becomes more able and proficient.

Changes in reading development fall into six stages—from Stage 0 (prereading) to Stage 5 (the most mature, skilled level of reading in which readers construct and reconstruct knowledge from their own reading). Generally, Stages 1 and 2 (typically acquired in grades 1, 2, and 3) can be characterized as the time of "learning to read"—the time when simple, familiar texts can be read and the alphabetic principle is acquired (i.e., readers are able to decode words they do not immediately identify, and they become fluent, especially when reading texts that use language already within their experience and ability); Stages 3 to 5 can be characterized, roughly, as the "reading to learn" stages—when texts become more varied, complex, and challenging linguistically and cognitively. Beginning at Stage 3 (grades 4-8), students use reading as a tool for learning, as texts begin to contain new words and ideas beyond their own language and their knowledge of the world. Words and concepts in such material are beyond the everyday experience of children. In order to read, understand, and learn from these more demanding texts, the readers must be fluent in recognizing words, and their vocabulary and knowledge need to expand, as does their ability to think critically and broadly. If children are unable to make the transition from Stage 2 to 3, their academic success is usually severely challenged.

Using this developmental stage model of reading, we focused a research study on the critical transition from Stage 2 to Stage 3—from "learning to read" to "reading to learn." Teachers have often reported a "fourth-grade slump" in literacy development, particularly for low-income children—precisely at the point of the Stage 2-3 transition. We wanted to examine the skills and abilities of a low-income population to determine why some might meet the challenge of Stage 3 reading whereas others might not.

The Study

The subjects in the study (see Chall, Jacobs, and Baldwin, 1990) were 30 children—about 10 each from grades 2, 4, and 6, whom we followed for two years (through grades 3, 5, and 7 respectively). Low-income status was determined by the students' eligibility for a free-lunch program. Each child was given a series of individual tests of reading and language (as well as writing, but those findings are not presented here; see Chall and Jacobs, 1983). The reading measures were scores on the six subtests of the experimental version of the Diagnostic Assessments of Reading (DAR) (Roswell & Chall, 1992) that consist of word recognition, word analysis, oral reading, word meaning, reading comprehension, and spelling.

The most significant finding of the study for reading was that low-income children in grades 2 and 3 achieved as well as children in the normative population on all six subtests. However, as predicted by the theoretical model of reading used for the study, some of the students' scores started to decelerate around grade 4. This "fourth-grade slump," reported often by teachers of disadvantaged children, started in grade 4 on some tests and later on other tests.

The first and strongest to slip was word meaning. The low-income children in our study—in grades 4 through 7—had greatest difficulty defining more abstract, academic, literary, and less common words as compared with a normative population on the word meaning test. In grade 4, the children were about a year behind grade norms. By grade 7, they were more than two years behind norms. Next to decelerate were their scores on word recognition and spelling. Oral reading and silent reading comprehension began to decelerate later in grades 6 and 7.

Thus, if we view reading as composed of the three basic components proposed by Carroll (1977)—cognition, language, and reading skills—cognition seemed to be a lesser problem for them than language. In grades 4 to 7, they did best on the reading tests that relied on context and required understanding—reading comprehension and connected oral reading. The children

---

The late Jeanne S. Chall is remembered as a great researcher who devoted over fifty years to helping children learn to read well. She authored such classics as Learning to Read: The Great Debate *and* Stages of Reading Development. *Vicki A. Jacobs is associate director of the Teacher Education Program and lecturer at the Harvard Graduate School of Education. This article is based on research originally presented in* The Reading Crisis: Why Poor Children Fall Behind *by Jeanne Chall, Vicki Jacobs, and Luke Baldwin; it is excerpted with permission from "The Reading, Writing, and Language Connection" in J. Shimron (ed.)* Literacy and Education: Essays in Memory of Dina Feitelson. *Cresskill, N.J.: Hampton Press, Inc. 1996, pp. 33-48.*

Grade Slump

had greatest difficulty in grades 4 through 7 in defining less common words and in recognizing and spelling them—skills and abilities needed for reading at higher levels of complexity (Chall, 1983, 1996).

The language tests assessed vocabulary meaning, metalinguistic awareness, and grammatical judgment. All but the vocabulary measure (the WISC-R vocabulary subtest) were developed by Carol Chomsky.

Our population seemed to do well on measures of basic language abilities through the third grade. After the third grade, they began to decelerate first in knowledge of the meanings of words (on the WISC-R as on the DAR)—especially the less common, more academic words found in books used in the intermediate and upper elementary grades and higher. The children's basic linguistic competencies, as shown in their grammar and language awareness scores, were stronger than their word knowledge, especially after the third grade.

In sum, the low-income population in our sample achieved as well in literacy and language as a normative population through the third grade. Beginning with the fourth grade, however, they exhibited signs of a slump. First and strongest to decelerate was word meaning. The slowest to decelerate were reading comprehension and oral reading.

Causes of the Fourth-Grade Slump

One possible reason for the fourth-grade slump may stem from lack of fluency and automaticity (that is, quick and accurate recognition of words and phrases). We found this particularly among the poorest readers who read slowly and hesitatingly in grade 2 and beyond. Lack of fluency tends to result, ultimately, in children's reading less and avoiding more difficult materials (see Chall, 1983, 1996; Stanovich, 1986).

The deceleration of the scores on word meaning, beginning with grade 4 and continuing through grade 7, suggests a difficulty that, if not improved, ultimately affects children's reading comprehension as well. The high correlation of word knowledge with reading comprehension has been found consistently in the research literature from the turn of the century to the present time (see Anderson & Freebody, 1981; E.L. Thorndike, 1917; R.L. Thorndike, 1973-1974).

It is important to realize that the vocabulary scores of our population, when they were in grades 2 and 3, were on a par with the general population. At these levels, the words tested were of high frequency and were familiar. It is when the words became less common (at grade 4 and beyond) that they presented a problem.

Importantly, too, the vocabulary lag did not at first seem to affect negatively the children's silent reading comprehension scores. Although their vocabularies decelerated in grade 4, their comprehension still held up well against norms. It was at grade 6 that their comprehension began to decline. This suggests that the students used context well to compensate for their weakness in word meanings. But when there were too many difficult words, their comprehension declined as well.

Why should low-income children have greater difficulty with word meanings at about the fourth grade? One reason is that the words at fourth grade and above are less familiar. Although the children's language seemed to have been sufficient for the first three grades, they were not prepared to meet the challenge of the greater number of abstract, technical, and literary words characteristic of the reading materials of grades 4 and beyond. Such language—often termed *literary* and *abstract*—is more complex than that used by children in everyday, oral interaction.

A follow-up study of our low-income children, five years later when they were in grades 7, 9, and 11, found decelerative patterns of scores similar to those the children exhibited when they were in the elementary grades (see Snow et al., 1991). On most tests, their scores were below norms, and the discrepancies between their scores and norms were greater in each succeeding grade. By grade 11, their reading scores were in the 25th percentile—considerably below their achievement in grades 4 through 7.

Similar to the deceleration in the earlier grades, the seventh- and ninth-grade students decelerated slowest on tests that permitted the use of context. However, by the 11th grade, even their reading comprehension scores had fallen. Thus, similar to their achievement in the earlier grades, the children scored relatively well, as long as their meaning vocabularies and word recognition were not too weak and when they could compensate through the use of context on reading comprehension. But when there was too great a mismatch between the students' word-meaning knowledge and the difficulty of the text, their use of context was not sufficient to help them to understand the text.

The trends for grades 2 through 7 and grades 7 through 11 suggest that we cannot be sanguine when students do well in silent reading comprehension despite apparent difficulty in word meanings and word recognition. As predicted by the model of reading development, if children are lacking in certain aspects of reading, later reading development will usually suffer. Because of the developmental nature of reading, the later one waits to strengthen weaknesses, the more difficult it is for the children to cope with the increasing literacy demands in the later grades. Moreover, those who have reading difficulties in the intermediate grades will, most likely, have serious trouble with the study of science, social studies, literature, mathematics, and other content study that depend, in great part, on printed text. □

(Sidebar references begin on page 44)

herent model of the whole situation implied by the text. An expert can quickly make multiple connections from the words to construct a situation model. But a novice will have less relevant knowledge and less well-structured knowledge, and will therefore take more time to construct a situation model. Suppose the text contained the term "World War II." Someone who has the requisite knowledge of that war will be able to take in the term very fast, and, like the chess grand masters, be able to unpack its many layers of meaning when needed. The novice's limited background knowledge will not be as readily accessible as the expert's, and so the novice will only slowly make the few connections that his limited knowledge enables. Inevitably, he will comprehend the text poorly.

Breadth of Vocabulary Is Important

Vocabulary knowledge correlates strongly with reading (and oral) comprehension. This seems so obvious that it might seem pointless to discuss vocabulary in a brief review of research on reading comprehension. True enough. But we know a few significant things about vocabulary acquisition that might be useful in enhancing students' ability to comprehend texts. These are not obvious things, and some aspects of vocabulary acquisition are deeply surprising. A few important insights are discussed next.

In vocabulary acquisition, a small early advantage grows into a much bigger one unless we intervene very intelligently to help the disadvantaged student learn words at an accelerated rate. Hart and Risley[9] have shown that low-income homes on average expose young children to far fewer words and far simpler sentence structures than middle-class homes. (To read more about Hart and Risley's work, see "The Early Catastrophe" on page 4.) A high-performing first-grader knows about twice as many words as a low-performing one and, as these students go through the grades, the differential gets magnified.[10] By 12th grade, the high performer knows about four times as many words as the low performer.[11]

The reason for this growing gap is clear: Vocabulary experts agree that adequate reading comprehension depends on a person already knowing between 90 and 95 percent of the words in a text.[12] Knowing that percentage of words allows the reader to get the main thrust of what is being said and therefore to guess correctly what the unfamiliar words probably mean. (This inferential process is of course how we pick up oral language in early childhood and it sustains our vocabulary growth throughout our lives.)

This means that the communications students read or hear hold very different knowledge and word-acquisition possibilities for advantaged and disadvantaged students. Those who know 90 percent of the words in a text will understand its meaning and, because they understand, they will also begin to learn the other 10 percent of the words. Those who do not know 90 percent of the words, and therefore do not comprehend the passage, will now be even further behind on both fronts: They missed the opportunity to learn the content of the text and to learn more words. The prominent reading researcher Keith Stanovich termed this growing gap the "Matthew Effect" from the passage in the Gospel of Matthew: "Unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath."

Overcoming this initial disadvantage is a huge challenge. To do so, we need to engage in the best, most enabling kinds of vocabulary building. As we will see, that means explicit vocabulary instruction done in the best possible way and providing an environment that accelerates the incidental acquisition of vocabulary, which is how most vocabulary growth takes place.

A well educated 12th-grader knows an enormous number of words, mostly learned incidentally. But, there is also an important place for explicit vocabulary development, especially in the early years, and especially for children who are behind. Isabel Beck and her colleagues[13] in their excellent guide to explicit vocabulary instruction estimate that students can be taught explicitly some 400 words per year in school. (See "Taking Delight in Words" on page 36 for an example of such instruction.) These 400 words can be of immense importance to those children who are behind and need to be brought to the point of understanding key words as fast as possible. But that is just the beginning. If we want all of our children to comprehend well, they must learn many, many more words each year through incidental means. A 12th-grade student who scores well enough on the verbal portion of the SAT to get into a selective college knows between 60,000 and 100,000 words. There is some dispute among experts regarding the actual number so we might split the difference and assume that the number is about 80,000 words. If we assume that a child starts acquiring vocabulary at age two, and that the 12th-grader is 17 years old, he has acquired 80,000 words in 15 years. Multiplying 365 days times 15 we get 5,475 days. We divide that number into 80,000, and we find that the high-achieving 12th-grader has learned some 15 words a day—over 5,000 words a year. But of course, the 15-words-a-day estimate is just a mathematical average that describes a haphazard and complex process occurring along a very broad front. (For a brief account of this process, see "Words Are Learned Incrementally" on page 18.)

Most vocabulary growth results incidentally, from massive immersion in the world of language and knowledge. Recent work in cognitive science holds promise for making progress on this incidental learning front. It has long been known that the growth of word knowledge is slow and incremental, requiring multiple exposures to words. One doesn't just learn a word's meaning and then have the word. One gradually learns the word's denotations and connotations and its modes of use little by little over many, many language experiences.[14] The high-performing 12th-grader who knows 80,000 words knows them with very different degrees of complexity and precision, and has learned them not by learning 15 words a day, but by accruing tiny bits of word knowledge for each of the thousands of words that he encounters every day. As I shall discuss below, this and other considerations mean that we should immerse students for extended periods in the sorts of coherent language experiences that are most conducive to efficient vocabulary learning.

If we don't know the domain, we can't construct a meaningful mental model of what's being said.

Domain Knowledge Is Important

More than vocabulary knowledge is needed to understand most texts. To make constructive use of vocabulary, the reader also needs a threshold level of knowledge about the topic being discussed—what we call "domain knowledge." Consider the following examples.

Domain knowledge enables readers to make sense of word combinations and choose among multiple possible word meanings. A typical newspaper article shows why it's important to know in advance something about the subject matter of a text in order to understand it. If we are reading a story about a baseball game in the newspaper sports section, we must typically know quite a lot about baseball in order to comprehend what is being said. Think of the quantity of baseball knowledge that has to be already in mind to understand the simple sentence "Jones sacrificed and knocked in a run." Strung together in this fashion, the literal words are almost meaningless. A baseball-ignorant Englishman reading that sentence would be puzzled even if there were nothing amiss with his fluency or general knowledge of words like "sacrificed." Words have multiple purposes and meanings, and their meaning in a particular instance is cued by the reader's domain knowledge. The word "sacrifice" has different connotations in a baseball story and in the Bible.

Domain knowledge is necessary to give meaning to otherwise confusing sentences. I once read an anecdote about an elderly person who went to hear the great Albert Einstein lecture on relativity at Princeton University. She is reported to have said after the lecture: "I understood all the words. It was just how they were put together that baffled me." What she meant was that the everyday words that Einstein used in his lecture referred to a particular knowledge domain. If we don't know that domain, we can't construct a meaningful mental model of what's being said. Here's a sentence by Einstein such as might have been heard in his Princeton lecture: "It will be seen from these reflections that in pursuing the general theory of relativity we shall be led to a theory of gravitation, since we are able to produce a gravitational field merely by changing the system of coordinates." I know all those words, but since I can't imagine how changing coordinates will "produce" gravity, I can't comprehend what that sentence means.

For a more everyday example, take this sentence from the February 2003 issue of *National Geographic*: "Gigantic and luminous, the earliest star formed like a pearl inside shells of swirling gas." Most adults, drawing on their knowledge of the Big Bang theory, pearl formation (and the use of metaphor, which I return to below), and gasses, can comprehend this sentence. But we would expect different degrees of comprehension among, say, physicists, amateur astronomers, and you and me. Likewise, we should expect little comprehension among average sixth-graders—not just because of the words used, but because of the extensive domain knowledge those words represent in this context.

Reading (and listening) require the reader to make inferences that depend on prior knowledge—not on decontextualized "inferencing" skills. Many basal reading series direct teachers to use valuable teaching time to instruct students in "inferencing skills." But a simple example illustrates that inferencing itself is a fairly basic skill that most children already have: If somebody says to a child, "Hey, shut up. I'm trying to read," most children, advantaged or disadvantaged, can infer the connection between the first statement and the second. They have prior knowledge of the fact that hearing somebody talk can be distracting and make reading difficult. So they are able to construct a mental model that meaningfully connects the sentence "Hey shut up" with the sentence "I'm trying to read." In contrast, many children may not understand the simple sentence, "I wanted to take a vacation in Mexico this year, but my wife can only be away from her job in July." The children who don't understand the connection between the clauses don't lack an inferencing skill; they lack the geographical knowledge that Mexico is extremely hot in July—and not most people's idea of a pleasant vacation spot.

Speaking and writing always convey meanings that are not explicitly given by the words themselves. If speakers or writers tried to make everything explicit, they would take far too much time to say anything, and the message would become impossibly long and digressive. We learn from infancy that oral language comprehension requires readers to actively construct meaning by supplying missing knowledge and making inferences. Of course, the need for prior knowledge

is not unique to oral communication but is also necessary to comprehend written texts.

In comprehension, the need for making inferences by activating already existing domain knowledge has been shown by a number of researchers since the 1960s. But the basic insight goes back further than that. In Greek antiquity it was understood that communication involves the drawing of inferences based on knowledge that is taken for granted. The Greek term for such an implicit argument was "enthymeme," from *en* (in) and *thumos* (mind)—that is, some-

How Words Are Learned Incrementally Over

By Steven A. Stahl

We live in a sea of words. Most of these words are known to us, either as very familiar or at least as somewhat familiar. Ordinarily, when we encounter a word we don't know, we skip it, especially if the word is not needed to make sense of what we are reading (Stahl, 1991). But we remember something about the words that we skip. This something could be where we saw it, something about the context where it appeared, or some other aspect. This information is in memory, but the memory is not strong enough to be accessible to our conscious mind. As we encounter a word repeatedly, more and more information accumulates about that word until we have a vague notion of what it "means." As we get more information, we are able to define that word. In fact, McKeown, Beck, Omanson, and Pople (1985) found that while four encounters with a word did not reliably improve reading comprehension, 12 encounters did.

What happens when someone sees a word for the first time in a book? Consider the following paragraph from the *Atlantic Monthly:*

> America's permanent election campaign, together with other aspects of American electoral politics, has one crucial consequence, little noticed but vitally important for the functioning of American democracy. Quite simply, the American electoral system places politicians in a highly vulnerable position. Individually and collectively they are more vulnerable, more of the time, to the *vicissitudes* of electoral politics than are the politicians of any other democratic country. Because they are more vulnerable, they devote more of their time to electioneering, and their conduct in office is more continuously governed by electoral considerations. (King, 1997)

Although I had seen the word *vicissitudes* before, I did not know its meaning. From the context, one can get a general picture of what it means, something like "serendipitous happenings." My *Random House Dictionary* (1978) says "unexpected changing circumstances, as of fortune," so I was fairly accurate in my guess.

When a word is encountered for the first time, information about its orthography (or spelling) is connected to information from the context, so that after one exposure a person may have a general sense of the context in which it appeared ("It has something to do with..."), or a memory of the specific context ("I remember seeing it in an automobile manual"), but not a generalizable sense of the meaning of the word. Dale and O'Rourke (1986) talk about four "levels" of word knowledge:

1. I never saw it before.
2. I've heard of it, but I don't know what it means.
3. I recognize it in context—it has something to do with...
4. I know it.

In ordinary encounters with a word in context, some of the information that is remembered will be reinforced. The information that overlaps between encounters is what is important about the word. Other information will be forgotten. The forgotten information is more incidental. With repeated exposures, some connections become strengthened as that information is found in repeated contexts and become the way the word is "defined."

Consider the word *vicissitudes* in the above context. The concept of *vicissitudes* will likely be linked to other concepts in the context, such as "politicians," "electoral politics," or possibly to the whole scenario presented. Because of the syntax, we know that *vicissitudes* does not directly mean "politics," but is a characteristic of politics. As the word is encountered repeatedly, it will be associated with other concepts, possibly "romance" or "getting a job." (Or as the mother of one of my students told her repeatedly while growing up, "Beware of the vicissitudes of life.") These become the strong components of the concept, such as might be represented in a dictionary definition (McKeown, 1991). If the links to other concepts are not repeated, they may recede in importance. Given the core meaning of the word *vicissitudes,* the fact that the subject of the essay is politics is incidental and likely would be forgotten with repeated exposures.

As a person encounters the word again and again, word meaning grows at a relatively constant rate, dependent on the features of the context. That is, people show as much absolute gain in word knowledge from an unknown word as they show from a word of

---

Steven A. Stahl is professor of Curriculum and Instruction at the University of Illinois at Urbana-Champaign. Stahl's previous positions include senior scientist at the Center of the Study of Reading, principal investigator at the National Reading Research Center, and elementary school reading teacher in New York and Maine. Stahl has published numerous articles on all aspects of reading research and instruction. *This article is adapted with permission from* Vocabulary Development, *part of* From Reading Research to Practice: A Series for Teachers, *Brookline Books, 1999.*

thing kept in mind and taken for granted but not expressed.[15] One example of this characteristic of speech is a truncated syllogism: "All men are mortal, so Socrates is mortal." To make strict logical sense of this statement, we have to infer the missing premise that Socrates is a man.

Likewise, reading comprehension depends on the reader filling in blanks and silently supplying enough of the unstated premises to make coherent sense of what is being read. Once print has been decoded into words, reading comprehension, like listening comprehension, requires the active

Multiple Exposures

RESEARCH ROUND-UP

which they have some partial knowledge, all other things being equal (Schwanenflugel, Stahl, & McFalls, 1997). We found that students made the same amount of growth in word knowledge from a single reading, whether they began by knowing something about a word or not. Thus, vocabulary knowledge seems to grow gradually, moving from the first meaningful exposure to a word to a full and flexible knowledge.

One does not always need to know a word fully in order to understand it in context or even to answer a test item correctly. Adults possess a surprising amount of information about both partially known and reportedly unknown words. Even when people would report never having seen a word, they could choose a sentence in which the word was used correctly at a level above chance or discriminate between a correct synonym and an incorrect one (Durso & Shore, 1991). This suggests that people have some knowledge even of words that they reported as unknown, and that this knowledge could be used to make gross discriminations involving a word's meaning. Curtis (1987) found that people who reported only a partial knowledge of a word's meaning ("I've seen it before") could make a correct response to multiple-choice questions.

When a person "knows" a word, he knows more than the word's definition—he also knows how that word functions in different contexts. For example, the definition of the verb *smoke* might be something like "to inhale and puff the smoke of (a cigarette, etc.)" (Random House, 1978). However, the verb *smoke* describes distinctly different actions in the following sentences:

(a) He smoked a cigarette.
(b) The psychologist smoked his pipe.
(c) The hippie smoked a marijuana cigarette.
(d) The 13-year-old smoked his first cigarette.

These all fit under the general definition, but the actions vary from a typical smoking action in (a), to a puffing in (b), to a deeper and longer inhaling in (c), to an inhaling followed by coughing and choking in (d). Children cannot learn this information from a dictionary definition. Instead, they need to see the word in many different contexts, to see how the word meaning changes and shifts.

Thus, to understand the word in (d) we need to know that 13-year-olds are generally novices at smoking and that smoking can make one cough, if one is not used to it. Some words are embedded in a single knowledge domain, such as *dharma* or *jib*. To understand *dharma*, one must understand at least some basic concepts associated with Hinduism or Buddhism. To understand *jib*, one must know something about sailing. These words are so tied to their knowledge domains that they cannot be defined outside of them. (Some people, e.g., Johnston, 1984, have used vocabulary tests to measure domain knowledge.) Most words can be used in multiple domains but have distinct meanings within those domains. The word *obligation*, for example, has a series of related meanings, depending on whether the obligation is a moral one, or a payment due on a loan, and so on. Anderson and Nagy (1991) argue that words are polysemous, containing groups of related meanings, rather than a single fixed meaning. These meanings have a family resemblance to each other. Consider the word *give* in these different contexts (Anderson & Nagy, 1991):

> John gave Frank five dollars.
> John gave Mary a kiss.
> The doctor gave the child an injection.
> The orchestra gave a stunning performance.

All of these involve some sort of transmitting, with a giver, a recipient, and something, tangible or intangible, that is given. But the act of giving is radically different in each case.

A full and flexible knowledge of a word involves an understanding of the core meaning of a word and how it changes in different contexts. To know a word, we not only need to have *definitional knowledge*, or knowledge of the logical relationship into which a word enters, such as the category or class to which the word belongs (e.g., synonyms, antonyms, etc.). This is information similar to that included in a dictionary definition. In addition, we also need to understand how the word's meaning adapts to different contexts. I have called this *contextual knowledge*, since it comes from exposure to a word in context. This involves exposure to the word in multiple contexts from different perspectives. Children exposed to words in multiple contexts, even without instruction, can be presumed to learn more about those words than students who see a word in a single context (Nitsch, 1978; Stahl, 1991). □

(Sidebar references begin on page 44)

construction of inferences from utterances that are chock full of unstated premises and unexplained allusions.

Irony, metaphor, and other literary devices require background knowledge for their comprehension. Besides filling out logical connections, there are other ways in which relevant background knowledge is activated in reconstructing meaning from a text. One of the most immediately obvious examples is irony, which, by definition, refrains from explicitly stating its meaning. If it did so, it would cease to be irony and become explicit statement. "He's a bright boy." Is the statement straight, in which case he is thought to be intelligent, or is it ironical, in which case he is thought to be stupid? Irony is subject to two contrary interpretations, the straight and the ironical. To decide between these two possibilities the reader has to activate relevant world knowledge not stated in the sentence.

Another important illustration of the way in which background knowledge is activated in the process of comprehending language is metaphor—an almost omnipresent element of speech. "Victory is sweet" is easily and quickly understood by students. So is "War is hell" or "Don't be a wet blanket." We know these can't be meant literally because we know what is being referred to. Researchers have shown that metaphors are often processed just as rapidly as literal meaning—indicating that we are constantly activating background knowledge in comprehension. In part two of this article, I'll show that this idea of taken-for-granted knowledge is an important clue to the sort of instruction that can help students improve their ability to comprehend written texts.

In recent years, efforts to improve reading have focused on how best to teach decoding. And, of course, fluent decoding is an absolute prerequisite to comprehension. But we can easily see from this quick summary of research that comprehension—the goal of decoding—won't improve unless we also pay serious attention to building our students' word and world knowledge.

II. Rethinking the Language Arts Curriculum

To improve reading, schools across the country have been steadily increasing the amount of time allocated to language arts. For example, in Baltimore, Chicago, and the entire state of California, early-grade teachers are already expected to devote 2 ½ hours a day to language arts. In an AFT poll, 80 percent of elementary teachers said their schools recommended a language arts block of two hours or more each day. (If the poll were limited to teachers in the lower elementary grades, the percentage might have been even higher.) Even given the large challenge we face, this is a lot of time—especially since it's usually during the precious morning hours. We need to use the time optimally. As we shall see, we're not. What's happening in that time? Given

What domain knowledge is optimal?

If comprehension of a text depends on vocabulary and domain knowledge, teachers and program designers still need to ask: What kinds of vocabulary and domain knowledge will most effectively advance the comprehension abilities of our students? What content is optimal?

The most notable early attempt to define this body of knowledge was undertaken by Carleton Washburne in the 1920s when he was superintendent of schools in Winnetka, Ill. According to E.D. Hirsch, Washburne carried out "an exhaustive study of the common allusions to persons and places in periodical literature, recognizing that in order to read intelligently, a person must have familiarity with these persons and places." Once Washburne learned what knowledge was taken for granted in writing addressed to the literate general public, he believed he had a practical basis for determining some of the domains that need to be taught in school.

Sixty years later, not knowing of Washburne's work, Hirsch and his colleagues conducted a similar review in the 1980s. They conducted various surveys—of written materials (newspapers, novels, magazines, etc.) and of scholars and educators, to determine what students should know by the end of eighth grade to have a strong foundation for understanding high school material—and ultimately for participating in literate adult society. The result is a fascinating, systematic K-8 trip through the most critical domain knowledge in the arts, history, science, geography, math, and literature. By the end, children have learned about the pharaohs of ancient Egypt, the culture and castes of India, the world's geography, the greatest of its art, and the fundamentals of modern science.

In science, for example, the first-grade sequence has children learning about the human body's skeletal, muscular, and digestive systems; the solar system and the rocks that make up the earth; and an introduction to "the shocking facts" of electricity. The second-grade sequence builds on knowledge of the body to introduce children to cells, tissues, and organs—and to learn more about the digestive system (a topic of great fascination to second-graders); builds on a basic understanding of electricity to introduce the physical sciences; and uses students' acquaintance with the solar system to introduce them to the remarkable world of astronomy, including a first look at the constellations and Galileo's revolutionary claim that the sun and planets did not revolve around the earth.

The Core Knowledge K-8 sequence is available from the Core Knowledge Foundation. To order or read more about the sequence, visit **www.coreknowledge.org/CKproto2/bkstr/seqnc.htm**. A set of seven books offering an elaboration of the sequence for each grade K-6, aimed at parents and teachers, is available at bookstores. —*EDITOR*

Such knowledge could be conveyed through read-alouds, well-conceived vocabulary instruction, and a variety of cumulative activities that immerse children in word and world knowledge.

what we've just reviewed about reading comprehension, how should it be used?

Start Early To Build Word and World Knowledge

As I mentioned above, the typical disadvantaged child enters kindergarten knowing only half as many words as the typical advantaged child. Because of the Matthew Effect, it may never be possible *entirely* to overcome this initial disadvantage on a large scale: As we have seen, word-rich children learn more vocabulary and content than word-poor children from the very same language experiences. On the other hand, intelligent remediation is possible, especially if we start early by encouraging optimal vocabulary growth in preschool and kindergarten. Acquiring word knowledge and domain knowledge is a gradual and cumulative process. Since early learning of words and things is the only way to overcome early disadvantage, the argument for including optimal content in language arts as early as possible seems compelling.

There are strong theoretical and practical advantages to teaching early decoding through simple "decodable texts" that enable the child to progress rapidly in decoding skill. But the top research in this area suggests that 40 minutes of daily decoding instruction is plenty in first grade; and for most second-graders, 20 minutes is ample.[16] That leaves between one and two hours daily (depending on the time allocated to language arts) for activities that foster vocabulary, domain knowledge, and fluency. Such knowledge could be conveyed through read-alouds, well-conceived vocabulary instruction, and a variety of cumulative activities that immerse children in word and world knowledge. But no published basal program I have seen systematically pursues this goal. Wasted opportunity abounds.

Build Oral Comprehension and Background Knowledge

Thomas Sticht has shown that oral comprehension typically places an upper limit on reading comprehension; if you don't recognize and understand the word when you hear it, you also won't be able to comprehend it when reading.[17] This tells us something very important: Oral comprehension generally needs to be developed in our youngest students if we want them to be good readers.

From the earliest ages, reading is much more than decoding. From the start, reading is also accessing and further acquiring language knowledge and domain knowledge. This means that instruction and practice in fluency of decoding need to be accompanied by instruction and practice in vocabulary and domain knowledge. If we want to raise later achievement and avoid the fourth-grade slump, we need to combine early instruction in the procedures of literacy with early instruction in the content of literacy, specifically: vocabulary, conventions of language, and knowledge of the world.

In the earliest grades, before students can read substantive texts on their own, this content will be best conveyed orally. An important vehicle is teacher read-alouds, in which texts selected for their interest, substance, and vocabulary are read aloud to children and followed by discussion and lessons that build children's understanding of the ideas, topics, and words in the story. As illustrated in "Lost Opportunity" on page 24, most of the popular basal reading series include read-alouds in their curriculum, but the content is almost always banal, and read-alouds are generally phased out in second grade despite the fact that research has found that students benefit from read-alouds until eighth grade.[18] Further, the basal series' teacher guides instruct teachers to build background knowledge, but usually on topics that are thoroughly ordinary, like pets, sharing, and even what spreads taste best on toast!

Another problem is that the early grades language-arts curriculum, both in terms of read-alouds and decoding texts, is overwhelmingly devoted to fiction. Literature is a very important domain of knowledge in its own right, but I have seen no convincing challenge to the argument made by Jeanne Chall, who wrote that we need to place a far greater emphasis on nonfiction in early language-arts classes. This emphasis is essential for children to learn the words and concepts they need to understand newspapers, magazines, and books addressed to the general public.[19] But the problem is not just the disproportionate attention to fiction; in addition, the fiction that is offered is typically trivial in content and simple in its language conventions. Fiction can build knowledge and understanding of peoples, lands, times, and ideas that are very important but totally unknown to children. A fine example of such fiction is *The Hole in the Dike,* included in one basal series. The famous legend acquaints students with Holland, its geography, and the power of water and the ingenious dike system that restrains it. But

such fiction is the exception. Far more typical, especially before grades three and four, are stories based in the here and now that address in pedestrian ways the "ideas" children already know about: school, friendship, families, and the like.

Don't Spend Excessive Time Teaching Formal Comprehension Skills

A great deal of time in language arts is currently being spent on teaching children formal comprehension strategies like predicting, classifying, and looking for the main idea. (See "Lost Opportunity" on page 24.) In most language-arts textbooks, these exercises persist throughout the year and over many years. Every researcher believes that there is *initial* value in practicing these comprehension strategies. They teach children to construe a text in the same meaning-seeking way that they already construe the oral speech of adults and their peers. It helps children understand that the text, like a person, is trying to communicate something. But after an initial benefit, further conscious practice of these formal skills is a waste of time, according to Barak Rosenshine, who reviewed the research on the effects of using such methods. Rosenshine found that spending six classes on teaching these skills had the same effect on students' reading comprehension as spending 25 classes on them. After a quick initial bump, there's a plateau or ceiling in the positive effects, and little further benefit is derived.[20]

Rosenshine's finding might have been predicted from the rest of what we know about comprehension. Children have been strategically inferring meaning from speech most of their lives. (Remember: Every child can construe the inference implicit in "Shut up! I'm trying to read.") Students don't lack inferring techniques so much as they lack relevant domain knowledge. So while it's good to devote only a small amount of time to explicitly teaching comprehension skills, this does not mean that the skills will then be abandoned. They will be activated in the course of becoming increasingly familiar with the vocabulary and domain of what is being read. The point of a comprehension strategy is to activate the student's relevant knowledge in order to construct a situation model. That's great, but if the relevant prior knowledge is lacking, conscious comprehension strategies cannot activate it.

Systematically Build Word and World Knowledge

Let's consider why the current basals have failed to advance reading comprehension scores. First of all, they have failed significantly to advance students' vocabulary. Vocabulary researchers agree that to get a good start in learning the connotations of a word, a person needs multiple exposures to the word in different contexts. Such exposure is not supplied by a fragmented selection of reading in which topics leap from a day at the beach to a trip to the vegetable section of the supermarket.

That is the more superficial defect of current programs; another goes deeper. With their very heavy orientation to trivial literature, these programs do not take it upon themselves to enhance students' general knowledge in any coherent way. Wide vocabulary and broad knowledge go together.

The point of a comprehension strategy is to activate the student's relevant knowledge. That's great, but if the relevant prior knowledge is lacking, conscious comprehension strategies cannot activate it.

Language is not an isolated sphere of activity but our fundamental human instrument for dealing with the world. The best way to expand students' language is to expand their understanding of what language refers to. If we want students to know the connotations of the word "apple," the best instruction will include references to real apples—not just to verbal associations like "sweet," round," and "crisp," but to the actual objects that unify those traits. An ideal language program is a knowledge program. It is a program that anchors and consolidates word meaning in the students' minds by virtue of their knowing what the words actually refer to.

The late Jeanne Chall was distressed at the nullity of the world knowledge being conveyed to students by the helter-skelter fictional sketches that did so little to enhance their breadth of knowledge and their vocabulary. She pointed out that world knowledge is an essential component of reading comprehension, because every text takes for granted the readers' familiarity with a whole range of unspoken and unwritten facts about the cultural and natural worlds.

It is now well accepted that the chief cause of the achievement gap between socioeconomic groups is a language gap. Much work on the subject of language and vocabulary neglects a fundamental element of word acquisition that is so basic as to be almost invisible: The relationship between language and the world knowledge to which language refers is extremely strong. In human beings, knowledge of a subject is automatically accompanied by language use that repre-

(Continued on page 28)

Oral Comprehension Sets the Ceiling on Reading Comprehension

By Andrew Biemiller

To succeed at reading, a child must be able to *identify* or "read" printed words and to *understand* the story or text composed of those words. Both identifying words and understanding text are critical to reading success. For many children, increasing reading and school success will involve increasing oral language competence in the elementary years.

The main argument is as follows:

- During elementary school, a child's maximum level of reading comprehension is determined by the child's level of listening comprehension.[1]
- Children differ markedly in the language and especially the vocabulary they have upon entering kindergarten. Advanced children (75th percentile) are about a "year" ahead of average children, while delayed children (25th percentile) are about a year behind. (Bankson, 1977; Dunn & Dunn, 1982).
- Language continues to develop during the primary years. *However, the gap between children with advanced language and children with restricted language grows wider during the elementary years.* By grade 3, advanced children's comprehension is equivalent to that of average children in grade 4, while slower-progressing children are similar to average 2nd-graders or even younger children. Some of this difference is attributable to *cumulative vocabulary deficits* in less advanced children.
- *Current school practices typically have little effect on oral language development during the primary years.*[2] Because the level of language used is often limited to what the children can read and write, there are few opportunities for language development in primary classes.
- In the upper elementary grades, *those who enter 4th grade with significant vocabulary deficits show increasing problems with reading comprehension,* even if they have good reading (word identification) skills. The available evidence does not suggest a substantial "catching-up" process, but rather a continuing slippage relative to those with average and above-average achievement.
- Thus, early delays in oral language come to be reflected in low levels of reading comprehension, leading to low levels of academic success. If we are to increase children's ability to profit from education, we will have to enrich their oral language development during the early years of schooling. Although not all differences in language are due to differences in opportunity and learning, *schools could do much more than they do now to foster the language development of less-advantaged children and children for whom English is a second language.*

The listening comprehension of the average child begins to develop around 12 months of age and continues to grow long after grade 6. Reading comprehension typically begins to develop in kindergarten or 1st grade. At this point, the child's level of reading comprehension is obviously far below her listening comprehension. There is considerable evidence that for the majority of children, comprehension of printed language continues to lag behind comprehension of spoken language well past 3rd grade (Sticht & James, 1984). *When a child can understand language equally well whether presented in print or speech, the distinction between listening and reading comprehension ceases to be important.* However, a number of studies suggest that *average* children don't reach the point of being able to read what they could understand if they heard it until around 7th or 8th grade.[3]

Listening comprehension continues to grow during the elementary years. Thus the typical 3rd-grader can comprehend more complex oral stories, expositions, etc., than the typical 1st-grader. Broadly speaking, language can only "grow" through interaction with people and texts that introduce new vocabulary, concepts, and language structures. In grades 1 to 3, this growth *cannot* result mainly from reading experiences because most children are not reading content that is as advanced as their oral language. We often assume that children's reading experiences contribute much to their increasing ability to comprehend language (e.g., Nagy & Herman, 1987; Sternberg, 1987). However, for many children, most language growth continues to come from non-print sources (parents, peers, teacher lectures, class discussions, television, etc.) *throughout the elementary years.* For many children, the skills necessary for reading printed English remain too poor for them to read texts that introduce new vocabulary and new conceptual structures. The problem is even more severe for struggling students. For example, the listening vocabulary level of a 25th percentile 6th-grader is equivalent to that attained by the 75th percentile 3rd-grader. The same is true of reading comprehension measures.

If we could improve the word identification skills of children at the 25th percentile in reading comprehension, we would get some improvement—up to the child's *listening* comprehension level. But in many cases, we would still be looking at a child whose comprehension level is far below that of many peers. *To bring a child to grade-level language comprehension means, at a minimum, that the child must acquire and use grade-level vocabulary plus some post-grade-level vocabulary.* Obviously, this does not mean simply memorizing more words, but rather coming to understand and use the words used by average children at that level. Knowledge of this vocabulary will not guarantee success, but lack of vocabulary knowledge can ensure failure. □

(Sidebar references/endnotes, page 44)

Andrew Biemiller is professor in the Institute of Child Study at the University of Toronto and author of numerous articles on how children develop language and literacy. *This article is excerpted from* Language and Reading Success, *a title in* From Reading Research to Practice: A Series for Teachers, *Brookline Books, 1999, (800-666-BOOK).*

BASAL READERS:

The Lost Opportunity To Build the Knowledge that Propels Comprehension

By Kate Walsh

Elementary reading textbooks are big business. Publishers will spend tens of millions of dollars to produce a reading program—and for good reason. The nation's school districts invest over a billion dollars in reading textbooks *every year.*

As they compete for sales, these programs have taken on many similar characteristics. They display a lot of artwork to help children engage visually as they learn to draw meaning from spoken and written words, and they offer multiple teachers' guides with detailed lesson plans, classroom and homework activities, and related readings for faster and slower children. Though some programs take different approaches to teaching decoding, with regard to their pedagogy of comprehension, they are almost indistinguishable. Some use more stories or poems than others; some call for teacher read-alouds more often—but they all have the same basic components.

Unfortunately, a review of the five most widely used basal reading programs reveals that none even attempts the kind of sustained building of word and domain knowledge that is essential for increased reading comprehension—and for averting the fourth-grade slump. In order to make the transition from "learning to read" to "reading to learn" described by Jeanne Chall, children must have a foundation of broad vocabulary and world knowledge that includes important domains and is built up over time. Without this knowledge, children may be able to sound out the words in their textbooks, but will not be able to extract adequate meaning from the text. Children from mid- to high-income homes pick up much of this word and world knowledge at home. But children from low-income homes depend on their schools—and, ultimately, on the reading series that their schools decide to use. Beginning to emphasize word and world knowledge in upper elementary school is simply too late for these children.

In the photos and discussion over the next three pages, three specific examples are provided to explain how these programs miss opportunities to build word and world knowledge: (1) they don't focus on systematically building essential knowledge and vocabulary during teacher read-alouds and discussions aimed at building background knowledge; (2) they waste time by including many more lessons on formal reading comprehension skills than researchers have found are needed; and (3) by offering mostly incoherent, banal themes, they miss opportunities to develop word and world knowledge by offering and exploiting content-rich themes.

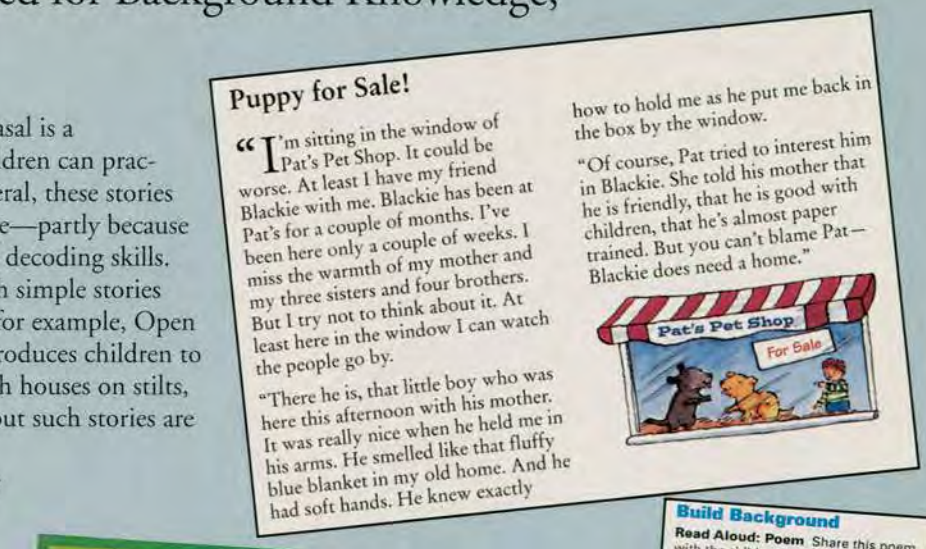
Kate Walsh is the former director of Language Arts for the Core Knowledge Foundation. She has spent the past few years reviewing and critiquing reading textbook series. For this article, Walsh examined reading programs from five of the most widely used basal series: Harcourt Trophies, Houghton Mifflin Reading, Macmillan McGraw-Hill Reading, Open Court Reading, and Scott Foresman Reading. Her review was limited to the K-3 portions of these programs and focused on those components related to increasing language and reading comprehension.

Basals Acknowledge the Need for Background Knowledge, But Do Little To Build It

In the early grades, the heart of a reading basal is a collection of simple stories with which children can practice their emerging decoding skills. In general, these stories don't impart much word or domain knowledge—partly because it is important not to interfere with practicing decoding skills. There are a few fabulous examples of how such simple stories can introduce tremendous world knowledge (for example, Open Court's story titled *Homes Across the World* introduces children to the world's diverse geography and cultures with houses on stilts, houses with thatch roofs, and much more)—but such stories are rare.

Therefore, a critical way to build vocabulary and world knowledge is through stories that teachers read aloud and through the discussions that follow. Most of the basals seem to recognize this and suggest devoting time to read-alouds. But the provided read-alouds rarely introduce interesting vocabulary or content; and, by second grade, they are typically not part of the daily (or even weekly) schedule. (Harcourt Trophies is a notable exception, providing almost daily teacher - read-alouds with interesting vocabulary.) In addition, teacher editions instruct teachers to "build background knowledge" about story content before reading the stories (whether basal or read-aloud stories). But most of the stories' content deals with slight topics grounded in the domestic world of the modern American child, making it unlikely that students' horizons will be broadened.

To increase students' word and world knowledge, students must be exposed to more rigorous content: Teacher read-alouds should be roughly two grade levels above the students, and students' basal stories should ideally develop the same bodies of knowledge that have been introduced in the teacher read-alouds. Moreover, significant chunks of time—say 20 minutes daily—should be devoted to discussion after each read-aloud. This allows time to ensure that all students comprehend the high-level read-alouds, explain new vocabulary, and start using the new vocabulary and new ideas and concepts.



Puppy for Sale!

"I'm sitting in the window of Pat's Pet Shop. It could be worse. At least I have my friend Blackie with me. Blackie has been at Pat's for a couple of months. I've been here only a couple of weeks. I miss the warmth of my mother and my three sisters and four brothers. But I try not to think about it. At least here in the window I can watch the people go by.

"There he is, that little boy who was here this afternoon with his mother. It was really nice when he held me in his arms. He smelled like that fluffy blue blanket in my old home. And he had soft hands. He knew exactly how to hold me as he put me back in the box by the window.

"Of course, Pat tried to interest him in Blackie. She told his mother that he is friendly, that he is good with children, that he's almost paper trained. But you can't blame Pat—Blackie does need a home."

Build Background
Read Aloud: Poem Share this poem with the children and ask them to think of ways that they can be a good friend.

Friends
Crystal Bowman

A friend is someone who listens,
A friend is someone who cares.
A friend is someone who understands,
A friend is someone who shares.

It's nice to have a special friend
To tell all your secrets to.
It's nice to know that someone you like,
Is someone who really likes you.

A friend is someone you call on the phone
To talk about nothing at all.
A friend is someone who cheers you up
And makes you feel ten feet tall.

Everyone would like to have
A special friend, it's true.
But if you want a special friend,
You need to be one, too.

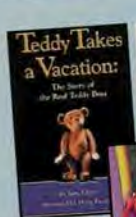
Toaster Time
Eve Merlam

Tick tick tick tick tick tick tick
Toast up a sandwich quick quick quick
Hamwich
Or jamwich
Lick lick lick!

Tick tick tick tick tick tick — stop!
POP!

Scott Foresman, Grade 2, 200

Build Background
Read Aloud: Poem Share this poem with the children. Ask them what their favorite things are to put on toast.



BEFORE READING
Build Background Have children tell you what they know about teddy bears. Ask: **Does anyone have a teddy bear? What does it look like?**

BEFORE READING
Build Background Ask children what they think might happen if every child brought his or her pet to school on the same day. Have children describe a few possible funny things that could happen.

Harcourt Trophies, Grade 2, 2003

In one typical five-week unit from a 2nd-grade basal, the teacher read-alouds were all short poems or several-paragraph stories like those above, containing very ordinary vocabulary. Only one story departed from the simple world of family and friends and themes of sharing, playing, and family celebrations. Across several 1st- and 2nd-grade basals, some topics on which teachers were asked to build background knowledge were: what teddy bears look like; what makes grandmothers special; and what could happen if everyone brought their pets to school.

Excessive Time Is Devoted to Acquiring Formal Comprehension Skills Such as "Sequencing"

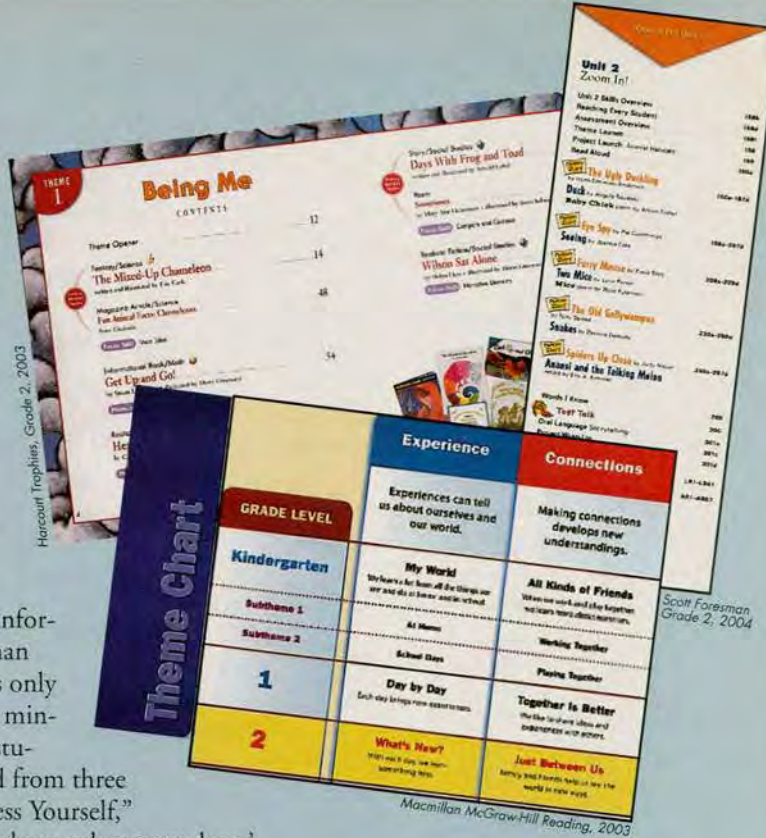
Current reading programs, without exception, view the teaching of reading comprehension largely as a set of formal skills to be taught and practiced. None of the programs acknowledge the importance of building broad, general student knowledge as the primary means by which to improve reading comprehension. Instead, beginning in kindergarten, students are asked to rehearse skills such as sequencing, classifying, inferring, or finding the main idea. Here are three typical Scope and Sequence charts from basal teaching guides (*right*). You can easily see that the same skills are practiced year in and year out. For example, students in these programs, and most others as well, practice the skill of sequencing from kindergarten through grade 6 (or even 8).

Although this illustration doesn't show how other topics are addressed, it is critical to note that these and other reading programs allocate as much or more actual time to rehearsing comprehension skills than they allocate to teaching any other element in their language-arts program. It's not that time isn't spent in an effort to strengthen comprehension, but that the time is spent strictly on formal comprehension skills.

In reality, when children experience problems comprehending text, it is more likely due to the child's lack of knowledge of the subject matter. For example, a child can make inferences about dinosaurs because he happens to know a lot about dinosaurs. The same child will exhibit almost no such reasoning about the Big Bang theory because he lacks knowledge about it. The notion that we can teach students a set of skills that they will be able to apply to new and unfamiliar texts or situations is a process that cognitive psychologists call "skills transference." This is regarded as an *inordinately* difficult task for our brains to pull off and, therefore, is not a practical educational goal. But it is a goal set forward by every major reading program on the market.

Boxes with a tint and/or mark indicate grades in which the skill is taught.

The Themes Around which Basals Are Organized Are Typically Contrived and Trite—and Do Little To Build Knowledge



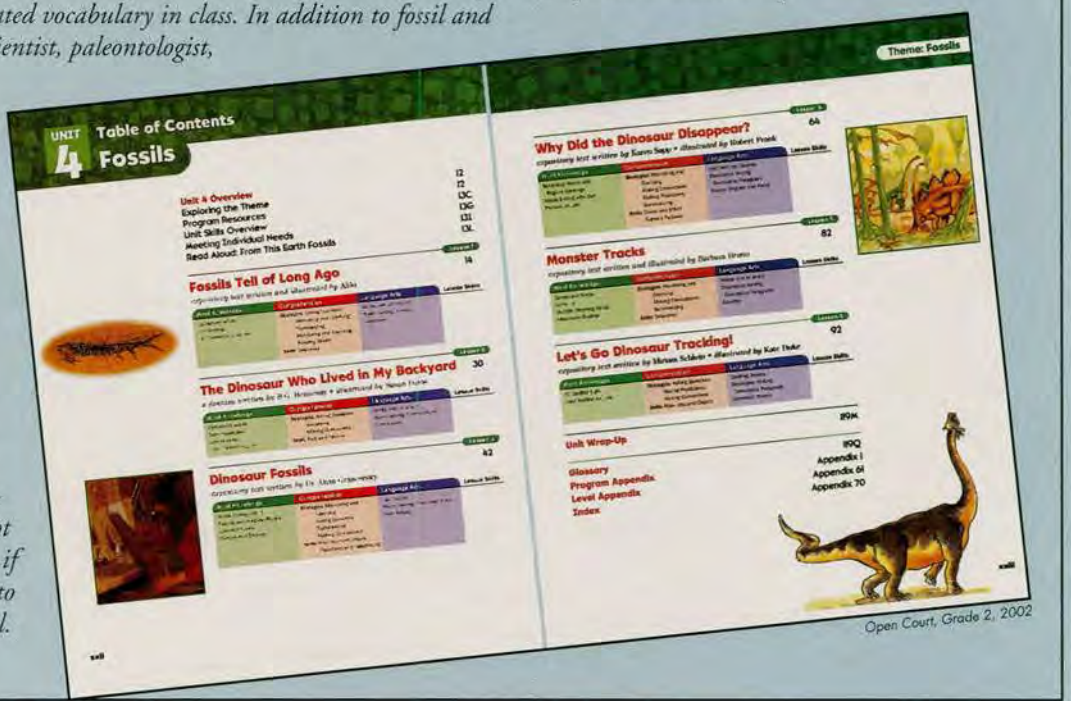
Developing knowledge in a particular domain and becoming comfortable using its specialized vocabulary depend on devoting time to selected topics—time in which new ideas and concepts can be built and contemplated; time to progress from introductory to more detailed texts; time to discuss new information and concepts; and time to repeatedly hear and practice using the vocabulary of the domain in a variety of contexts. Teachers, who have long organized academic content into units of study, knew this even before cognitive scientists began their studies of learning, memory, and expertise.

All the popular basal series are organized around themes, but unfortunately, problems abound. Many of the themes are little more than catch-all labels for stories that hardly relate. Many themes address only utterly ordinary day-to-day knowledge and thus introduce only a minimal amount of academic content and vocabulary that is new to students. Here are some actual themes for grades one and two pulled from three widely used basal series: "Together Is Better," "Being Me," "Express Yourself," "Imagine That!" and "Keep Trying." Themes like these will do little to enhance students' domain knowledge, vocabulary, and comprehension.

It is a rare theme that offers carefully selected and sequenced readings that build from basic information to detailed discussion while systematically adding new vocabulary and repeating recently introduced vocabulary. In fact, none of the basals have such a well-constructed theme in their kindergarten or first-grade programs.

A Better Way To Build a Theme

One of the best examples of a well-constructed theme is Open Court's "Fossils" (Grade 2, Unit 4). Based on the theme overview in this photo, you can see that students are going to learn a good bit about fossils, dinosaurs, and dinosaur fossils. By being focused, the theme allows students to explore the two main, interrelated topics in-depth and builds many opportunities to repeat related vocabulary in class. In addition to fossil and dinosaur, words such as scientist, paleontologist, imprint, extinct, bones, and skeleton appear frequently in the selected readings. The concept of prehistory is also well introduced, as the readings state that dinosaurs lived millions and millions of year ago several times before the word prehistoric is used. But, unfortunately, only one of the selections is a teacher read-aloud, meaning that the language is not as advanced as it could be if the readings did not have to be at the second grade level.



(Continued from page 22)

sents that knowledge. It is this language/knowledge nexus that establishes the key principle of a language arts curriculum: A coherent and extended curriculum is the most effective vocabulary builder and the greatest contributor to increased reading comprehension.

In the classroom, reading comprehension and vocabulary are best served by spending extended time on reading and listening to texts on the same topic and discussing the facts and ideas in them. The number of classes spent on a topic should be determined by the time needed to understand and become familiar with the topic—and by grade level. In kindergarten and first grade, students might listen to and discuss single topics for just three classes. In fourth grade, the immersion might last two weeks, and in later grades longer. Needless to say, this principle applies to good fictional stories as well as good nonfiction. These texts and topics must be compelling enough that both the teacher and the children want to talk about what they read, and deep enough that there is enough reason to revisit the topic.

Such immersion in a topic not only improves reading and develops vocabulary, it also develops writing skill. One of the remarkable discoveries that I made over the many years that I taught composition was how much my students' writing improved when our class stuck to an interesting subject over an extended period. The organization of their papers got better. Their spelling improved. Their style improved. Their ideas improved. Now I understand why: When the mind becomes familiar with a subject, its limited resources can begin to turn to other aspects of the writing task, just as in reading. All aspects of a skill grow and develop as subject-matter familiarity grows. So we kill several birds with one stone when we teach skills by teaching stuff.

Moreover, there is evidence that by teaching solid content in reading classes we increase students' reading comprehension more effectively than by any other method. Some very suggestive research conducted by John Guthrie and his colleagues shows that reading instruction that focuses on a coherent knowledge domain over an extended time not only enhances students' general vocabularies compared to a control group but also improves their general fluency and motivation to read.[21] This is exactly what we would predict from what has been determined about the processes of reading comprehension and vocabulary growth. For instance, take the rule of thumb that you need to know 90 percent of the words to comprehend a text. As exposure to the domain is extended over time, the percentage of text words familiar to the child will increase. This means that incidental word learning of all the words of the text, both general words and domain-specific words will be continually enhanced with extended immersion in a subject matter. At the same time, general fluency will also be enhanced as the child becomes more familiar with the domain. In short, the principle of content immersion can make language-arts classes become not just more interesting experiences for students but also much more effective vehicles for enhancing their reading and writing skills.

World knowledge is an essential component of reading comprehension, because every text takes for granted the readers' familiarity with a whole range of unspoken and unwritten facts about the cultural and natural worlds.

* * *

The great sociologist James S. Coleman, after spending a career examining the characteristics of effective schools and programs, concluded that the most important feature of a good school program is that it makes good academic use of school time. The consistent theme of Coleman's work had been "equality of educational opportunity"—the title of his monumental "Coleman Report" of 1966.[22] Making good use of school time, he concluded, was the single most egalitarian function the schools could perform, because for disadvantaged children, school time was the only academic-learning time, whereas advantaged students learned a lot outside of school. The main conclusion that people gleaned from Coleman's work was that social advantage counted for more in academic results than schooling did—as schools were then constituted. But there was a second, much more hopeful finding in the Coleman Report that Coleman himself pursued in his later career—the inherently egalitarian and compensatory character of a really good school program. A poor program adversely affects low-income students more than middle-income students who are less dependent on the school in gaining knowledge. By contrast, a good program is inherently compensatory because it has a bigger effect on

low-income than middle-income students. This is because low-income students have more to learn—and in an effective program they begin to catch up.

A good, effective language-arts program that is focused on general knowledge and makes effective use of school time will not only raise reading achievement for all students, it will, by virtue of the Coleman principle, narrow the reading gap—and the achievement gap—between groups. □

Endnotes

[1] Chall, J. S., Jacobs, V.A., & Baldwin, L.E. (1990). *The Reading Crisis: Why poor children fall behind.* Cambridge, Mass.: Harvard University Press.

[2] Hart, B., & Risley, T.R. (1995). *Meaningful Differences in the Everyday Experience of Young American Children.* Baltimore, Md.: Paul H. Brookes Publishing Co.

[3] Campbell, J.R., Hombo, C.M., & Mazzeo, J. (2000). *NAEP 1999 Trends in Academic Progress: Three Decades of Student Performance.* NCES 2000469.

[4] Recht, D.R., & Leslie, L. (1988). Effect of prior knowledge on good and poor readers' memory of text. *Journal of Educational Psychology,* vol. 80(1), pp.16-20. American Psychological Association.

[5] Miller, G.A. (1969). *The Psychology of Communication: seven essays.* Baltimore, Md.: Penguin Books.

[6] Kintsch, W. (1998). *Comprehension: A Paradigm for Cognition.* N.Y.: Cambridge University Press.

[7] Ericsson, K.A., & Charness, N. (1994). Expert performance: Its structure and acquisition. *American Psychologist,* vol. 49(8), pp. 725-747.

[8] de Groot, A. (1965). *Thought and Choice in Chess.* The Hague, Mouton, in translation.

[9] See endnote 2.

[10] Graves, M.F., Brunetti, G.J., & Slater, W.H. (1982). The reading vocabularies of primary-grade children of varying geographic and social backgrounds. In J.A. Harris & L.A. Harris (eds), *New inquiries in reading research and instruction,* pp. 99-104. Rochester, N.Y.: National Reading Conference. Also see Graves, M.F., & Slater, W.H. (1987). *The development of reading vocabularies in rural disadvantaged students, inner-city disadvantaged and middle-class suburban students.* Paper presented at the meeting of the American Educational Research Association, Washington, D.C.

[11] Smith, M.K. (1941). Measurement of the size of general English vocabulary through the elementary grades and high school. *Genetic Psychological Monographs,* 24, pp. 311-345.

[12] Nagy, W.E., and Scott, J. (2000). Vocabulary Processes in Kamil, M. et al., *Handbook of Reading Research,* vol. III. Mahwah, N.J.: Erlbaum.

[13] Beck, I.L., McKeown, M.G., & Kucan, L. (2002) *Bringing Words to Life.* New York: Guilford Press.

[14] See endnote 12.

[15] Singer, M., Revlin, R., & Halldorson, M. (1990). Bridging-inferences and enthymemes. In A.C. Graesser & G.H. Bower (eds), *Inferences and Text Comprehension,* pp. 35-52. San Diego, Calif.: Academic Press.

[16] Personal communication with Louisa Moats.

[17] Sticht, T.G. (1975). Auding and reading: A developmental model. *Catalog of Selected Documents in Psychology,* vol. 5, Winter.

[18] Chall, J.S., & Jacobs, V.A. (1996). The Reading, Writing, and Language Connection. In J. Shimron (ed.), *Literacy and Education: Essays in Memory of Dina Feitelson,* pp. 33-48. Cresskill, N.J.: Hampton Press, Inc.

Making good use of school time is the single most egalitarian function the schools perform, because for disadvantaged children, school time is the only academic learning time, whereas advantaged students can learn a lot outside of school.

[19] See endnote 1.

[20] Rosenshine, B., & Meister, C. (1994). Reciprocal Teaching: A Review of the Research. *Review of Educational Research,* vol. 64, pp. 479-530, Winter.

[21] Guthrie, J.T., Anderson, E., Alao, S., & Rinehart, J. (1999). Influences of concept-oriented reading instruction on strategy use and conceptual learning from text. *Elementary School Journal,* vol. 99(4), March, pp. 343-366. See also Guthrie, John T., Wigfield, Allan, & VonSecker, Clare. Effects of integrated instruction on motivation and strategy use in reading. *Journal of Educational Psychology,* vol. 92(2), June 2000, pp. 331-341. American Psychological Association.

[22] Coleman, J.S. (1966). *Equality of Educational Opportunity.* U.S. Department of Health, Education and Welfare, Office of Education, Print Office, Washington, D.C.

Further Reading

Alexander, P.A., Kulikowich, J.M., & Schulze, S.K. (1994). How subject-matter knowledge affects recall and interest. *American Educational Research Journal,* vol. 31(2) Summer, pp. 313-337. American Educational Research Association.

Baddeley, A.D. (1998). *Human memory: Theory and practice.* Needham Heights, Mass.: Allyn & Bacon, Inc.

(Continued on page 48)

Filling the Great Void

Why We Should Bring Nonfiction into the Early-Grade Classroom

By Nell K. Duke, V. Susan Bennett-Armistead, and Ebony M. Roberts

Data from several different sources converge on the point that informational text is scarce in primary-grade classrooms. One such source of data is the analyses of the text genres represented in basal reading series. The proportions we found reported in studies within the last two decades ranged from a high of 33.8 percent factual articles in eight basal reading series for grade 2 (Schmidt, Caul, Byers, & Buchman, 1984) to a low of 12 percent nonfiction in five basal reading series for grade 1 (Hoffman et al., 1994). In the most recent analysis of which we are aware, Moss and Newton (1998) examined six grade-2 basal reading series, copyright 1995 to 1997. They found a mean of 16 percent of selections that could be classified as informational literature.

One study (Flood & Lapp, 1986) examined the presence of expository text in three standardized reading tests, as well as in the tests and materials from basal reading programs (K-6). Flood and Lapp (1986) found that 38 percent of the selections in the standardized reading tests were expository (not reported by grade level), as compared with 16 percent of the selections in the basal readers and 38 percent of the selections in basal tests. The authors note the considerable discontinuity between the genres included in the basal readers themselves and the genres included in the tests children will take.

Another source of data regarding the scarcity of informational text in the primary grades are surveys about the presence or absence of informational text in primary-grade classrooms. In a recent survey of 126 primary-grade teachers, Yopp and Yopp (2000) found that only 14 percent of materials that primary-grade teachers reported reading aloud on a given day were informational. A survey of 83 primary-grade teachers conducted by Pressley, Rankin, and Yokoi (1996) indicated that only 6 percent of material read throughout the school day (not only read aloud) was expository. Notably, the latter sample was composed particularly of primary-grade teachers nominated by language-arts supervisors as the most effective in their jurisdictions. It is possible that such teachers use more or less expository text than a more typical group of primary-grade teachers.

Direct classroom observation has also been used as a source of data about the amount of informational text experience offered to children in early schooling. Kamberelis (1998) observed all assigned and self-selected reading and writing in three classrooms, one in each grade K-2, for a 4-month period. He found that science reports/books were read by the children far less often than stories and were also far less often the genre of assigned classroom writing. In raw terms, fewer than 20 science reports/books were used in language-arts instruction in each classroom; fewer than 10 science reports/books were assigned for writing. Duke (2000) conducted an observational study of 20 first-grade classrooms in both low- and high-socioeconomic-status (SES) school districts. The study revealed a scarcity of informa-

Nell K. Duke is assistant professor of teacher education and learning technology and culture at Michigan State University. V. Susan Bennett-Armistead is a doctoral candidate at Michigan State University and literacy consultant to several urban early childhood programs. Ebony M. Roberts is operations manager for Black Star Educational Management, LLC in Detroit, Michigan. *This article is adapted with permission from "Bridging the Gap between Learning to Read and Reading to Learn" in* Literacy and Young Children, *edited by Diane M. Barone and Lesley Mandel Morrow, Guilford Press, 2003, a version of Duke, N.K., Bennett-Armistead, S., & Roberts, E.M. (2002), "Incorporating informational text in the primary grades," in C.M. Rotter (eds.)* Comprehensive reading instruction across grade levels: A collection of papers from the Reading Research 2001 Conference. *Newark, Del.: International Reading Association.*


PLANETS
SAMURA
BREAKING
THE COLOR BARRIER
KING TUT
PENGUINS
VIKINGS

tional text not only in classroom written language activities, but also in classroom libraries and on classroom walls and other surfaces. Informational text was particularly scarce in classrooms in the low-SES school districts studied.

Notably, evidence suggests that informational text has not always been so scarce in primary-grade classrooms. On the contrary, analyses of reading materials available to young children throughout the history of American literacy instruction indicate that at some points in time informational text has enjoyed some prominence. The first such period occurred at and around the birth of the nation in 1776. Until this time, children's readers in this country contained primarily religious selections. After the American Revolution, readers included many selections intended to emphasize national pride, unification, and citizenship. Some informational selections were included for the purpose of instructing children about their environment, affairs of the state, and the workings of the new government (Smith, 1986).

With the rise of industrialism and the perceived link between education and worker productivity *(Fifth Annual Report,* 1842), instructional materials included more informational text. By 1870, McGuffey readers not only offered many childhood stories, but also included nature-based text and histories (Venezky, 1982). An examination of a midcentury reader, Wilson's *School and Family* series, shows a heavy emphasis on informational text (Smith, 1986). Moralistic, character-building stories were also prevalent, but attention to scientific study in particular is evident.

By the end of the 19th century, however, the tide turned away from inclusion of informational texts in instructional materials in reading. As part of a set of reforms intended to prompt a return to classicism, Charles Eliot, then president of Harvard University, called for the elimination of readers in favor of *real literature.* Eliot argued that children should be exposed to quality materials rather than watered-down offerings in readers. This influence, more than any other, shifted early reading materials toward narrative literature and away from expository text. The desire to appeal to the child's imagination became a driving force in textbook publishing (Venezky, 1982). By the 1920s, narrative, particularly realistic narrative, held absolute dominance in materials for reading instruction. Smith's (1986) analysis of 10 popular primers published in the 1920s shows that more than 80 percent of the pages were devoted to realistic fictional narrative; no pages were devoted to informational text.

Informational text never regained its foothold in emergent reading instruction in the 20th century, although it did enjoy fleeting periods of increased interest during this period. The Activity Movement of the 1930s led to a significant focus of attention on factual materials in some schools (Smith, 1986); after the first World War there was a brief emphasis on content reading throughout schooling (Venezky, 1982); and between 1950 and 1962, the *Developmental Reading Series* published by Bond and Fay broke from its peers in including attention to a wide variety of genres. But beyond limited exceptions such as these, informational text has remained rare in materials used for reading instruction.

At least three beliefs seem to underlie inattention to informational text in primary-grade or other early-childhood classrooms—that young children cannot handle informational text, that young children do not like informational text, and that young children should first learn to read and then (at about fourth grade) read to learn. In this section we demonstrate that none of these beliefs is supported by available research in this area.

Unsupported Belief 1: Young Children Cannot Handle Informational Text

The first unsupported belief is that young children cannot handle informational text, that narrative genres are the primary, if not the only, means by which young children can understand and communicate in the world around them. This view has certainly been held by a number of researchers and theorists (e.g., Britton, Burgess, Martin, McLeod, & Rosen, 1975; Egan, 1986, 1993; Moffett, 1968; Sawyer & Watson, 1987). The extent to which it is held by classroom teachers, publishers, or other groups has not been well documented, though it perhaps can be inferred by the textual choices made by these groups.

We could locate no research to support the assertion that young children are unable to handle informational text, nor could we find evidence in support of the primacy of narrative genres for young children. However, we located several studies offering evidence that young children *can* learn from and about informational text if given opportunities to interact with such forms. In a landmark study in this area, Pappas (1991a, 1991b, 1993) asked kindergarten-aged children, on three occasions, to pretend to read information books and storybooks that had been read to them immediately before. For both the informational books and the storybooks, children's pretend readings showed increasing similarity to the books read to them in terms of a number of language features. This suggested that the children were able to learn about information book language, given exposure to informational texts.

In a related study, Duke and Kays (1998) asked kindergarten-aged children to pretend to read an unfamiliar information book before and after a 3-month period of exposure to other information books through teacher read-alouds. Children's pretend readings on the second occasion reflected greater knowledge of several important features of informational text, such as the use of timeless-present-tense verb constructions and generic noun structures *(Firefighters fight fires* versus *The firefighter is fighting a fire).* Again, these results suggest that young children can learn the language of informational text and reflect that knowledge in a pretend-reading context.

Some data from the Duke and Kays (1998) study and a study by Moss (1997) suggest that young children can learn content, as well as language, from informational texts. In the Duke and Kays study, children reflected content knowledge derived from informational texts in their journals. For example, after hearing the book *Potato* (Watts, 1988) read aloud, one child drew a detailed picture of a potato plant sprouting and explained the process in some depth. After hearing the

Informational text was particularly scarce in classrooms in the low-SES school districts studied.

book *Earthworm* (Soutter-Perrot, 1993), another child drew a picture of earthworms, depicting the segmented structure of their bodies. Characteristics of all-terrain vehicles, facts about spiders and their prey, and different types of ocean animals are other examples of the content found in children's journals following information book read-alouds. In another study, Moss examined first-grade children's retellings of an informational text (Selsam, 1973) read to them. Eighteen of the 20 first-graders she studied produced retellings scoring 3 or higher (out of 5) on a modified version of the Richness of Retelling Scale (Irwin & Mitchell, 1983). Again, young children appeared to learn content from informational texts.

Studies examining children's discussions around informational text also suggest that they are capable of interacting successfully with such texts. Hicks (1995) documented the ways in which children in first grade participated in sophisticated discussions of informational text in the context of a classroom that included many texts in this genre. Oyler and Barry (1996) showed how students in a first-grade classroom initiated intertextual connections among information books when given opportunity to do so.

Another source of data regarding young children's ability to interact with informational text is teachers' own reports. Several teachers have published accounts of using informational text in their early childhood classrooms (e.g., Dalton & Mallett, 1995; Duthie, 1994, 1996; Fisher, 1994; Guillaume, 1998; Kamil & Lane, 1997a, 1997b; Read, 2001; Smith 1992). Although these accounts differ substantially in their scope and focus, all indicate that students were successful with, and indeed benefited from, inclusion of informational text in the classroom.

Unsupported Belief 2: Young Children Do Not Like Informational Text, or at Least Prefer Other Forms of Text

A second unsupported belief that may underlie inattention to informational text in the early grades is that, whether or not they can handle informational texts, young children do not like them, or at least prefer other genres. One piece of evidence indicating that this belief exists was provided in a study by Kletzien and Szabo (1998). As part of this study, the researchers asked six teachers in grades 1 through 3 to predict which text their students would prefer to read between forced choices clearly reflective of informational and narrative genres, such as "All About Soccer" (informational) and "Chris Makes the Team" (narrative). The teachers in the study predicted that their students would prefer the narrative titles much of the time, yet in actuality, the students preferred the informational titles at least half the time. Just how widespread this belief is, however, is not well established in the existing research literature.

Available evidence does not support the notion that young children do not like informational text or even that they prefer other text forms. In most cases, available research simply is not relevant to the question. For example, many of the studies on reading interests and preferences have not included young (pre-K-2) children, and many have investigated preferences for particular topics, rather than genres (Monson & Sebesta, 1991). (Genre preferences cannot be easily inferred from topic preferences—books about animals, for example, can be narrative or informational in form.)

Of the studies that have investigated genre preferences among pre-K-2 children, results are mixed. Robinson, Larsen, Haupt, and Mohlman (1997) found that kindergarten and prekindergarten children chose modern and traditional fantasy narrative more often than informational text when given the option of several different genres of text. But

Kletzien and Szabo (1998) found that grades 1-3 children preferred information books at least as often as narratives, with boys generally choosing information books more often than girls. The variation in these and other studies of reading preferences may be explained by a host of factors, including differences in methodologies used, age of subjects, consideration or lack of consideration of gender effects, subjects' familiarity or lack of familiarity with the texts assessed, and so on (see Kletzien, 1999, for a review).

A study by Horowitz and Freeman (1995) suggests that the ways in which texts are used in the classrooms studied may have an impact on children's attitudes toward them. In their study, a second-grade class, in which discussion followed a read-aloud, preferred an informational science book to a narrative science book; in a second-grade class with no discussion following the read-aloud, the narrative science book was preferred.

Unsupported Belief 3: Young Children Should First Learn To Read and Then (at About Fourth Grade) Read To Learn

The two unsupported beliefs discussed previously may feed into a third unsupported belief—that children must learn to read before they can read to learn. To our knowledge, the popular articulation of this belief derives from Jeanne Chall's (1983) classic work *Stages of Reading Development.* (To read more about Chall's stages, see the sidebar on page 14.) However, the intent in Chall's work was more to *describe* the stages children go through in reading development than to argue that these are the stages children *should* go through in reading development. There may be an empirical basis for *describing* stages of reading development as such—at the time of Chall's writing, as now, informational text was scarce among beginning reading materials—but there is no empirical basis for saying that it therefore *should* be such.

Research on what happens when more informational text is included in primary-grade classrooms is beginning to emerge. A study in first-grade classrooms in low-SES school districts indicates that there are benefits—even as early as the end of first grade—to including more informational text in classroom activities and the classroom environment (Duke, Martineau, Frank, & Bennett-Armistead, 2003). Children in classrooms with more informational text had the same levels of overall reading and writing achievement as children in comparison classrooms and were better writers of informational text. These students also did not show the decline in attitudes toward recreational reading that was found among students in the comparison classrooms. Moreover, children in the classrooms with more informational text who entered first grade with low sound-letter knowledge had higher reading comprehension and writing achievement by the end of first grade than comparable children in the other classrooms. Overall then, including more informational text in first-grade classrooms had positive effects on reading and writing achievement, as well as motivation for at least some groups of students, and no negative effects for any group by the end of first grade.

Some children have interest in informational texts. For those children, the presence of informational text in the classroom may be motivating.

The most obvious argument for greater attention to informational text in the early grades is that it will make children better readers and writers of informational text (e.g. Christie, 1984, 1987). Fundamental to this argument is the supposition that more and earlier exposure to informational text will result in greater abilities to read and write informational text (Duke, 2000). Studies in which children's knowledge of informational text has appeared to develop following exposure (e.g., Duke & Kays, 1998; Pappas, 1993) seem to support this supposition, as do general patterns in which children seem to read and write better those forms of text to which they have had ongoing exposure (e.g., Kamberelis, 1998; Purcell-Gates, 1988; Purcell-Gates, McIntyre, & Freppon, 1995). Sometimes cited along with this argument are statistics on American students' relatively poor informational reading and writing abilities, coupled with the relatively important role of informational literacies in American society (e.g., Duke, 1999; Moss, Leone, & DiPillo, 1997).

A cluster of arguments for greater attention to informational text focuses on other types of knowledge and skills that may help to develop content-area knowledge, vocabulary, and comprehension (e.g., Dreher, 2000; Guillaume, 1998). In regard to content-area knowledge, there is some limited evidence that young children can learn about the world around them through informational texts. Certainly among older children there is a relationship between informational reading and writing abilities and content-area achievement (e.g., Bernhardt, Destino, Kamil, & Rodriguez-Munoz, 1995). Specialized vocabulary is a key feature of informational text (e.g., Duke & Kays, 1998), and there is evidence that even young children do learn vocabulary from text, including text read out loud (e.g., Elley, 1989). Studies showing that teachers and/or parents attend more to vocabulary and comprehension when interacting with children around informational texts seems to reinforce the claim that informational text has vocabulary-building potential, and they also raise the possibility that general comprehension skills may be further developed through these texts (Lennox, 1995; Pellegrini, Perlmutter, Galda, & Brody, 1990; Smolkin & Donovan, 2000).

Taking the skill-building arguments one step further are those who suggest that greater attention to informational text early on may indeed buttress overall literacy development. The datum most often cited in support of this argument comes from results of the National Assessment of Educational Progress (NAEP). Results showed that fourth-grade children who report reading storybooks, magazines, and nonfiction had, on average, higher reading achievement than children who reported reading only two of these types, who in turn had higher achievement than children who reported reading only one. The interpretation (e.g., Dreher, 1998/1999) is that reading a greater variety of texts may make one a better overall reader or writer (note, however, that it is not possible to establish causality on the basis of these data).

A number of mechanisms have been suggested by which informational text may support overall literacy development. One relates to the notion discussed previously, that informational text may build background knowledge, vocabulary, and comprehension skills, which may, in turn, support reading of all kinds. A second relates to interest. It appears that at least some children have high levels of interest in informational texts or topics addressed therein. For those children, the presence of informational text in the classroom may be motivating. That motivation, in turn, may encourage children to read more or to read more productively (e.g., Caswell & Duke, 1998). A third possible mechanism by which informational text may support overall literacy development relates to home literacies. Informational text is read widely outside of schools (Venezky, 1982). The presence of informational text in early schooling may help children make links between home and school literacies and develop a more comprehensive understanding of what counts as literacy (see Duke, in press, for further discussion). This may be particularly important for children from homes in which narrative reading or writing is not common (e.g., Caswell & Duke, 1998). □

References

Bernhardt, E., Destino, T., Kamil, M., & Rodriguez-Munoz, M. (1995). Assessing science knowledge in an English/Spanish bilingual elementary school. *Cognosos,* 4, 4-6.

Britton, J., Burgess, T., Martin, N., McLeod, A., & Rosen, H. (1975). *The development of writing abilities.* London: Macmillan.

Caswell, L.,J., & Duke, N.K. (1998). Non-narrative as a catalyst for literacy development. *Language Arts,* 75, 108-117.

Chall, J.S. (1983). *Stages of reading development.* New York: McGraw-Hill.

Christie, F. (1984). Young children's writing development: The relationship of written genres to curriculum genres. In B. Bartlett & J. Carr (Eds.), *Language in Education conference: A report of proceedings* (pp. 41-69). Brisbane, CAE, Australia: Mr. Gravatt Campus.

Christie, F. (1987). Factual writing in the first years of school. *Australian Journal of Reading,* 10, 207-216.

Dalton, J., & Mallett, M. (1995). Six year olds read about fire-fighters. *Reading,* 29, 22-25.

Dreher, M.J. (1998/1999). Motivating children to read more nonfiction. *The Reading Teacher,* 42, 414-417.

Dreher, M.J. (2000). Fostering reading for learning. In L. Baker, M.J. Dreher, & J.T. Guthrie (Eds.), *Engaging young readers: Promoting achievement and motivation* (pp. 94-118). New York: Guilford Press.

Duke, N.K. (1999). *Using nonfiction to increase reading achievement and world knowledge.* Occasional paper of the Scholastic Center for Literacy and Learning, N.Y.

Duke, N.K. (2000). 3.6 minutes per day: The scarcity of informational texts in first grade. *Reading Research Quarterly,* 35, 202-224.

Duke, N.K. (in press). Reading to learn from the very beginning: Informational literacy in early childhood. To appear in *Young Children.*

Duke, N.K., & Kays, J. (1998) "Can I say 'once upon a time?'": Kindergarten children developing knowledge of information book language. *Early Childhood Research Quarterly,* 13, 295-318.

Duke, N.K., Martineau, J.A., Frank, K.A., Bennett-Armistead, V.S. (2003). 33.6 minutes per day: The impact of including more informational text in first grade. Unpublished manuscript, Michigan State University.

Duthie, C. (1994). Nonfiction: A genre study for the primary classroom. *Language Arts.* 71, 588-595.

Duthie, C. (1996). *True stories: Nonfiction literacy in the primary classroom.* York, Maine: Stenhouse.

Egan, K. (1986). *Teaching as storytelling.* Chicago: University of Chicago Press.

Egan, K. (1993). Narrative and learning: A voyage of implications. *Linguistics and Education,* 5, 119-126.

Elley, W.B. (1989). Vocabulary acquisition from listening to stories. *Reading Research Quarterly,* 24, 174-187.

Fifth Annual Report of the Secretary to the Board of Education of Massachusetts, (1842). (Testimony of Horace Mann.)

Fisher, B. (1994). Writing information books in first grade. *Teaching PreK-8,* 25(3), 73-75.

Flood, J., & Lapp, D. (1986). Types of text: The match between what students read in basals and what they encounter in tests. *Reading Research Quarterly,* 21, 284-297.

Guillaume, A.M. (1998). Learning with text in the primary grades. *The Reading Teacher,* 51, 476-486.

Hicks, D. (1995). The social origins of essayist writing. *Bulletin Suisse*

(Continued on page 46)

Taking Delight in Words

Using Oral Language To Build Young Children's Vocabularies

By Isabel L. Beck, Margaret G. McKeown, and Linda Kucan

The following exchange occurred in a first-grade classroom in February:

JASON: Is this going to be an ordinary day?

MS. H: What would make it ordinary?

JASON: If we like did the same old thing.

MS. H: What might make it not ordinary, make it exceptional?

JASON: If you gave us prizes for being good—I mean exceptional and mature.

All of the children in this class of more than 20 students had been having difficulty learning to read, and many of them came from poverty backgrounds. In January, these children were brought together for most of the morning for intensive literacy instruction with a gifted teacher. The teacher had two major goals for the children: (1) They would learn to read; and (2) their listening and speaking vocabularies would be enlarged and enriched. By February, it was not unusual to hear the kind of conversation captured in the above example.

The purpose of this article is to explain some of the ways that prekindergarten through elementary school teachers can enhance the vocabulary development of young children. It focuses on teaching words from texts that are read aloud *to* children rather than read *by* children, and it presents activities that take into account the kind of support that young children need to make sense of those words.

We start by noting where words for young children's vocabulary development do *not* come from—and that is from the basal text materials that children are asked to read early in the course of reading acquisition. This is because, given beginning readers' word identification limitations, the text materials used in the early phases of learning to read should comprise words children know from oral language, that is, simple words like *run* and *ball*. As such, the early text materials are not good sources for adding new words to children's vocabulary repertoires. Emphatically, however, this does not mean that adding to and enriching children's vocabulary repertoires should be put on hold, it only means that enriching young children's vocabulary cannot be best developed through the words in the materials that young children read themselves.

Young children's listening and speaking competence is in advance of their reading and writing competence. That is, they can understand much more sophisticated content presented in oral language than they can read independently. As children are developing their reading and writing competence, we need to take advantage of their listening and speaking competencies to enhance their vocabulary development. We certainly must not hold back adding vocabulary to children's repertoires until their word recognition becomes adequate. Thus, a major source for identifying interesting words are the delightful trade books that are read to children, and we will turn to them in a moment.

But it's important to note that the ideas in the little stories young children read on their own can still be a useful re-

Isabel L. Beck is professor of education in the Department of Instruction and Learning at the University of Pittsburgh and senior scientist at the university's Learning Research and Development Center, where Margaret G. McKeown is a research scientist. Linda Kucan is assistant professor in the Department of Language, Reading and Exceptionalities at Appalachian State University.

ILLUSTRATED BY SONJA LAMUT


A F
W-O-R-D-S
K A D

source. Though the *words* in the stories are not appropriate for enriching children's vocabularies, some of the *ideas* in the simplest stories can be characterized by sophisticated words. Thus, after a simple story has been read from a basal, the teacher can describe a character or incident with an interesting word. Consider for example, a story in a first-grade basal in which some children make cookies. The story is mostly built around pictures, with the vocabulary limited to some children's names and words such as *pass, pat, pan,* and *cookies.* The story ends with the children eating the cookies and saying, "Mmmm. Good!"

The teacher could remind the children that after the characters in the story ate the cookies they said, "Mmmm. Good!" and explain that another way to say that is that the characters thought the cookies were *scrumptious.* She could explain the word further by saying that when something is scrumptious, it tastes great. *Scrumptious* lends itself to a variety of other interactions that children could have with the word. They could be asked to think of foods that they think are scrumptious, as well as suggesting foods that they do not think are scrumptious. The notion could go further with asking the children what would be scrumptious to a mouse? To a cat?

The teacher could also mention that in the story the children ate up all the cookies really quickly, explaining that another way to say that is that they *devoured* the cookies. The children could be asked to suggest foods that they would devour. Even further the teacher might suggest that the reason the children devoured the food is that they were *famished.* So, even though the stories that young readers read do not offer words to teach, the stories are still a resource for the teacher to use in generating target words for vocabulary development.

As mentioned earlier, trade books that are read aloud to children are excellent sources of sophisticated words, and in recent work, we have been able to use them to advantage. Specifically, several years ago, we initiated Text Talk, a research and development project aimed at capturing the benefits of read-alouds. Text Talk has two main goals. One goal is to enhance comprehension through interspersed open questions that asked children to consider the ideas in the story, talk about them, and make connections among them as the story moves along. The second goal is to enhance vocabulary development, which is our focus in this article.

For Text Talk, we identified 80 children's trade books, and for each one, we selected about three words per story for direct teaching following the reading of the story. Several issues about the books and words need to be emphasized. First, although we think all the books are good children's books, there is nothing exclusive about the books we used. That is, there are many other books that could have be chosen. Second, although we selected an average of three words per book, we could have selected more. We considered issues of instructional time and the rate at which books were being read to children, which was one or two a week. As such, we thought that about three words per book was a reasonable number. However, there are many other approaches to determining the number of words taught. For example, if fewer books are read to children, more words from each book might well be identified for instruction.

And, though we only targeted three words per book for substantial vocabulary work, each of the books used has a wide and interesting vocabulary beyond these three words. Regular read-alouds from these books allow children to be generally and continually exposed to lovely and delightful words.

Sequenced Activities for Teaching Words to Young Children

In our Text Talk project, direct instruction in vocabulary occurs after a story has been read, discussed, and wrapped up. This provides a strong context with which to begin the word-meaning introduction. But note that in cases where we thought that a word was needed for story comprehension, we suggested that the teacher stop and briefly explain the word during reading.

Let's consider the vocabulary instruction for *A Pocket for Corduroy*, a story about a teddy bear (Corduroy) who spends the night at a laundromat. Our targeted words were *reluctant, drowsy,* and *desperately.*

As an example of the kinds of instructional suggestions provided to teachers, consider the following activities for *reluctant:*

TEACHER: In the story, Lisa was *reluctant* to leave the laundromat without Corduroy. *Reluctant* means you are not sure you want to do something. Say the word with me.

Someone might be reluctant to eat a food that he or she never had before, or someone might be reluctant to ride a roller-coaster because it looks scary.

Tell about something you would be reluctant to do. Try to use *reluctant* when you tell about it. You could start by saying something like "I would be reluctant to _____."

What's the word we've been talking about?

Note how the instruction for *reluctant* was presented:

- First, the word was contextualized for its role in the story. (In the story, Lisa was *reluctant* to leave the laundromat without Corduroy.)
- The children were asked to repeat the word so that they could create a phonological representation of the word. (Say the word with me.)
- Next, the meaning of the word was explained using what we call "student-friendly" definitions—that is, a definition that characterizes the word and explains its meaning in everyday language. (*Reluctant* means you are not sure you want to do something.)
- Examples in contexts other than the one used in the story were provided. (Someone might be reluctant to eat a food that they never had before, or someone might be reluctant to ride a roller-coaster because it looks scary.)
- Children interacted with examples of the word's use or

Trade books that are read aloud to children are excellent sources of sophisticated words.

provided their own examples. (Tell about something you would be reluctant to do. Try to use *reluctant* when you tell about it. You could start by saying something like "I would be reluctant to _____.")

- Finally, children said the word again to reinforce its phonological representation. (What's the word we've been talking about?)

Vocabulary instruction in Text Talk always began with the context from the story because it provided a situation that was already familiar to children and provided a rich example of the word's use. However, it is important to move beyond this context in providing and eliciting examples of the word's use. This is not only because multiple contexts are needed for learners to construct a meaningful and memorable representation of the word. It is also important because young children have a very strong tendency to limit a word's use to the context in which it was initially presented.

Consider the following exchange, which took place when a class of kindergarten children were asked to talk about something they might be reluctant to do:

CHILD 1: I would be reluctant to leave my teddy bear in the laundromat.

TEACHER: Well, that's just like what Lisa did in the story. Try to think about something you might be reluctant to do that is not like Lisa.

CHILD 2: I would be reluctant to leave my teddy bear in the supermarket.

TEACHER: Okay, that's a little different than what Lisa was reluctant to do, but try to think of something that you would be reluctant to do that is very different than what Lisa was reluctant to do.

CHILD 3: I would be reluctant to leave my drums at my friend's house.

TEACHER: That's pretty different from what Lisa was reluctant to do, but can we think of something that you would be reluctant to do that isn't about leaving something somewhere?

CHILD 3: I would be reluctant to change a baby's diaper!

Two of us were present when that exchange occurred, and we both agreed that because of the diaper example, most of the children in that class would remember the meaning of *reluctant* with ease!

Let's consider several of these component parts in more detail:

Student Friendly Definitions

Below we provide some examples of target words we chose from trade books and the kind of language we used to develop student-friendly definitions for young children:

- If something is *dazzling,* that means that it's so bright that you can hardly look at it. After lots of long, gloomy winter days, sunshine on a sunny day might seem dazzling.
- *Strange* describes something different from what you are used to seeing or hearing.
- *Exhausted* means feeling so tired that you can hardly move.
- When people are *amusing,* they are usually funny or they make you happy to watch them. A clown at a circus is amusing.
- When someone is a *nuisance,* he or she is bothering you.

Note that some of the definitions have an example embedded in them. For some words it is particularly hard to describe their meaning in general terms to young children

(Continued on page 41)

Teacher Responses that Further Build Word Knowledge

An important element for developing children's understanding of word meanings is the teacher's reinforcement of those nascent understandings. Especially for young children it is important that the teacher give voice to the elements of developing word meaning that may be difficult for children to express on their own. And it is equally important that the teacher reveal aspects of word meaning that may not be readily apparent to young learners. No matter how well planned a lesson may be, a major part of all teaching is that combination of thoughtfulness and improvisational skill that allows a teacher to respond productively to children's comments. In this section, we provide some of the ways teachers responded to what children said to enhance children's understanding as well to encourage them to respond to comments offered by their peers.

Reinforcing Connections Between Words and Meanings
When children contribute examples, it is important to acknowledge the appropriateness of the example and to show how it connects to elements of the word's meaning. For example:

TEACHER: Who can tell about something that would be *absurd?*

CHILD: A rock that can walk.

TEACHER: A rock that can walk would really be absurd, because that doesn't make any sense at all!

TEACHER: What is something you might *gaze* at on a hot day?

CHILD: I'd gaze at a swimming pool.

TEACHER: Okay. If it's a hot day you might gaze at that swimming pool, because what would you really want to do?

Adding to Children's Network of Related Words
Asking children how a new word relates to words they already know helps them understand how words fit into their previous knowledge and gives them ideas of how they can use the new word. For example:

TEACHER: When you're *exhausted* you're really tired, tell us how it feels?

CHILD: Sweaty.

CHILD: Like I want to lay down.

CHILD: Out of breath.

TEACHER: If somebody, is *grumpy,* how are they acting, what do they do?

CHILD: Mad.

CHILD: Got a mean face.

CHILD: Being ugly.

Suggesting Ways to Apply the Word
Prompting children to think about situations in their lives that relate to a new word increases the chances that children will recall and use the word when appropriate circumstances occur. Some examples follow:

TEACHER: When you come in from recess, you could say, "I'm *exhausted.*" When you climb the stairs, you could say, "I'm exhausted." When else could you say you were exhausted?

CHILD: After riding my bike.

CHILD: When I stay up late.

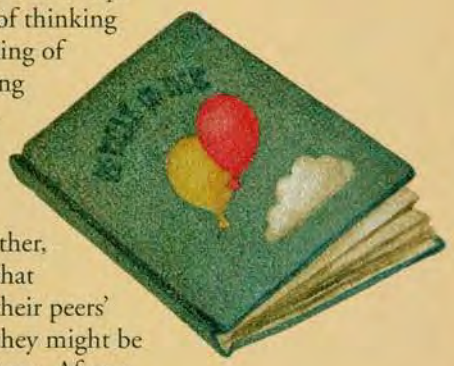
CHILD: When I run to see who wins.

TEACHER: I need to *remind* myself to stop at the store on the way home from school. Sometimes I remind you to bring in your homework. When are some times you might have to remind someone to do something?

CHILD: Remind my mother to help me plant seeds tomorrow.

CHILD: Remind my brother it's my turn to say the [TV] program to watch.

Involving Children in Responding to Peers' Comments
In many cases, connections between children's examples and word meaning can be provided by the children themselves. Prompting children to do this helps them develop the kind of thinking that promotes the building of such connections. Having other children play this role also spreads around the thinking by getting several children involved. And, further, it makes it more likely that children will attend to their peers' examples if they know they might be asked to comment on them. After a child offers an example of how a word might be used, a teacher might follow up by posing questions such as those below, to elicit comments from other students:



- Does what Jack just told us about sound *festive* to you?
- What do you think of that—could a new bike be *dazzling?*
- What does it mean that Shana is *reluctant* to eat spinach?

—I.B., M.M., AND L.K.

It is very important to provide examples of a word's use in contexts beyond its use in the story.

given the limited vocabulary they have. That is, it can be hard to make new words clearly differentiated through words that are understandable to young children. Hence, folding an example into the definition can help to clarify and pinpoint the word's meaning.

Uses of the Word Beyond the Story Context

Besides sometimes folding examples into an initial definition, it is very important to provide examples of the word's use in contexts beyond its use in the story. Creating examples is not always easy. We get started by thinking about places young children are familiar with (e.g., school, home, park, street, playground); things they do (e.g., eat, sleep, play, go to school, watch TV); things they like and are interested in (e.g., animals, food, clothing, toys, books, nature). Consider the examples we developed for the words defined above:

- For *dazzling*: a big diamond ring; teeth after getting them cleaned at the dentist.
- For *strange*: a dog that meows; a fish that barks.
- For *exhausted*: how someone probably feels after running a long, long race, or after cleaning the house all day.
- For *amusing*: watching animals play at the zoo; seeing someone perform magic tricks.
- For *nuisance*: a baby brother or sister making a mess; someone who keeps interrupting you when you are talking.

Activities that Encourage Children To Interact With Words

The final activity for each word provides situations in which children have to interact with the target word, often by responding to and explaining examples as well as creating their own examples. As you review the activities below, notice the extent to which children will have to deal with the word's meaning in order to complete the task.

Questions, Reasons, and Examples

- If you are walking around a dark room, you need to do it *cautiously.* Why? What are some other things that need to be done cautiously?
- What is something you could do to *impress* your teacher? Why? What is something you could do that might *impress* your mother?
- Which of these things might be *extraordinary?* Why or why not?
  - A shirt that was comfortable, or a shirt that washed itself?
  - A flower that kept blooming all year, or a flower that bloomed for three days?
  - A person who has a library card, or a person who has read all the books in the library?

Making Choices

- If any of the things I say might be examples of people *clutching* something, say "clutching." If not, don't say anything.
  - Holding on tightly to a purse
  - Holding a fistful of money
  - Softly petting a cat's fur
  - Holding on to branches when climbing a tree
  - Blowing bubbles and trying to catch them
- If any of the things I say would make someone look *radiant,* say "You'd be radiant." If not, don't say anything.
  - Winning a million dollars
  - Getting a hug from a favorite movie star
  - Walking to the post office
  - Cleaning your room
  - Having the picture you painted hung up in the school library

Using All the Words

The lesson concludes with a short activity in which all the target words from the story are brought together. Each of these activities is initiated with a statement like, "We've talked about three words (words are specified). Let's think about them some more."

Relating Words

To develop a concluding activity; a good way to start is to see whether there is anything about the words that is related. In the case of *reluctant, insisted,* and *drowsy,* we noticed that each word might be expressed through facial expressions, so that is what was done. Sometimes more than one of the instructed

(Continued on page 45)

Sidebar References

Fourth-Grade Slump

Anderson, R.C., & Freebody, P. (1981). Vocabulary knowledge. In J. T. Guthrie (ed.), *Comprehension and teaching: Research review* (pp. 71-117), Newark, Del.: International Reading Association.

Carroll, J.B. (1977). Developmental parameters of reading comprehension. In J.T. Guthrie (ed.), *Cognition, curriculum, and comprehension* (pp.1-15). Newark, Del.: International Reading Association.

Chall, J.S. (1983). *Stages of reading development,* New York: McGraw-Hill.

Chall, J.S., & Jacobs, V.A. (1983). Writing and reading in the elementary grades: Developmental trends among low-SES children. *Language Arts,* vol. 60, no. 5, pp. 617-626.

Chall, J.S., Jacobs, V.A., & Baldwin, L.E. (1990). *The Reading Crisis: Why Poor Children Fall Behind.* Cambridge, Mass.: Harvard University Press.

Chall, J. S. (1996). *Stages of reading development* (2nd ed.). Fort Worth, Tex.: Harcourt Brace.

National Assessment of Educational Progress (NAEP) (1971). *1969-1970 writing: Group results for sex, region, and size of community.* Washington, D.C.: U.S. Government Printing Office.

Roswell, F.G., & Chall, J.S. (1992). *Diagnostic assessments of reading and trial teaching strategies* (DARTTS). Chicago: Riverside Publishing.

Snow, C.E. Barnes, W.S., Chandler, J., Goodman, I.F., & Hemphill, L. (1991). *Unfulfilled expectations: Home and school influences on literacy.* Cambridge, Mass.: Harvard University Press

Snow, C.E., & Dickinson, D.K. (1991). Skills that aren't basic in a new conception of literacy. In A. Purvis & T. Jennings (eds.), *Literate systems and individual lives: Perspectives on literacy and schooling* (pp. 175-213). Albany: State University of New York Press.

Stanovich, K.E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly,* 21, (pp. 360-407).

Thorndike, E.L. (1917). Reading as reasoning: A study of mistakes in paragraph reading. *Journal of Educational Psychology,* 8, (pp. 323-332).

Thorndike, R.L. (1973-74). *Reading comprehension education in fifteen countries* (International Studies in Evaluation III). Stockholm, Sweden: Almquist and Wiksell.

Words Are Learned Incrementally

Anderson, R.C., & Nagy, W.E. (1991). Word meanings. In R. Barr, M.L. Kamil, P. Mosenthal, & P.D. Pearson (eds.), *Handbook of Reading Research, Vol. II.* White Plains, N.Y.: Longman.

Curtis, M.E. (1987). Vocabulary testing and vocabulary instruction. In M.G. McKeown & M.E. Curtis (eds.), *The nature of vocabulary acquisition.* Hillsdale, N.H.: Erlbaum.

Dale, E., & O'Rourke, J. (1986). *Vocabulary building.* Columbus, Ohio: Zaner-Bloser.

Durso, F.T., & Shore, W.J. (1991). Partial knowledge of word meanings. *Journal of Experimental Psychology: General,* 120, pp. 190-202.

Johnston, P. (1984). Prior knowledge and reading comprehension test bias. *Reading Research Quarterly,* 19, pp. 219-239.

King, A. (1997). Running Scared, *Atlantic Monthly,* 279(1), pp. 41-56.

McKeown, M.G. (1991). Learning word meanings from dictionaries. In P. Schwanenflugel (ed.), *The psychology of word meanings.* Hillsdale, N.Y.: Lawrence Erlbaum Associates.

McKeown, M.G., Beck, I.L., Omanson, R.C., & Pople, M.T. (1985). Some effects of the nature and frequency of vocabulary instruction on the knowledge of use of words. 20, pp. 522-535.

Nitsch, K.E. (1978). *Structuring decontextualized forms of knowledge.* Unpublished Ph.D., Vanderbilt.

Random House Dictionary (1978). New York: Random House.

Schwanenflugel, P. J., Stahl, S.A., & McFalls, E.L. (1997). *Partial word knowledge and vocabulary growth during reading comprehension* (Research Report No. 76). University of Georgia, National Reading Research Center.

Stahl, S.A. (1991). Beyond the instrumentalist hypothesis: Some relationships between word meanings and comprehension. In P. Schwanenflugel (ed.), *The psychology of word meanings* pp. 157-178. Hillsdale, N.H.: Lawrence Erlbaum Associates.

Oral Comprehension Sets the Ceiling

Bankson, N.W. (1977). *Bankson Language Screening Test.* Baltimore, Md.: University Park Press.

Dunn, L.M., & Dunn, L.M. (1982). Peabody Picture Vocabulary Test-Revisited. Circle Pines, Minn.: American Guidance Service.

Nagy, W.E., & Herman, P.A. (1987). Breadth and depth of vocabulary knowledge: Implications for acquisition and instruction. In M.G. McKeown & M.E. Curtis (eds.), *The nature of vocabulary acquisition,* pp. 19-36. Hillsdale, N.J.: Erlbaum.

Sternberg, R.J. (1987). Most vocabulary is learned from context. In M.G. McKeown & M.E. Curtis (eds.), *The nature of vocabulary acquisition* 89-106. Hillsdale, N.J.: Erlbaum.

Sticht, T.G., & James, J.H. (1984). Listening and Reading. In D. Pearson (ed.) *Handbook of Research on Reading,* vol. 1, pp. 293-317.

[1] Later, adolescents and adults may comprehend more complex printed narrative or expository text than spoken text because print remains after reading and can be reviewed, while oral language usually cannot be reviewed. However, children must reach the point where they can understand printed text as well as spoken text before their comprehension of printed text can exceed their comprehension of spoken text.

[2] This is true for children whose first language is English. Non-English-speaking children in English-speaking schools clearly acquire some English. However, as a group, they also clearly remain at a disadvantage compared to English-speaking children in elementary schools.

[3] Of course they can understand simpler text sooner. Many second graders can read and understand "first grade" written text. But they cannot understand stories and expository material in print that they can understand when heard.

Delight in Words

(Continued from page 41)

words can be used in a sentence. For example, in the case of *prefer, ferocious,* and *budge,* we would develop the following question: Would you *prefer* to *budge* a sleeping lamb or a *ferocious* lion? Why? In the case of *pounce, sensible,* and *raucous,* we would ask children to choose between two words:

- If you get your clothes ready to wear to school before you go to sleep, would that be *sensible* or *raucous?*
- If you and your friends were watching a funny TV show together and began to laugh a lot, would you sound *pounce* or *raucous?*

One Context for All the Words

Often, it is difficult to find relationships among the target words. What can be done, though, is to use a single context. For example, notice how the words *immense, miserable,* and *leisurely* are used in the questions below:

- What would an *immense* plate of spaghetti look like?
- Why might you feel *miserable* after eating all that spaghetti?
- What would it look like to eat spaghetti in a *leisurely* way?

Same Format

One can bring some coherence to an activity by using the same format for all three words. Several examples follow:

- If a dog was acting *menacing,* would you want to pet it or move away? Why?
- If you wanted to see something *exquisite,* would you go to a museum or a grocery store? Why?
- Is *snarl* something a fish might do or a lion might do? Why?

Children Create Examples

In the last example above, the format asked the child to make a choice and to explain the choice. The explanation is the most important part, because it requires the child to explicitly think through how the word fits the choices in the questions in order to express the relationship between the example and the word. Another format we used to prompt children's thinking of how a word fits a context was to have them create examples such as these:

- If there were an *emergency* at an amusement park, what might have happened?
- If you had a friend who watched TV all the time, how might you *coax* him into getting some exercise?

The "Using All the Words" activities we created to conclude a Text Talk lesson were both a way to get another encounter with each word and a way to bring all the words together to begin the process of having them become a natural part of the children's language rather than isolated, specialized items.

Maintaining Words

The vocabulary research strongly points to the need for frequent encounters with new words if they are to become a permanent part of an individual's vocabulary repertoire. In Text Talk, target words were placed on a bulletin board next to the cover of the story from which they came. Tally marks were placed next to words when they were mentioned by the teacher or children. In this way, a class's "favorite words" were identified. There are many variations of this notion, as well as other ways to keep children thinking about and using target words. Here are some that we observed in Text Talk classrooms.

The vocabulary research strongly points to the need for frequent encounters with new words.

Applying Previously Learned Words to New Stories

Both teachers and children often noticed when words they had learned appeared in subsequent stories that were read. But we also noticed occasions when a learned word did not necessarily appear in a story but could be applied. In these cases, teachers challenged children to apply vocabulary words from past stories to the one being read. An example of this situation occurred during a reading of *Curious George Goes to a Chocolate Factory* (Rey & Rey, 1998). In that story, George, the curious monkey, loves chocolate and nearly causes disruption in a chocolate factory by trying to find his favorite candy. But he ends up helping in an unintended way, and he is rewarded with a free box of chocolates for his efforts. The teacher asked the following questions that relate words learned from previous stories to the Curious George story:

- We learned some words in other stories that could fit here, too. How about the word *craving?* How does that describe something that happened in this story?
- Remember the word *deserve?* George got a box of chocolates as a present at the end. Do you think that he deserved to get that? Why?
- Does anybody remember a word that George might use to talk about the candy? It's a word we used to talk about the things the wolf baked for the children in *The Wolf's*

Chicken Stew (Kasza, 1987). He thought the candy was _____ *[scrumptious].*

Using Words in Reading and Writing Situations

Teachers developed a number of different ways to use the words children were learning in various reading and writing situations, including the following:

- Incorporating the words in the daily message. For example: Today is Tuesday. It is a *lovely* day outside. The sun is *radiant*. I *insist* that we work hard this morning so we can all go outside at recess.
- Creating a dictionary with word meanings and sample sentences.
- Encouraging children to use the words in their writing.
- Writing words on slips of paper and placing them into a container and when there is some downtime in the day, such as just before lunch, challenging children to create sentences with that word.

* * *

People who have large vocabularies tend to be intrigued with words. As such, a major impetus for our work is our concern that school vocabulary instruction tends to be dull, rather than of the sort that might instigate students' interest and awareness of words. Becoming interested and aware of words is not a likely outcome from the way instruction is typically handled, which is to have students look up definitions in a dictionary or glossary. Indeed, asking students to look up words in the dictionary and use them in a sentence is a stereotypical example of what students find uninteresting in school.

Less than interesting instruction is not a problem merely because we want students to enjoy classroom activities. Rather, students need to develop an interest and awareness in words beyond school assignments in order to adequately build their vocabulary repertoires. Part of what needs to occur is that students need to keep using words if they are to "own" new words. Students need to notice words in their environments whose meanings they do not know. They need to become aware of and explore relationships among words in order to refine and fully develop word meanings. Indeed, being curious about the meaning of an unknown word that one encounters and about how it relates to other words is a hallmark of those who develop large vocabularies.

Development of these facets of word learning cannot just rely on students spontaneously engaging with words on their own, as it simply will not occur in many cases. Rather, these facets must be the direct focus of instructional conditions. It has been our experience that students become interested and enthusiastic about words when instruction is rich and lively, and that conditions can be arranged that encourage them to notice words in environments beyond school.

We hope that the strategies and activities described above can help teachers bring delightful vocabulary instruction and a thorough delight in words to the children they teach. □

NONFICTION

(Continued from page 35)

de Linguistique Appliqué, 61, 61-82.

Hoffman, J.V., McCarthey, S.J., Abbott, J., Christian, C., Corman, L., Curry, C., Dressman, M., Elliott, B., Matherne, D., & Stahle, D. (1994). So what's new in the new basals? A focus on first grade. *Journal of Reading Behavior,* 26, 47-73.

Horowitz, R., & Freeman, S.H. (1995). Robots versus spaceships: The role of discussion in kindergartners' and second graders' preferences for science text. *The Reading Teacher,* 49, 30-40.

Irwin, P.A., & Mitchell, J.N. (1983). A procedure for assessing the richness of retellings. *Journal of Reading,* 26, 391-396.

Kamberelis, G. (1998). Relations between children's literacy diets and genre development: You write what you read. *Literacy Teaching and Learning,* 3, 7-53.

Kamil, M.L., & Lane, D. (1997a, March). *A classroom study of the efficacy of using information text for first-grade reading instruction* [Online]. Paper presented at the annual meeting of the American Educational Research Association, Chicago. Available: http://www.stanford.edu/~mkamil/Aera97.htm.

Kamil, M.L., & Lane, D. (1997b, December). *Using information text for first-grade reading instruction: Theory and practice* [Online]. Paper presented at the annual meeting of the National Reading Conference, Scottsdale, Ariz. Available: http://www.stanford.edu/~mkamil/nrc97b.htm.

Kletzien, S.B. (1999, December). *Children's reading preferences and information books.* Paper presented at the National Reading Conference, Orlando, Fla.

Kletzien, S.B., & Szabo, R.J. (1998, December). *Information text or narrative text? Children's preferences revisited.* Paper presented at the National Reading Conference, Austin, Texas.

Lennox, S. (1995). Sharing books with children. *Australian Journal of Early Childhood,* 20, 12-16.

Moffett, J. (1968). *Teaching the universe of discourse.* Boston: Houghton Mifflin.

Monson, D.L. & Sebesta, S. (1991). Reading preferences. In J. Flood, J.M. Jensen, D. Lapp, & J.R. Squire (eds.), *Handbook of research on teaching the English language arts* (pp. 664-673). New York: Macmillan.

Moss. B. (1997) A qualitative assessment of first graders' retelling of expository text. *Reading Research and Instruction,* 37, 1-13.

Moss, B., Leone, S., & DiPillo, M.L. (1997). Exploring the literature of fact: Linking reading and writing through information trade books. *Language Arts,* 74, 418-429.

Moss, B., & Newton, E. (1998, December). *An examination of the informational text genre in recent basal readers.* Paper presented at the National Reading Conference, Austin, Texas.

Oyler, C., & Barry, A. (1996). Intertextual connections in read-alouds of information books. *Language Arts,* 73, 324-329.

Pappas, C.C. (1991a). Fostering full access to literacy by including information books. *Language Arts,* 68, 449-462.

Pappas, C.C. (1991b). Young children's strategies in learning the "book language" of information books. *Discourse Processes,* 14, 203-225.

Pappas, C.C. (1993) Is narrative "primary"? Some insights from kindergartners' pretend readings of stories and information books. *Journal of Reading Behavior,* 25, 97-129.

Pelligrini, A.D., Perlmutter, J.C., Galda, L., & Brody, G.H. (1990). Joint reading between black Head Start children and their mothers. *Child Development,* 61, 443-453.

Pressley, M., Rankin, J., & Yokoi, L. (1996). A survey of instructional practices of primary teachers nominated as effective in promoting literacy. *Elementary School Journal,* 96, 363-384.

CALL FOR PROPOSALS

Academic Labor

The Impact of the Market Model on Scholarly Work Across the Disciplines

The American Federation of Teachers announces a call for papers to be included in the inaugural issue of *Academic Labor*, a new annual higher education journal of the AFT. The AFT is the largest organization of college and university faculty and staff representing over 125,000 members in higher education.

Each paper to be included in the journal's first issue will focus on the impact of market-oriented academic and managerial policies on scholarship and/or teaching being undertaken in various disciplines.

Proposals must not exceed three-double spaced pages plus references. Proposals should clearly indicate the discipline(s) or type(s) of scholarly work to be examined, the questions to be investigated, the data and methodology to be employed, and potential recommendations. Proposals must be submitted electronically and should include a cover page with the title of the proposed paper, the author and affiliation, and contact information.

Deadline for proposal submission: May 2, 2003

For a full description of the submission criteria, go to: **www.aft.org/higher_ed/AL_Call_Papers.html**

Contact: AFT Higher Education staff at academiclabor@aft.org or (202)879-4426

Purcell-Gates, V. (1988). Lexical and syntactic knowledge of written narrative held by well-read-to kindergarten and second graders. *Research in the Teaching of English,* 22, 128-160.

Purcell-Gates, V., McIntyre, E., & Freppon, P. (1995). Learning written storybook language in school: A comparison of low-SES children in skills-based and whole language classrooms. *American Educational Research Journal,* 32, 659-685.

Read, S. (2001). "Kid mice hunt for their selfs": First and second graders writing research. *Language Arts,* 78, 333-342.

Robinson, C.C., Larsen, J.M. Haupt, J.H., & Mohlman, J. (1997). Picture book selection behaviors of emergent readers: Influence of genre, familiarity, and book attributes. *Reading Research and Instruction,* 36, 287-304.

Sawyer, W., & Watson, K. (1987). Questions of genre. In I. Reid (Ed.), *The place of genre in learning: current debates* (pp. 46-57). Geelong, Victoria, Australia: Deakin University, Centre for Studies in Literary Education.

Schmidt, W.H., Caul, J., Byers, J.L., & Buchmann, M. (1984). Content of basal selections: Implications for comprehension instruction. In G.G. Duffy, L.R. Roehler, & J. Mason (Eds.), *Comprehension instruction: Perspectives and suggestions* (pp. 144-162). New York: Longman.

Selsam, M. (1973). *How kittens grow.* New York: Scholastic.

Smith, F. (1992). Reading the bear facts: Information books and learning in the primary classroom. *English in Education,* 26, 17-25.

Smith, N.B. (1986). *American reading instruction.* Newark, Del.: International Reading Association.

Smolkin, L.B., & Donovan, C.A. (2000). *The contexts of comprehension: Information book read alouds and comprehensive acquisition.* (Report No. 2-009). Ann Arbor, Mich. Center for the Improvement of Early Reading Achievement.

Soutter-Perrot, A. (1993) *Earthworms.* Mankam, Minn.: Creative Editions.

Venezky, R.L. (1982). The origins of the present day chasm between adult literacy needs and school literacy instruction. *Visible Language,* 16, 112-127.

Watts, B. (1988). *Potato.* Englewood Cliffs, N.J.: Silver Burdett Press.

Yopp, R.H., & Yopp, H.K. (2000). Sharing informational text with young children. *The Reading Teacher,* 53, 410-423.

READING COMPREHENSION

(Continued from page 29)

Garnham, A., & Oakhill, J. (1996). The mental models theory of language comprehension. In B. K. Britton & A.C. Graesser (eds.), *Models of understanding text.* Hillsdale, N.J.: Erlbaum.

Gipe, J.P., Arnold, R.D. (1979). Teaching vocabulary through familiar associations and contexts. *Journal of Reading Behavior,* vol. 11(3) Fall, pp. 281-285. National Reading Conference, U.S.

Graesser, A.C., & Zwaan, R.A. (1995). Inference generation and the construction of situation models. In Weaver, Charles A. III & Mannes, Suzanne, et al. (eds.). *Discourse comprehension: Essays in honor of Walter Kintsch,* pp.117-139. Hillsdale, N.J.: Lawrence Erlbaum Associations, Inc.

Kintsch, W. (1988). The role of knowledge in discourse comprehension: A construction integration model. *Psychological Review,* 95, pp.163-182.

Magliano, J.P., Trabasso, T., & Graesser, A.C. (1999). Strategic processing during comprehension. *Journal of Educational Psychology,* vol. 91(4), pp. 615-629. American Psychological Association.

Murphy, P.K.; Alexander, P.A. (2002).What counts? The predictive powers of subject-matter knowledge, strategic processing, and interest in domain-specific performance. *Journal of Experimental Education,* vol. 70(3), pp. 197-214. Heldref Publications, U.S.

Schneider, W., & Körkel, J. (1989). The knowledge base and text recall: Evidence from a short-term longitudinal study. *Contemporary Educational Psychology,* 14, pp. 382-393.

Stevenson, Rosemary J. (1993). *Language, Thought and Representation,* Chichester, UK: Wiley.

Suh, S. Y., & Trabasso, T. (1993) Inferences during reading: Converging evidence from discourse analysis, talk-aloud protocols, and recognition priming. *Journal of Memory and Language,* 32, pp. 279-300. Elsevier Science, U.S.

Trabasso, T., & Suh, S. (1993). Understanding text: Achieving explanatory coherence through online inferences and mental operations in working memory. Discourse Processes, 16, pp. 3-34.

Van Dijk, T.A., & Kintsch, W. (1983). Strategies of discourse comprehension. San Diego, Calif.: Academic Press.

Zwaan, R.A., & Radvansky, G.A. (1998). Situation models in language comprehension and memory. Psychological Bulletin, vol. 123(2) pp. 162-185. American Psychological Association.

Just For You!

These and Several Hundred others. For Friends and Family too!

1-800-774-9162

www.buymags.com/aft

Publication		Usual Price	Your Price
Alfred Hitchcock's Mystery		33.97	**25.97**
Allure		15.00	**11.97** *
American Baby		23.94	**13.97**
American History Illustrated		23.95	**17.95**
American Photo		21.00	**12.95**
Aquarium Fish		27.97	**15.97**
Architectural Digest		39.95	**24.00** *
Arthur Frommer's Budget Travel		14.95	**11.97**
Artist's Magazine		26.00	**18.97**
Asimov's Science Fiction		39.97	**29.97**
The Atlantic		19.95	**14.95**
Aviation History		23.95	**17.95**
Backpacker		27.00	**21.94** *
Baseball Digest		23.94	**19.96**
Basketball Digest		23.94	**15.97**
Better Homes & Gardens	1 yr	22.00	**14.97**
	2 yrs		**22.00**
Bicycling		21.98	**14.94** *
Biography		21.97	**15.00**
Bird Talk		27.97	**15.97**

Reader's Digest

Perfect for you or as a **gift!**

One year only $13.96

Black Enterprise		22.00	**17.95**
Boating		28.00	**17.97**
Bon Appetit		28.00	**15.00** *
British Heritage		29.95	**17.95**
Business 2.0		19.98	**15.00** *
Business Week		59.97	**37.95** *
Car & Driver		21.94	**11.97**
Car Stereo Review		17.94	**11.97**
Cat Fancy		25.97	**15.97**
Chicago		19.90	**9.95**
Child [12 issues]		15.56	**12.00**
Civil War Times		27.95	**17.95**
Coach, Scholastic		23.95	**14.95**
Columbia Journalism Review		20.00	**11.95**
Computer Shopper		25.00	**14.99**
Conde Nast Traveler		19.97	**12.00** *
Consumer Reports	1 yr	26.00	**26.00**
	2 yrs		**44.00**

Financial advice & performance reviews from the experts.

13 issues - just $19.95

Cosmopolitan		29.97	**18.00** *
Country Living		24.00	**12.00**
Country Living Gardener		19.97	**14.97**
Creative Classroom		19.97	**15.97**
Cruise Travel		23.94	**11.97**
Details		15.00	**7.97**
Discover		29.95	**14.98**
Disney Adventures (ages 7-14)		14.95	**11.97**
Dog Fancy		27.97	**15.97**
Ebony		20.00	**14.97**
Elle		28.00	**14.00**
Elle Decor		29.00	**14.97**
Entrepreneur		20.00	**14.97**
Essence		22.00	**18.96**

* These rates for teachers and college students only.

Publication		Usual Price	Your Price
Esquire	1 yr	15.94	**7.97**
	2 yrs		**14.94**
Family Circle [12 iss]		15.98	**12.00**
Family Fun		16.95	**9.97**
Family Handyman		19.97	**15.00**
Fast Company [15 iss]		29.94	**19.75**
Field & Stream		15.97	**11.97**
Fitness		19.98	**11.97**
Flying		26.00	**14.97**

The latest ideas, events, trends and issues of the day.

Full year - just $28.00

Forbes		59.95	**29.95**
Foreign Affairs		44.00	**32.00**
Foreign Policy		24.95	**19.95**
Fortune [26 iss]		59.95	**29.98** *
Girls Life		19.95	**14.95**
Glamour		16.00	**11.97** *
Golf		19.95	**15.97**
Golf Digest		27.94	**16.77**
Golf World		53.97	**29.97**
Good Housekeeping	1 yr	19.97	**10.00**
	2 yrs		**19.00**
Gourmet		20.00	**15.00**
GQ		20.00	**15.00** *
Harper's Bazaar		15.00	**8.00**
Harper's Magazine		21.00	**11.97**
Hawaii		20.00	**15.97**
Health Magazine		19.97	**11.97**
Heart & Soul		16.97	**9.97**
Herbs For Health		24.00	**19.95**
Hispanic Magazine		24.00	**18.00**
Home		24.00	**12.00**
House Beautiful	1 yr	19.97	**12.00**
	2 yrs		**23.00**

Humpty Dumpty (ages 4-6)		24.00	**17.29**
Inc.		19.00	**14.00**
Inside Stuff (NBA)		19.95	**12.95**
Instructor (K-8)		19.95	**9.95**
Jet		38.00	**24.00**
Kiplinger's Personal Finance		23.95	**14.97**
Ladies Home Journal		16.97	**9.99**
Latina		20.00	**14.97**
Lucky		15.00	**12.00**
Marie Claire		17.97	**12.00**
Men's Journal		19.94	**9.97**
Metropolitan Home		19.94	**9.97**
Midwest Living		19.97	**11.65**
Modern Bride		17.97	**9.95**
Money [13 issues]		39.89	**19.95** *
More Magazine		18.00	**11.97**
Mother Jones		18.00	**12.00**
Motor Trend		18.00	**10.00**
Motorboating		19.97	**11.97**
The Nation		52.00	**26.00**

Publication		Usual Price	Your Price
National Review		59.00	**39.00**
New York	1 yr	29.90	**14.97**
	2 yrs		**29.90**
New Yorker	1 yr	49.95	**28.00** *
	2 yrs		**55.00** *
Newsweek	[55 iss]	43.45	**24.99** *
	[108 iss]		**48.99** *
Old House Journal		27.00	**13.97**
Oprah		24.00	**15.00** *
Organic Style		19.96	**14.96** *
Out		24.95	**14.95**
Outdoor Photographer		19.94	**10.98**
Parenting		17.97	**8.97**
Parents		15.98	**8.97**
PC Magazine [25 iss]		45.42	**25.00**
PC World		24.95	**17.97**
Photographic		23.94	**11.97**

AMERICAN FEDERATION OF TEACHERS SUBSCRIPTION SERVICES

LOWEST PRICES
NO GIMMICKS - Just the lowest rates!

1-800-774-9162

Box 258 • Greenvale, NY 11548

aft Plus

Popular Mechanics		21.97	**12.00**
Popular Photography		19.94	**11.97**
Popular Science		19.95	**15.97**
Premiere		15.94	**11.97**
Prevention		21.97	**16.94** *
The Progressive		30.00	**19.97**
Psychology Today		21.00	**15.97**
Reader's Digest		24.96	**13.96**
large print edition		27.96	**21.95**
Selecciones (*spanish*)		27.46	**19.97**

- *Best Titles*
- *LOWEST Rates*
- *Easy Ordering*

Extended Office Hours Mon.-Thur. 9am-7pm & Fri. til 5pm ET

Real Simple		19.95	**14.95** *
Redbook	1 yr	15.00	**8.00**
	2 yrs		**15.00**
Rolling Stone		19.94	**11.97**
Runner's World		24.00	**19.88** *
Salt Water Sportsman		24.97	**19.97**
Scuba Diving (Rodale's)		21.98	**11.97** *
Self		16.00	**12.00** *
Seventeen		19.95	**9.98**
Ski [8 Iss] or Skiing [7 iss]		14.97	**9.97**
Smart Money		24.00	**15.00**
Smithsonian		32.00	**16.00**
Sound & Vision		24.00	**12.00**
Sporting News [1 year]		78.00	**39.60**
Sports Illustrated [53 iss]		78.97	**39.75** *
The Weekly Standard		79.96	**47.96**
Stereophile		19.94	**11.97**
Sunset		24.00	**16.00**
Teaching Pre K-8		23.97	**16.97**
Technology & Learning		24.00	**14.00**

Publication		Usual Price	Your Price
Teen Vogue [10 iss]		15.00	**10.00**
Tennis		18.00	**12.00**
Texas Monthly		18.00	**14.97**
This Old House		19.95	**15.96**
Time [56 issues]		59.95	**29.95** *

55 weekly issues at a special member rate.

A best buy $24.99!!

Town & Country		28.00	**15.00**
Travel Holiday		17.94	**9.97**
TravelAmerica		23.94	**11.97**
TV Guide		56.68	**39.52**
U.S. News	1 yr	44.75	**24.97**
	2 yrs		**44.75**
Unique Homes		31.00	**21.97**
US Magazine		65.00	**52.00**
Vanity Fair		24.00	**18.00** *

3 SPECIAL RATES FOR MEMBERS

ENJOY THEM ALL YEAR LONG!

Victoria		21.97	**12.00**
Vietnam		23.95	**17.95**
Vogue		28.00	**17.97**
W Magazine		29.90	**14.95**
Wine Enthusiast		32.95	**19.95**
Wired		24.00	**12.00**
Woman's Day		17.97	**8.99**
Working Mother		12.97	**9.97**
World Press Review		26.97	**16.97**
World War II		27.95	**17.95**
Writer's Digest		26.00	**17.97**
Yachting		19.97	**15.97**
YM		16.60	**9.97**

Visit our website at ***www.buymags.com/aft***

Hundreds of Others Just Ask!

For renewals include a mailing label, if available. Subscriptions usually begin within 45 - 60 days

AFT SUBSCRIPTION SERVICES
Box 258 • Greenvale, NY 11548

Name_____

Address_____

City, State, Zip_____

Your School_____

Home Phone (____)_____

e-mail address _____ @_____

Publication Name	Years	Price
	Total	

❑ Check enclosed payable to: AFTSS

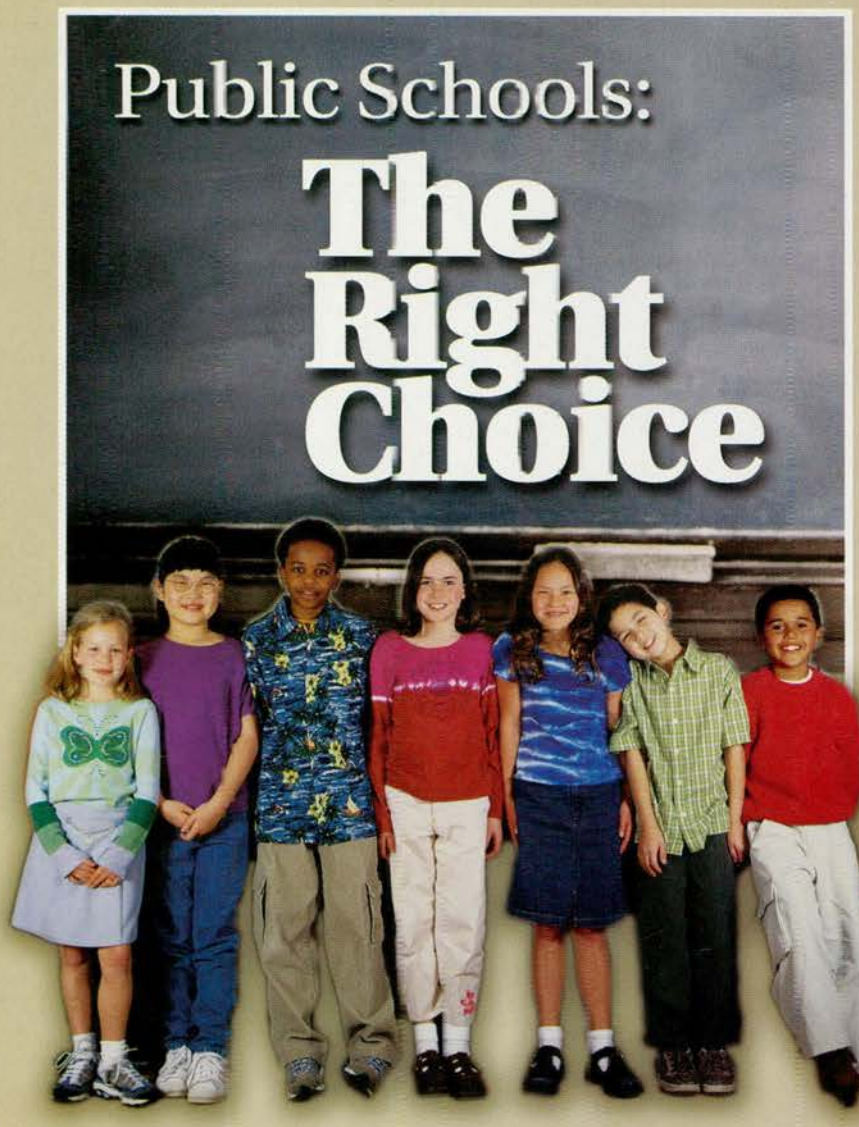
❑ Charge to my credit card

❑ Visa ❑ MasterCard ❑ Discover ❑ Amex

Acct: _____ Exp. Date: ____

❑ Please bill me (phone # required)

S2333



THE RIGHT TIME to meet with thousands of educators from around the country, other AFT leaders, and education policymakers to address emerging issues in this new political environment.

THE RIGHT PLACE to learn about the latest research and best practices by attending workshops, provocative plenary sessions, seminars, exhibits, and a Resource and Technology Center.

THE RIGHT CHOICE for professional development on critical issues, such as: closing the achievement gap, discipline, reading, redesigning schools to raise achievement, standards and assessments, and teacher quality.

QuEST 2003
JULY 10-13
WASHINGTON HILTON & TOWERS
WASHINGTON, D.C.

FOR MORE INFORMATION, OR TO REGISTER ONLINE (MEMBERS ONLY), GO TO **www.aft.org/QuEST2003**

A Union of Professionals

QuEST 2003

Quality Educational Standards in Teaching