

AMERICAN FEDERATION OF TEACHERS
SUMMER 1995

AMERICAN **Educator**

Learning To Read Schooling's First Mission



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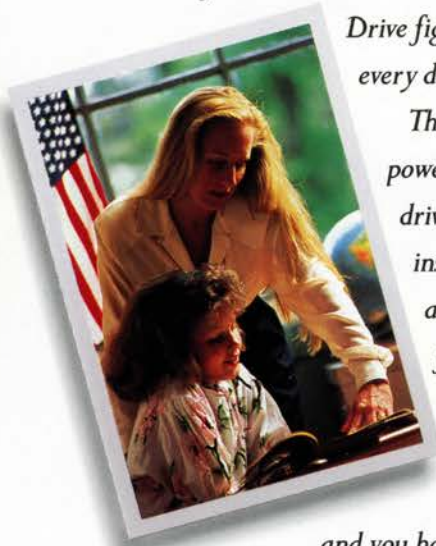
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ALBERT SHANKER
President
American Federation of Teachers

Elizabeth McPike
editor

Mary Power Boyd
associate editor

Sandra Brown
editorial assistant

Andrew Bornstein
design consultant

Cover illustrated by Susan Davis

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Advertising Sales Representative
Peter Li, Inc.
330 Progress Road
Dayton, OH 45449
800-523-4625
513-847-5900
Fax # 513-847-5910

William M. Doran
Peter Li, Inc.
310 Madison Ave., Suite 1809
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West
Jo-Ann McDevitt
Peter Li, Inc.
2169 Francisco Blvd., East, Suite A4
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415-457-4333
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Southwest and Midwest
Peter Li, Inc.
8420 W. Bryn Mawr Ave., Suite 413
Chicago, IL 60631
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LETTERS

MORE ON SEX EDUCATION

In her critique of comprehensive sex education ("The Failure of Sex Education," Winter 1994-95), Barbara Dafoe Whitehead raises some important concerns that all of us involved in sex education should thoughtfully consider. However, I am concerned that while Whitehead's article appears to be reasonable and balanced on the surface, it is actually misleading in several respects.

Perhaps most important is that she directly states and leaves the reader with the clear impression that sex education has failed. This, at best, is an imbalanced view. She correctly and repeatedly quotes my conclusions about what kinds of sex education programs have not had a desirable and measurable impact upon adolescent sexual behavior, but she gives less attention to my conclusions about what kinds of sex education programs *do* have a desirable and measurable impact upon behavior. Furthermore, she gives relatively little attention to the programs that have been demonstrated to change sexual *and* contraceptive behaviors. More generally, she gives little weight to the growing body of research that demonstrates that sex education programs do make a difference.

A review supported by the Centers for Disease Control and Prevention of all published research on sex education programs concluded that (1) sex education programs currently implemented throughout the country do not hasten the onset of

intercourse or increase its frequency, (2) as a whole, these programs modestly increase the use of contraception, and (3) some specific programs have a larger, more programmatically important, impact upon behavior than others.

Currently, there exists at least six studies of specific sex education or HIV education programs that demonstrate that these curricula improve adolescent sexual and contraceptive behavior. These programs delay the onset of sexual intercourse, reduce the numbers of sexual partners, increase the use of contraception, and/or reduce the frequency of intercourse without contraception. For a variety of statistical reasons that are beyond the scope of this letter, it is very difficult to measure the impact of any program upon adolescent pregnancy, birth or STD rates. Nevertheless, it is certainly logical to conclude that if sex and HIV education programs have these desirable effects upon behavior, they will also reduce adolescent pregnancy, birth and STD rates.

The programs that do effectively change behavior have the following characteristics: They focus upon changing specific sexual behaviors. They are based upon established theories of behavior change proven to be effective in other risk-taking areas (e.g., substance abuse). They provide accurate information in a manner that causes students to personalize and retain that information, instead of quickly forgetting it. For example, they use many interactive activities rather than didactic lec-

tures. They address social pressures to have sex (e.g., lines used to get someone to have sex, and rejoinders to those lines). They model ways to say no to sex (or to unprotected sex) and provide practice in those skills. Perhaps most important, they provide a clear message that is both age- and experience-appropriate. For younger sexually inexperienced youth, an effective message is: Wait until you are older to have sexual intercourse. For somewhat older youth, some of whom are beginning to have sex, an effective message can be: Avoid unprotected intercourse—the best way to do this is abstinence; if you have sex, always use protection. For high-risk youth, most of whom are having intercourse, an effective message is: Always use condoms; otherwise you may get AIDS.

Given the innumerable factors affecting adolescent sexual behavior (e.g., hormones, needs for love and affection, family values, peer norms and pressures, the media, and other societal pressures), no one should expect there to be any magic solutions to the problems of adolescent sexual behavior. This is not realistic. And, in particular, sex education curricula lasting only five to ten hours—as most of them do—can not be expected to have a dramatic impact upon adolescent sex. However, curricula with the characteristics described above can have some impact upon behavior and should be a component in any larger more comprehensive program to address

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LEARNING TO READ: SCHOOLING'S FIRST MISSION

THIS WE can say with certainty: If a child in a modern society like ours does not learn to read, he doesn't make it in life. If he doesn't learn to read well enough to comprehend what he is reading, if he doesn't learn to read effortlessly enough to render reading pleasurable, if he doesn't learn to read fluently enough to read broadly and reflectively across all the content areas, his chances for a fulfilling life, by whatever measure—academic success, financial success, the ability to find interesting work, personal autonomy, self-esteem—are practically nil.

Because of the central role that reading ability plays in children's lives, it is in this area, above all others, that the knowledge base for the practice of teaching must be most closely studied and adhered to. There is no room for either confusion or dogmatism. Too much is at stake.

Keith Stanovich, one of the world's leading reading researchers and twice the recipient of the International Reading Association's Albert J. Harris award, has applied the concept of the "Matthew effect" to describe the dramatically different trajectories followed by those children who get off to a good start in reading and those who don't:

"The term Matthew effects derives from the Gospel according to Matthew: 'For 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' (XXV:29).

"...Put simply, the story goes something like this: Children who begin school with little phonological awareness have trouble acquiring alphabetic coding skill and thus have difficulty recognizing words. Reading for meaning is greatly hindered when children are having too much trouble with word recognition. When word recognition processes demand too much cognitive capacity, fewer cognitive resources are left to allocate to higher-level processes of text integration and comprehension. Trying to read without the cognitive resources to allocate to understanding the meaning of the text is not a rewarding experience. Such unrewarding early reading experiences lead to less involvement in reading-related activities. Lack of exposure and practice on the part of the less-skilled reader further delays the development of automaticity and speed at the word recognition level. Thus reading for meaning is



hindered, unrewarding reading experiences multiply, practice is avoided or merely tolerated without real cognitive involvement, and the negative spiral of cumulative disadvantage continues. Troublesome emotional side effects begin to be associated with school experiences, and these become a further hindrance to school achievement.

"Conversely, children who quickly develop decoding processes find reading enjoyable because they can concentrate on the meaning of the text. They read more in school and, of equal importance, reading becomes a self-chosen activity for them. The additional exposure and practice they get further develops their reading abilities....(R)eadng develops syntactic knowledge, facilitates vocabulary growth, and broadens the general knowledge base. This facilitates the reading of more difficult and interesting texts..."

How many American children are caught in the downward spiral that Stanovich describes? No one has exact figures, but the accumulating evidence—both quantitative and anecdotal—is indeed troubling, and an increasing number of educators are expressing deep concern. Perhaps we need not spend valuable time calculating the precise number of children affected when we know we can say with confidence that we are talking about millions.

The most recent evidence of reading difficulty comes from new studies by the National Assessment of Educational Progress (NAEP). In April of this year, NAEP announced the latest reading scores for students across the country. Students in three grades in thirty-nine states were tested. Overall, fewer than a third of them were proficient in reading, that is, able to handle challenging texts competently, and only a very few (2 percent to 5 percent depending on the grade) were reading at advanced levels.

While middle-class children and children with normal cognitive development have by no means been spared from the growing incidence of reading problems, the pedagogical clock is ticking most relentlessly for youngsters from low-income and disadvantaged households—those who do not come to school with the thousands of hours of exposure to print and conversation and word play and informal teaching that occurs in most middle-class households: being read to, learning rhymes and songs and playing word-sound



games, watching and helping as the grocery list is drawn up and checked off, manipulating the magnetic letters on the refrigerator, and so on. In contrast to these fortunate ones, as Marilyn

Adams, the co-author of the first article in this special section reminds us, there are children who "have barely even seen a book before entering school."

Also at serious risk, and again the numbers are high, are children whose cognitive architecture—for a wide variety of reasons—makes learning to read and write more difficult.

For these two groups of children in particular, as Adams has so compellingly put it, "we have not a classroom moment to waste."

WHAT DO we know about how best to help children learn to read? The three articles that follow in this special series on learning to read speak with rigor and thoroughness to that question. Let me try to glean five main points that flow from these articles and from other work in the field:

1. Many elements of the Whole Language approach have brought new life to the reading and writing experience and to the classrooms where students and teachers are working creatively together to open the door to full literacy. The early emphasis on writing; the deeper drawing from the rich treasure chest of good children's literature; the freedom for teachers to go beyond tightly regimented and constrained programs and to design a wide range of literacy events and activities; the recognition that prolonged periods of abstracted phonics drill, isolated from meaningful text, is not the way to teach reading; the understanding that learning depends in considerable degree upon capturing a child's interest and engaging his active participation, of setting before him a vision of something he very much wants to be part of: All of these have been invaluable contributions and a much-needed counterbalance to what in many cases was a dry and narrow approach to literacy development. Toward the end of this past school year, we attended my second-grade daughter's "Second Annual Author's Tea" at our neighborhood public school here in the District of Columbia—an event at which the children read from the books they had written, illustrated, and so handsomely bound. The gathering was complete with printed program and the opportunity "to mingle with the authors and enjoy refreshments between readings" (as they say in the fancy bookstores that sponsor more famous, though not more proud and excited authors). As I took it all in, I couldn't help but contrast this experience with the quite different memories I have of my own early reading and writing experiences.

2. Whole Language means different things to different people, and for some educators it has meant combining the types of insights and activities described above with the direct and systematic teaching of all that is involved in mastering the alphabetic code. But many leaders and proponents of the Whole Language approach have so downgraded the importance of code-oriented instruction as to render it but an incidental part of a beginning reading program, if that. Direct in-

struction and systematic instruction are frowned upon; as is attention to individual words and the letter/sound sub-units of which they are composed. Children are advised to rely on context to figure out unfamiliar words. "Don't sound it out," warns *The Whole Language Teachers Newsletter*. But contextual clues are notoriously unreliable; they can't compete with skilled decoding. And the "wait-for-the-child-to-ask" orientation to decoding instruction doesn't do much for children who don't understand what to ask.

The article that follows by Marilyn Adams and Maggie Bruck will walk carefully and thoroughly through the large body of research on the central role of decoding in reading, but in essence this is their conclusion: To the extent that Whole Language proponents equate learning to read with learning to talk, that is, both "natural" processes to which we are predisposed and that require little more than a rich immersion in order to blossom, they are wrong. To the extent that they minimize the role of skilled decoding in reading comprehension, they are also wrong. And the pedagogical practices that flow from these faulty premises are wrong; indeed for many children they are a disaster. All children can benefit from and many children *require* systematic direct instruction in the elements of the alphabetic code. Each child is different, of course, and some need more extensive instruction in decoding skills than others. But as Keith Stanovich has so succinctly put it:

"That direct instruction in alphabetic coding facilitates early reading instruction is one of the most well-established conclusions in all of behavioral science.... Conversely, the idea that learning to read is just like learning to speak is accepted by no responsible linguist, psychologist, or cognitive scientist in the research community."

Rather than being irrelevant or incidental to text comprehension, skilled decoding, it turns out, is central. Again, Marilyn Adams:

"... [I]t has been proven beyond any shade of doubt that skillful readers process virtually each and every word and letter of text as they read. This is extremely counter-intuitive. For sure, skillful readers neither look nor feel as if that's what they do. But that's because they do it so quickly and effortlessly. Almost automatically, with almost no conscious attention whatsoever,



skillful readers recognize words by drawing on deep and ready knowledge of spellings and their connections to speech and meaning.

In fact, the automaticity with which skillful readers recognize words is the key to the whole system.... The reader's attention can be focused on the meaning and message of a text only to the extent that it's free from fussing with the words and letters."

A Whole Language approach that does not incorporate sufficient attention to decoding skills leaves in its wake countless numbers of youngsters who, in the words of one teacher, are surrounded by "beautiful pieces of literature that [they] can't read." As Joanna Williams of Teachers College, Columbia University, has observed: "Today, without strong direct systematic decoding instruction in regular first grade classrooms, more and more children are being shunted into remedial classes, and even special education."

Also left in the wake are many teachers who can see clearly that some of their students are not doing well in a purist Whole Language environment but who are under tremendous pressure from their district or state to minimize the teaching of the alphabetic code. In a recent article in *Education Week*, one veteran teacher describes the environment that followed California's 1987 adoption of a "literature-based framework for teaching language arts" as one in which "officials in some elementary schools seized phonics books and spellers to ensure that teachers were not ignoring the new [whole language] instructional materials."

Pressures are also coming from the social dynamics within the profession. We have heard numerous stories from teachers who, labeled as "old-fashioned" or—worse yet—"resistant to change," have had to "hide their phonics books" or close their doors in order to "sneak in some phonics."

3. Systematic attention to the alphabetic code does not mean a return to the dreariness that characterized so much of the old phonics. Thanks to the dedicated work of many teachers and reading researchers, we now know a lot more than we used to about what constitute the critical elements of decoding and how to go about teaching them. In the second article in this special section, Isabel Beck and Connie Juel offer nu-

merous suggestions for improving existing instructional materials and a variety of strategies and engaging activities that teachers can use to help children master the code. They decry the "drill and more drill" approach to phonics that was once prominent. They describe a scene from the past in which—

"The teacher stands at the front of the class and points with a long wooden pointer to a wall chart that contains columns of letters and letter combinations. As she points to a column of short vowel and consonant *b* combinations, the class responds with the sound of each combination: /ab/, /eb/, /ib/, /ob/, /ub/. She goes to the next column and the class responds, /bab/, /beb/, /bib/, /bob/, /bub/. Then the teacher asks, 'What's the rule?' The children respond in unison, 'In a one-syllable word, in which there is a single vowel followed by a consonant....' So it went day after day, with [as P.B. Diederich termed it] 'letter-sound relationships and pronunciation rules...done to death.'"

No wonder, they conclude, many prominent educators referred to this kind of phonics instruction as "heartless drudgery." Those days are over, as they should be, and no reasonable educator is suggesting a return to them. But neither do reasonable educators suggest that students do not need a reasonable amount of well-designed practice.

4. A carefully crafted, balanced approach to the teaching of reading requires considerable sophistication on the part of teachers. Joanna Williams describes the rigorous demands of the job:

"Teachers are often exhorted to be eclectic, as indeed they should be. Teaching children to read requires much knowledge and many skills. Moreover, children do not all respond equally well to the same teaching techniques. A teacher must be ready and able to switch strategies easily. A teacher must be equipped to jump in wherever required and provide appropriate feedback on the spot, whether it be with phonics information, an analogy, or a pointed question. (Of course, he or she must also know when not to jump in but rather let the child find his own way.) Teachers need good training to operate flexibly with multiple strategies and activities. They also need substantial knowledge about the way in which language is structured, particularly with respect to its orthographic and phonological features. They must be able to teach their students about phonemes and how phonemes are represented in writing, and about morphemes (the smallest meaningful units in words) and their spelling patterns...."

But teachers are not receiving this kind of training. The amount of course work in the structure of spoken and written language required by teacher preparation programs and state certification standards are woefully inadequate for the demands of classroom life, particularly classrooms with low-readiness children and a diverse range of learners. In the final article in the series that follows, Louisa Cook Moats reports on a survey she conducted of experienced teachers to assess their knowledge of the structure of spoken and written language. Moats found "pervasive conceptual weaknesses in the very skills that are needed for direct, language-focused reading instruction, such as the ability to count phonemes and to identify phonic relationships. ...Typically, about 10 percent to 20 percent...could consistently identify consonant blends in written words...Less than half of those tested could identify the



ILLUSTRATED BY SUSAN DAVIS



reduced vowel *schwa* consistently. Only 30 percent could explain when *ck* was used in spelling." [See pages 46-47 for the survey and survey results.]

Moats is at pains to point out that teachers cannot be expected to know what they have not been taught, and she urges reform of teacher preparation programs and certification requirements. "At present, motivated teachers are often left to obtain specific skills in teaching phonology, phonetics, orthography, and other language skills on their own by seeking out workshops or specialized instructional manuals."

Moats also notes the terrible toll this takes on teachers. The lack of a firm grasp of the knowledge they need to teach beginning readers—especially hard-to-reach, hard-to-teach children—leaves many dedicated teachers deeply frustrated. Worried that they are not doing a good job, their confidence shaken, many begin to rethink their career choice. Undoubtedly, this is a significant factor in the widely documented high attrition rate of new teachers.

While there are a number of reasons that help explain why teachers are not being offered the training they need, a recent article in *The Atlantic Monthly* may throw some light on the problem: "...in 1987 a survey of forty-three texts used to train teachers of reading found that none advocated systematic phonics instruction—and only nine even mentioned that there was a debate on the issue." Programs that do not believe in the value of systematic phonics are unlikely to provide teachers with the necessary knowledge base in the structure of language. As Moats concludes, "...language mastery is as essential for the literacy teacher as anatomy is for the physician. It is our obligation to enable teachers to acquire it."

5. It is certainly motive enough to know that the lives of millions of children depend on our ability to help them learn to read well. But there may be yet more at stake here. As increasing numbers of parents witness their second and third graders struggling through basic reading materials and lacking command of foundational spelling concepts and spelling-sound relationships, they come to feel that our public schools are failing in their most basic mission. According to a report issued last summer by the Public Agenda Foundation, "First Things First: What Americans Expect from the Public Schools," 60 percent of Americans harbor deep concerns that there is "not enough emphasis on the basics such as reading, writing, and math." Higher standards and more challenging school work are strongly endorsed by the public, but they don't understand how "critical thinking" and "higher-order" skills are possible without mastery of certain basics:

"In focus groups for this study and other Public Agenda education projects, people express a sense of frustration and even bewilderment at the inability of the public schools to make mastery of the basics commonplace among the nation's children."

Keith Stanovich describes how parents' dissatisfaction with their children's progress in reading is fueling the movement toward privatizing education in Canada:

"Parents with children who have trouble in early reading and who have not been given instruction in alpha-

betic coding will add fuel to the movement toward privatized education in North America. 'Parents Question Results of State-Run School System' is an increasingly frequent newspaper headline in Canadian provinces (e.g., Ontario) where phonics instruction is neglected or de-emphasized. The January 11, 1993, cover of *Maclean's*, Canada's weekly newsmagazine, was titled 'What's Wrong at School?' and featured numerous reports of parents seeking private education for children struggling in reading due to a lack of emphasis on alphabetic coding in school curricula.... It is reported that Canada's private school enrollment jumped 15 percent in the single year of 1992."

Of course, private schools are just as likely—and the elite ones probably more likely—to have embraced a one-sided Whole Language approach. But parents are generally not well informed about the specifics of different instructional programs. They only know that their child is not doing well in his current setting, and they begin to look elsewhere.

THE WHOLE Language movement has brought to the forefront many complex and legitimate issues about the nature of teaching and learning and the goals of education, and it has brought fresh life to many classrooms. But to the extent that it has reduced decoding to an incidental place in the reading curriculum, it has done a terrible disservice to the children whose lives depend on mastery of that skill. As Adams and Bruck compellingly argue, the legitimate issues related to questions of teacher empowerment, child-centered education, and the reading-writing connection "are strictly independent from issues of the nature of the knowledge and processes involved in reading and learning to read. On these latter questions, the research is resoundingly clear. Only by disentangling these two sets of issues, can we give either the attention and commitment that it so urgently deserves."

And, as Stanovich warns, unless this disentangling takes place, "whole language proponents threaten all of their legitimate accomplishments. Eventually—perhaps not for a great while, but eventually—the weight of empirical evidence will fall on their heads."

We do not have to wait for such a scenario to unfold. We can create a better one—one in which a self-confident teaching profession crafts a well-balanced program that draws the best from both approaches and in the process gives all children their best hope for learning and loving to read.

Lastly, I would like to mention that it seems fitting that this issue of *AMERICAN EDUCATOR* coincides with the opening of QuEST, AFT's biennial national conference on professional issues in education, an event that has from its inception been dedicated to the belief that, contrary to how some would have it, teaching is not just something you're equipped to do because you like kids. It is a rigorously demanding profession and—like other professions—its successful practice rests on the mastery and implementation of a large and continually expanding body of knowledge, research, and documented practice. It is clear that much of the knowledge base set forth in the three articles that follow has not made its way into the hands of vast numbers of classroom teachers. We hope that by making this information more widely available, we can help remedy that situation.

—EDITOR

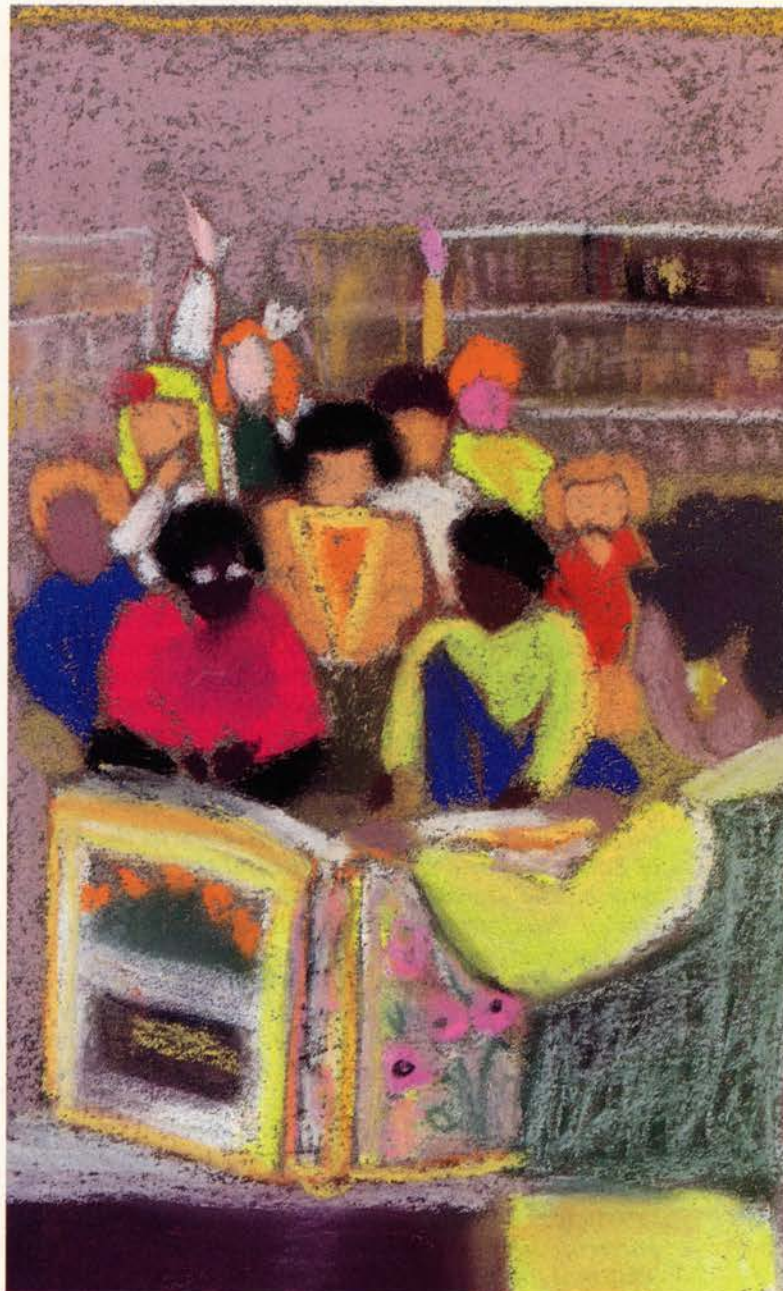
RESOLVING THE 'GREAT DEBATE'

BY MARILYN J. ADAMS AND MAGGIE BRUCK

ACROSS THE centuries, methods to help the beginning reader attend to the sequences of letters and their correspondences to speech patterns have been a core element of most approaches to literacy instruction in alphabetic languages (Feitelson 1988; Mathews 1966; Richardson 1991; N. Smith 1974). We use the term "phonics" to refer to such methods. In order to understand written text, the reader must be able to derive meaning from the strings of printed symbols on the page. Phonics methods are built on the recognition that the basic symbols—the graphemes—of alphabetic languages such as English encode phonological information. By making the relationships between spellings and sounds explicit, phonics methods are intended to assist the learning process by providing young readers and writers with a basis both for remembering the ordered identities of useful letter strings and for deriving the meanings of printed words that, though visually unfamiliar, are in their speaking and listening vocabularies.

Despite their long and broad history, these traditional
(Continued on page 10)

Marilyn J. Adams is a senior scientist at Bolt Beranek and Newman, Inc., a research and consulting firm in Cambridge, Massachusetts, and the author of Beginning to Read: Thinking and Learning about Print, widely regarded as the most thorough and ambitious analysis yet undertaken of the research regarding early reading. Beginning to Read is now available in paperback from The MIT Press. Maggie Bruck is associate professor of psychology and pediatrics at McGill University in Montreal, Canada. She has published widely in the field of reading acquisition and reading disabilities. This article is adapted from two previously published articles: "Word Recognition: The Interface of Educational Policies and Scientific Research," by Marilyn J. Adams and Maggie Bruck, which originally appeared in Reading and Writing: An Interdisciplinary Journal (No. 5, 1993), and is used with permission of Kluwer Academic Publishers; and "Why Not Phonics and Whole Language?" by Marilyn J. Adams, from All Language and the Creation of Literacy (1991), edited by William Ellis and used with permission of The Orton Dyslexia Society, Inc.





THE ROLE OF DECODING IN LEARNING TO READ

BY ISABEL L. BECK AND CONNIE JUEL

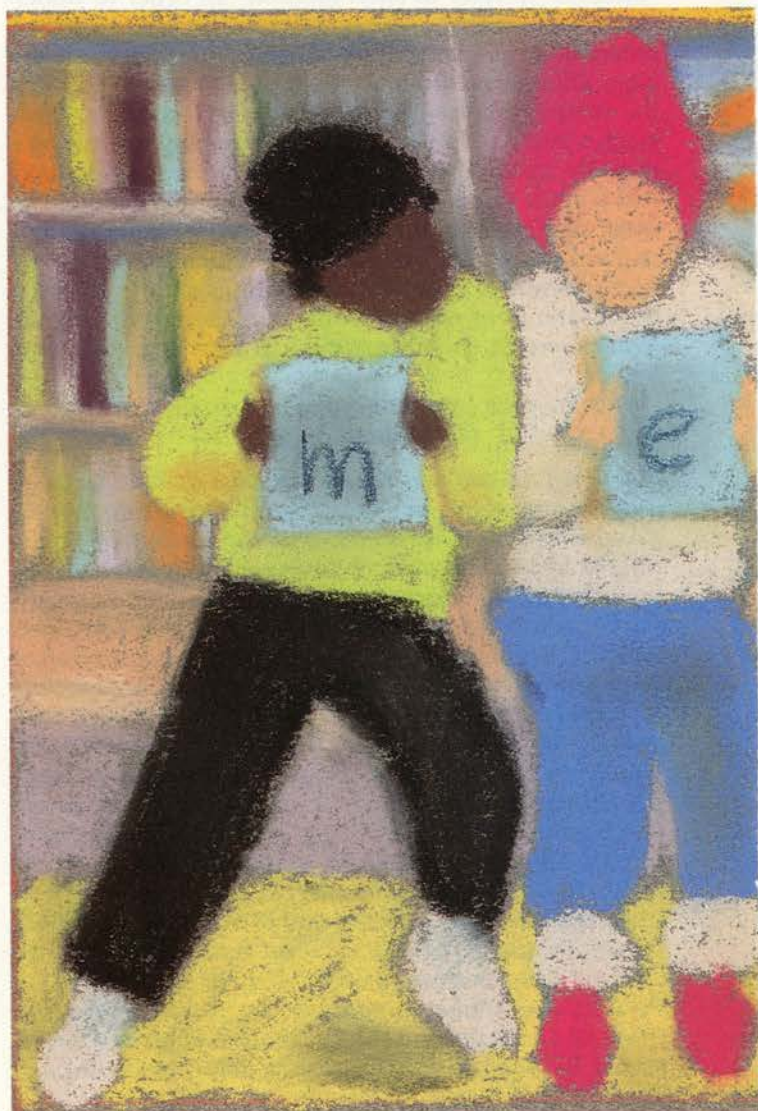
AS ANYONE knows who has both read to young children and watched them begin learning to read, there is a great difference in the sophistication of their abilities in the two arenas. As an illustration, consider a typical activity in a first-grade classroom.

Twenty-six first graders are sitting on the floor around their teacher, Ms. Jackson. She opens a copy of McCloskey's (1941, 1969) *Make Way for Ducklings* and shows the children a double-page picture of two mallards flying over a pond. Jackson tells them that the birds are mallards, which are a kind of duck, and begins to read.

As the teacher reads, the children's attention, facial expressions, and giggles (for example, when a policeman stops traffic to let the mallards waddle across the road) suggest that they are enjoying the story. Their giggling also provides evidence that they understand the story. Even stronger evidence of their understanding is found in the discussion Jackson initiates. For example,

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Isabel L. Beck is professor of education at the School of Education and senior scientist at the Learning, Research, and Development Center, both at the University of Pittsburgh. She has published widely in the area of reading comprehension as well as early reading acquisition. Connie Juel is the Thomas G. Jewell Professor of Education and director of studies in learning to read at the McGuffey Reading Center at the University of Virginia. She has published widely on literacy acquisition, including her recent book, Learning to Read and Write in One Elementary School (Springer-Verlag: 1994). This article first appeared as a chapter in What Research Has To Say About Reading Instruction (1992), edited by S. J. Samuels and A. E. Farstrup, and is reprinted by permission of the International Reading Association.



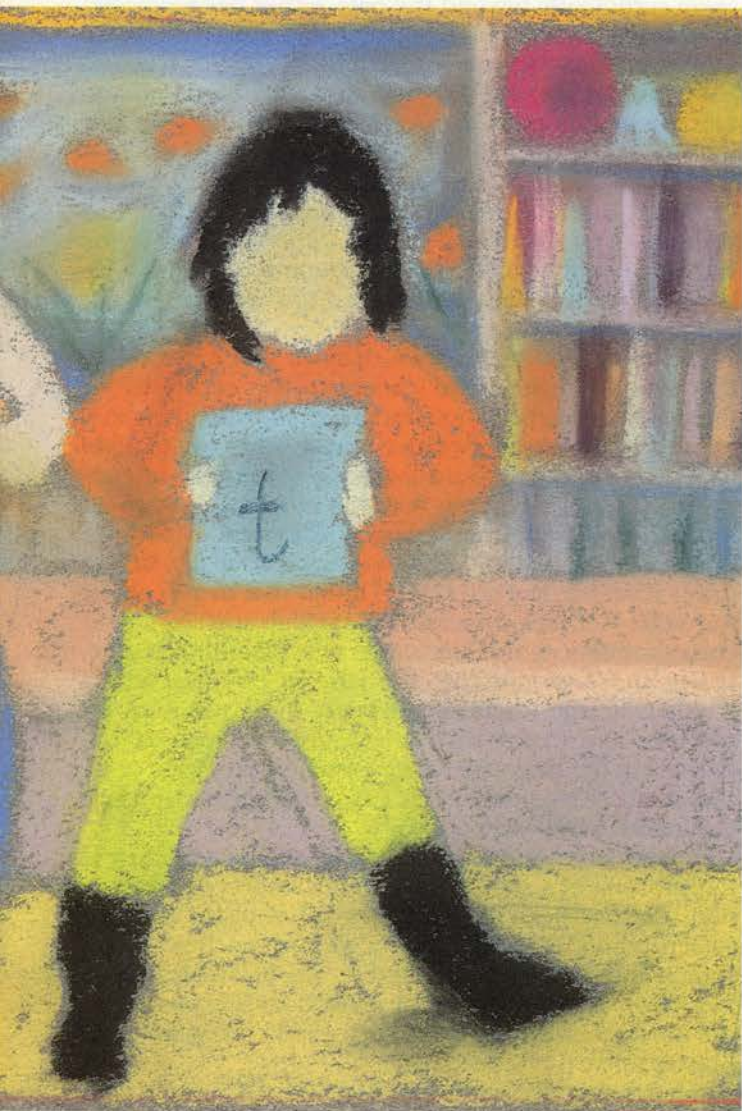
THE MISSING FOUNDATION IN TEACHER EDUCATION

BY LOUISA COOK MOATS

IN THE last twenty years, volumes have been written about the linguistic processing deficits that characterize reading and spelling disabilities. The scientific community has reached consensus that most reading and spelling disabilities originate with a specific impairment of language processing, not with general visual-perceptual deficits, inability to construct meaning from context, or other more general problems with attention or memory (Adams 1990; Goswami and Bryant 1990; Gough, Ehri, and Treiman 1992; Stanovich 1991; Vellutino 1991a). More specifically, it is known that unskilled readers are unable to process efficiently and accurately the phonological building blocks of language and the units of print that represent them. Theoretical, experimental, and clinical evidence point to the necessity of helping unskilled readers and spellers acquire explicit knowledge of language structure. The findings of reading researchers, however, are likely to have little impact on practice unless practitioners can interpret and apply them. Consequently, the preparedness of teachers who must carry out linguistically informed, code-emphasis reading instruction is an increasingly important issue.

This article will offer some evidence that graduate
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Louisa Cook Moats is director of teacher training at the Greenwood Institute in Putney, Vermont, and adjunct assistant professor of clinical psychiatry at Dartmouth Medical School. She has written numerous articles and book chapters on topics related to learning disabilities. This article is reprinted, with minor revisions, from Annals of Dyslexia, Volume 44, 1994, with permission of the Orton Dyslexia Society, Inc. The author wishes to thank Susan Brady, Patricia Lindamood, Linda Rath, and an anonymous reviewer for their very helpful comments on an earlier draft of this paper.





RESOLVING THE 'GREAT DEBATE'

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methods have periodically been challenged (see Balmuth 1982). The most recent attack comes from the whole language approach, which has been adopted by many North American educational communities in the past decade or so.

Whole language is a very active and prominent movement. More and more, it dominates journals, conference agendas, workshop and inservice opportunities, course offerings, and even basal design and marketing strategies. The only conceivable explanation for the burgeoning popularity of the whole language movement is that something within it strikes a deeply resonant chord in many, many teachers and reading professionals.

Yet, detractors from the whole language movement are at least as adamant. And, thus, we find ourselves in the midst of a full-scale reading "war" (Rothman 1990). Listening to either side and looking to the other, it is difficult to believe that so many could be so wrong. And, indeed, toward mediating or understanding any deadlocked argument, the rule of thumb is that both sides are right but are talking past each other; most often, their principal concerns well from wholly different issues within the domain. Could that be what has happened in this debate? We will return to this possibility at the end of this article.

What Is Whole Language?

What exactly is whole language and what is its allure? For proponent or opponent, these would seem the obvious and essential preliminary questions: After all, how can one rationally endorse or critique, implement or reject whole language without first knowing what it is? Strangely enough, then, these also seem to be questions without any firm or, at least, broadly articulated answers.

Recognizing the perils of this enigma, Bette Bergeron (1990) attempted to extract a consensual definition from the literature. Pooling journal articles published between 1979 and 1989 in which the term *whole language* appeared, Bergeron found that, although two-thirds of the 64 articles from which she worked did indeed offer a definition, the differences between them were marked. Across the articles, whole language was variously defined as an approach, a philosophy, an orientation, a theory, a theoretical orientation, a program, a curriculum, a perspective on education, and an attitude of mind. In terms of local attributes, none was cited by as many as two-thirds of the definitions. And, whether cause or effect of this entropy, the majority of authors who did offer a definition provided neither reference for its origin nor explanation of its basis.

But Bergeron also found commonalities. Central to at least a third of the definitions offered were a view of reading as constructing meaning from text (59 percent), of pupil-centered classrooms (44 percent), of empowerment (42 percent), of communication (38 percent), and of integrating the language arts (36 percent). In addition, 44 percent of the articles indicated that the

acquisition of reading should be natural, much like the process through which children learn to speak.

In summarizing her search, Bergeron concludes, "One cannot draw from the literature a concise definition for whole language because no such definition was found to exist. Whole language represents many things to many people, and has been used to define many different elements of classroom reading instruction" (p. 318). Nevertheless, she continues, certain attributes did appear in over half of the articles and may be considered core to the whole language concept. These, in her words, are:

The *construction of meaning*, wherein an emphasis is placed on comprehending what is read; *functional language*, or language that has purpose and relevance to the learner; the use of *literature* in a variety of forms; the *writing process* through which learners write, revise, and edit their written works, *cooperative student work*; and an emphasis on *affective* aspects of the students' learning experience, such as motivation, enthusiasm, and interest (Bergeron 1990, p. 319).

We ask each of you, as readers, to pause and reflect on Bergeron's definition. Is this what the field has been feuding about? Does this definition seem to you to capture the crux of the debate? While these attributes are surely central to whole language, they would hardly seem sufficiently beyond the pale, either pedagogically or socially, to foment so strong and impassioned a movement or so fervent a reaction.

In this article, we argue that the whole language movement carries or is carried by certain other issues that do merit serious concern. Categorically labeled, these issues are: (1) teacher empowerment; (2) child-centered instruction; (3) integration of reading and writing; (4) a disavowal of the value of teaching or learning phonics; and (5) subscription to the view that children are naturally predisposed toward written language acquisition.

Of these, it is the last two that we will focus on in this article. In Bergeron's analysis, the centrality of these issues to the whole language movement is evidenced by the strong negative responses to use of texts in which vocabulary and language structure are controlled ("segmented texts"), to direct instruction, to attending to accuracy and isolated skills, and in part, no doubt, to worksheets and assessment. Similarly, in her thesis research, DeFord (1975) found that beliefs about the value—or lack thereof—of teaching spelling-sound correspondences was the single best discriminator between those groups that she labeled phonics versus whole language teachers. Moreover, these positions on phonics and direct instruction are everywhere expressed in the larger literature on whole language (e.g., Goodman 1986; Smith 1971, 1973, 1988; Strickland and Cullinan 1990; Weaver 1990).

Indeed, as Jeanne Chall has so forcefully argued, it is the movement's stance on phonics and code instruction that has been "the most essential distinction between whole language and other approaches." To be sure, it is these two planks of the whole language platform that have provoked the most adamant protest to the movement. And there is very good reason for such protest.

Across the centuries, as Richardson points out,

whether conceived as “visual, auditory, kinetic, or tactile,” methods to help children attend to the sequences of letters and their correspondences to speech patterns have, one way or another, been built into the majority of instructional approaches that we have invented for beginning reading and writing. Indeed, even among the Greeks, even with the very advent of the alphabetic system of writing, such methods were core (Mathews 1966). Across the research literature, the value of phonics instruction has been demonstrated across literally hundreds of studies—including small, well-controlled laboratory studies as well as large-scale method comparisons involving hundreds of classrooms and thousands of children. When developed as part of a larger program of reading and writing, phonic instruction has been shown to lead to higher achievement at least in word recognition, spelling, and vocabulary, at least in the primary grades, and especially for economically disadvantaged and slower students. And beyond such tests of time and comparison, we now have explanatory arguments, both logically and empirically compelling: Young readers must develop a basic appreciation of the alphabet principle; they must develop a

deep and ready knowledge of spellings and spelling-sound correspondences; the capacity to read with fluency and reflective comprehension depends on it (Adams 1990).

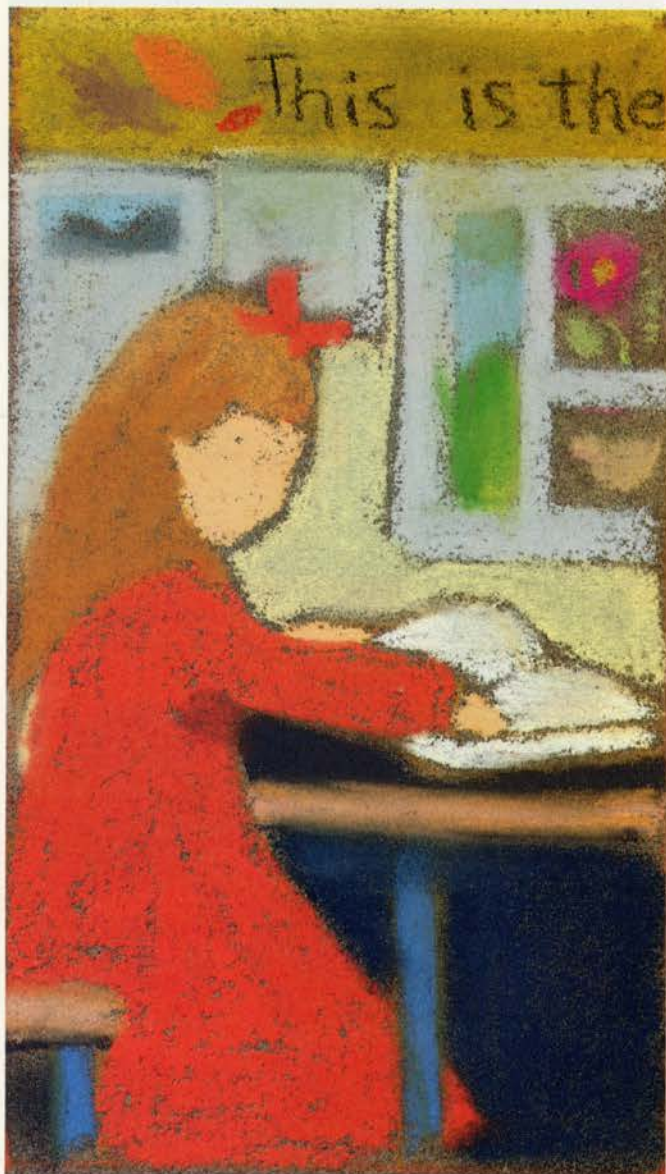
WHOLE LANGUAGE is anchored on the premise that there are strong parallels between reading acquisition and oral language acquisition. Goodman (1986), one of the fathers of this movement, specifically stresses the ease and naturalness of oral language acquisition and suggests that learning to read would be equally natural and simple if meaning and purpose were emphasized. By extension, it is argued, if reading for meaning is the very purpose of the exercise, then isn't it misguided, even counterproductive, to focus the reader's attention on the individual letters and their sounds? Viewing reading as a “whole” integrated activity, major proponents of whole language decry the use of skill sequences and teaching skills in isolation. The more vocal advocates go so far as to claim that it is misguided to focus instruction on single words at all; because this will break up the text into meaningless pieces, their claim is that it will necessarily interfere with natural learning.

Frank Smith, another pioneer of the whole language movement, has asserted that “decoding skills are used [by beginner readers] only to a very limited extent, and then primarily because a good deal of instructional effort is expended on impressing such methods on children” (1973: 71). Consistent with this, Smith also claims that the alphabetic principle is irrelevant to the fluent reader. Although he concedes that the mature reader may use decoding as a last resort to figure out unknown words, he argues that doing so is both rare and generally unnecessary. Instead, Smith suggests, skillful readers typically rely on the context and their knowledge of the world so as to gloss the words and guess the message. In this process, they are seen to sample a sparse minimum of graphic detail from the printed page—they do not visually process every word and they may not fully process any word. Instead they pick up only enough detail to corroborate or correct their hypotheses about the meaning and message of the text.

As we review below, in the twenty years since these ideas were first promulgated in Frank Smith's seminal book, *Understanding Reading* (1971), science has consistently, firmly and indisputably refuted these hypotheses (see Adams 1991, for a more detailed discussion of this saga).

The Importance of Words, Spellings, and Spelling-Sound Relations

Skillful reading, as it turns out, is scarcely a “psycholinguistic guessing game,” as Goodman (1967) termed it. Nor is it but incidentally visual as Frank Smith (1971) claimed. Instead, reading is visually driven. The letters and words of the text are the basic data of reading. For skillful adult readers, meaningful text, regardless of its ease or difficulty, is read through what is essentially a left to right, line by line, word by word process. In general, skillful readers visually process virtually each individual letter of every word they read, translating print to speech as they go. They do so





whether they are reading isolated words or meaningful connected text. They do so regardless of the semantic, syntactic, or orthographic predictability of what they are reading (for reviews, see Just & Carpenter 1987, and Patterson & Coltheart 1987).

As these findings began to accumulate, researchers sought ways to dismiss them. Perhaps these findings reflected measurement error; perhaps they were misrepresentative, somehow brought on by one or another peculiarity of the laboratory tasks. Yet the findings that the skillful reader recognizes the words of a text on the basis of the sequences of individual letters that comprise them were consistently replicated in a wide variety of paradigms in a number of laboratories. True, skillful readers neither look nor feel like they attend to the visual details of print as they read; but this, as it turns out, is the crowning explanation rather than the refutation of such findings. Readers must read the words just as listeners must hear them. It is only because readers (and listeners) process words so automatically and effortlessly that they have the mental time and capacity left to construct and reflect on that meaning and message. That is, the characteristic speed and effortlessness of skillful readers' word recognition is not simply a symptom or show of their skillful reading: It is necessary for its happening.

It is precisely through their words and wordings that speakers and authors strive to evoke and refine the meaning and message of their intentions. The words on the page are authors' principal means of conveying their message: It will not do for readers to ignore them. Nor will guessing suffice: Even skillful adults are unable to guess correctly more than 25 percent of the time (Gough, Alford & Holley-Wilcox 1981). Furthermore, the process of guessing requires time and effort that can only be found at the expense of the normal processes of comprehension.

In fact, contrary to some of the common pronouncements of whole language mentors, skilled readers rely little on contextual cues to assist word identification. Rather, contextual cues contribute significantly to the speed and accuracy of word recognition only for those whose word identification skills are *poor* (e.g., Bruck 1990; Nicholson 1991; Perfetti, Goldman & Hogaboam 1979; Schwantes 1991; Stanovich 1981). This empirical finding is exactly opposite to that firmly espoused by educators such as Smith or Goodman who claim that poor readers' problems exist because they do not guess meanings of words from textual information. In fact, just the opposite is true: It is the poorer, less-skilled reader who relies on contextual information to assist relatively poor word identification skills.

More specifically, it is skillful readers' overlearned knowledge about the sequences of letters and spelling patterns that enables them to process the print on a page so quickly and easily. As the reader fixates each word of text, the individual letters in focus are perceived almost instantly and effortlessly. Yet even as the letters are perceived, they are automatically clustered into familiar spelling patterns by virtue of the learned associations among them.

Such knowledge of spelling patterns is vital to the

reader. It is responsible for protecting readers from misperceiving the order of letters within words (Adams 1981; Estes 1977) and for breaking long words into syllabic chunks even in the very course of perception (Mewhort & Campbell 1981; Seidenberg 1987). Similarly, it is this orthographic knowledge that causes skillful readers to look and feel as though they recognize frequent words holistically. Moreover, even where a word as a whole is not visually familiar, fragments of its spelling almost certainly will be. The mature reader's deep and ready knowledge of spellings, sounds, and meanings virtually ensure that every foray into text will result in still more learning. In addition, it ensures that those many, many words of known meaning but incomplete visual familiarity may be read off with the ease and speed on which comprehension depends.

To construct understandings, the language comprehension system operates not on the meanings of individual words, but on the interrelations or overlap among them. Toward this end, comprehension works



simultaneously with whole, cohesive grammatical units (whole phrases or sentences). Whether in listening or in reading, the process through which it does so is much the same (Jarvella 1971; Kleiman 1975). In either case, the words of the message are presented and perceived one by one. And although they are tentatively interpreted as they arrive, they are fully digested only after the clause or sentence is completely read or heard. In mystical deference to this process, speakers drop their pitch and pause at the end of every sentence: In this way, they let their listeners know that it is time to interpret while affording them time to do so. Mimicking this rhythm, skillful readers are found to march their eyes through all of the words of a sentence and then to pause at each period (Just & Carpenter 1987). It is during these end-of-sentence pauses that listeners or readers actively construct and reflect on their interpretations; it is during these interludes that they work out the collective meaning of the chain of words in memory and its contribution to their overall understanding of the conversation or text. Yet, in order for this interpretive process to succeed, the whole clause or sentence must still exist, more or less intact, in the listener's or reader's memory when she or he is ready to work on it. The quality of this representation is highly dependent upon the speed and effortlessness of the word recognition process. If it takes too long or too much effort for the reader to get from one end of the sentence to the other, the beginning will be lost from memory before the end has been registered.

This framework provides a powerful explanation for the findings of numerous studies that poor word identification skills are strongly coupled with poor reading comprehension in both children (Perfetti 1985; Rack, Snowling & Olson 1992; Stanovich 1982, 1991b; Velutino 1991) and adults (Bruck 1990; Cunningham, Stanovich & Wilson 1990). In particular, it is not (as Smith and Goodman suggested) that skillful readers grasp the meaning of a text automatically and use it to figure out its words. Instead, they recognize the words automatically and use them to discern its meaning. In the end, the redundancy of text—of its syntax, semantics, and orthography—is highly functional not because it allows for skipping, but because it supplies the superabundance of information that protects the literal comprehension process from going astray.

Extending the analysis one step further, note that productive reading involves far more than literal comprehension. Rather, the priority issues while reading should include: Why am I reading this and how does this information relate to my reasons for so doing? What is the author's point of view, what are her or his underlying assumptions? Do I understand what the author is saying and why? Is the text internally consistent? Is it consistent with what I already know and believe or have learned elsewhere? If not, where does it depart and what can I think about the discrepancy? Comprehension in its truest sense is necessarily thought intensive. It requires analytic, evaluative, and reflective access to local and long-term memory. Yet, active attention is limited. To the extent that readers must struggle with the words, they necessarily lose track of meaning.

Is Learning To Read a Natural Biological Process?

One of the major tenets of the whole language approach is that children are naturally predisposed to learn written language. The arguments are largely parallel to and, indeed, were spurred by those of Noam Chomsky (1965) that children are predisposed to learn spoken language. Chomsky's essential argument was that human language acquisition defied explanation through any simple model of learning. Human language was too rich and too varied, he argued. Whatever the units of learning might be, it was obviously impossible that language acquisition could be achieved through imitation, or by learning to connect units one by one. Furthermore, despite the complexity of the acquisition task, despite the noisiness and imperfection of the input to the child, despite the apparent absence of any universally endorsed instructional science on first-language acquisition, nearly all humans essentially master their native language within the first few years of life. (As Smith comments: "There are relatively few books on such topics as *Why Johnny Can't Talk*" (1971:49).

The proposed solution was that babies were innately prepared to learn language. With a pre-wired "Language Acquisition Device," human infants were seen to be endowed from birth with a deep knowledge of the essential physical, grammatical, and semantic components of all human languages. To become linguistically competent in their native language, children need only discover which of the various options were operative in their own community of speakers. They did so, it was suggested, through a process of systematically testing, refining, and reformulating their built-in linguistic hypotheses (Chomsky 1965; McNeil 1970).

Frank Smith (1971) accepted these notions and imported them whole cloth to the literacy domain. Having already dismissed the utility of word- and letter-level instruction, the result was a broad disavowal of virtually every sort of direct instruction. Children, Smith concluded, will best learn to read "by experience in reading" ... through ample, direct, and unmediated engagement with meaningful text. Meanwhile, the teacher's most important job was one of providing feedback. But, he continued, it must be very sensitive feedback for, most of all, the teacher must create the sort of positive and supportive environment that would best encourage students to take on the risky business of testing new hypotheses (see Adams 1991).

Now, twenty years later, the notion that human babies are innately predisposed toward learning to speak has become generally accepted. However, it also seems that human grown-ups are naturally predisposed to help them out. Most parents tailor their speech to their babies' level. Perhaps unintentionally but both methodically and effectively, they do tutor their babies in the phonology, syntax, semantics, and pragmatics of their native language (e.g., Snow 1986).

Even so, with respect to literacy development, the most serious criticism of the let-them-learn-it-through-experience philosophy is that learning to read, unlike learning to talk, is not natural (see especially Liberman & Liberman 1992). Indeed, the parallelism between oral and written language acquisition that has been pre-



sumed by the whole language advocates must be seen as a flaw so serious as to undermine the whole approach. In Charles Perfetti's words:

Learning to read is not like acquiring one's native language, no matter how much someone wishes it were so. Natural language is acquired quickly with a large biological contribution. Its forms are reinforced by every child exposed to a speech community in the first years of life. It is universal among human communities. By contrast literacy is a cultural invention. It is far from universal. And the biological contribution to the process has already been accounted for, once it is acknowledged that it depends on language rather than parallels it (1991:75).

But if reading depends less on biological predispositions than on experience, then we are left with the question of what kinds of experience matter most.

Aspects of Normal Reading Development

Knowledge is encoded in the relations among the simpler aspects of one's experience. Understanding occurs as those relations are noticed; learning occurs as they are retained, strengthened, and enriched through repeated encounters and thought. By implication, understanding and learning rest on several basic prerequisites. First and most obviously, the student must be interested in what she or he is to learn. Beyond that, however, the student must also have a sense of which parts, elements, or aspects of the situation are relevant and of the kinds of interrelations among them that deserve attention.

Importantly, this business about knowing what to attend to is in no way unique to reading. You can watch a million football games and never get any better at following them unless you have had some sense of what to watch for along the way. Exposure alone is never sufficient. In addition, learners must somehow tune into the relations that carry and modulate information. Learning from and about written text depends on having a basic understanding of its forms, functions, and language. Learning to recognize printed words depends on noticing not just their meanings, but also their spellings, their sounds, and the relations between them. In this context, the critical lesson from research is that learning to read depends on certain insights and observations that, for many children, are simply not forthcoming without some special guidance.

Early reading development is often described in terms of a series of broad, overlapping stages (e.g., Chall 1983; Ehri 1992; Juel 1991; Gibson 1965; Gough & Hillinger 1980; Mason 1980) wherein the inception of each is marked by a qualitative change in the child's knowledge of how print works. While the fineness of the divisions between stages and even the foci of description within them differ from theorist to theorist, the child's discovery of the alphabetic principle is commonly held to be a major milestone in the challenge of learning to read. In this section, we gloss the differences among theories in order to provide a broad overview of ways in which word recognition develops.

1. *Fostering the emergence of early literacy knowledge.* Before learning to read, most children develop in-

sights as to the nature and functions of print. By reading books to children, they meet new creatures and characters and share their experiences. They learn new words, new language, and new concepts, and they also learn about the kinds of language, stories, and information that text can offer. They learn about decontextualized language, about the autonomy, authority, and permanence of the printed word, and they learn to create and comprehend realities beyond the here and now, realities that depend for their existence entirely on language (Snow & Ninio 1986). These sorts of understandings serve vitally to set up the knowledge, expectations, and interest on which learning to read depend. If children also learn that reading is something they want to be able to do, they are well on their way.

Alongside this growing awareness of the nature and values of print, children also begin to learn how it works. They learn how to "read" a book, which direction to hold it, which direction to turn the pages and which direction to read the words (e.g., Clay 1979; Downing 1979). They become aware of how print is formatted and that it encodes language. They become aware that its basic meaningful units are specific speakable words and that its words are comprised of letters. Importantly, all such learning is powerfully fostered by reading aloud to children, by engaging them regularly and interactively in the enjoyment and exploration of all manner of print (see Mason 1992). For example, simply providing little books for parent-child sharing has been shown to result in substantial increases in preschoolers' knowledge of letters (McCormick & Mason 1986).

Preschoolers' familiarity with the letters of the alphabet is a powerful prognostic of the success with which they will learn to read (Bond & Dykstra 1967; Chall 1967). Beyond global correlations, young children's knowledge of letter names easily changes into interest in the sounds and in the spellings of words (Chomsky 1979; Mason 1980; Read 1971). In addition, knowing letters is strongly correlated with the ability to remember the forms of written words and the tendency to treat them as ordered sequences of letters rather than holistic patterns (Ehri 1992; Ehri & Wilce 1985). Conversely, not knowing letters is coupled with extreme difficulty in learning letter sounds (Mason 1980) and word recognition (Mason 1980; Sulzby 1983). Thus, finding ways to ensure that all children are developing a comfortable familiarity with letters should be a priority concern in all our preschools and kindergartens. There is, after all, no reason why playing with letters and print cannot be made as engaging and developmentally appropriate as sand tables, keys, and fruit salad.

In addition to supporting awareness of the forms, nature, and functions of print, exploration of text and language also helps preschool children to develop an awareness of the structure of their spoken language. They begin to understand the concept of a word, and that words and syllables are themselves made up of smaller sounds that can also be separated and rearranged (Bradley & Bryant 1983; Liberman, Shankweiler, Fischer & Carter 1974; Treiman 1985).

Because the printed symbols of alphabetic orthographies refer to phonemes, some have argued that aware-

ness of phonemes is of particular importance for learning alphabetic orthographies (e.g., Liberman & Liberman 1992). It is the separable existence of the phonemes that seeds the connections from print to speech and that anchors the very logic of the writing system. In fact, faced with an alphabetic script, the child's level of phonemic awareness on entering school is widely held to be the strongest single predictor of the success she or he will experience in learning to read and of the likelihood that she or he will fail. This relationship has been demonstrated not only for English (see, e.g., Blachman 1984; Juel 1991; Stanovich 1986), but also for Swedish (Lundberg, Olofsson & Wall 1980), Spanish (deManrique & Gramigna 1984), French (Alegria, Pignot & Morais 1982), Italian (Cossu, Shankweiler, Liberman, Tola & Katz 1988), and Russian (Elkonin 1973).

As it turns out, many of the activities (e.g., songs, chants, and word-sound games) that have long been enjoyed with preschoolers are ideally suited toward developing their sensitivity to the sound structure of language. Yet, all can be used with far more effectiveness if they are used with that goal in mind. By finger-pointing with print and by substituting and reordering words so as to turn sense to silliness, children can be led to discover the dependence of language on words. By exag-

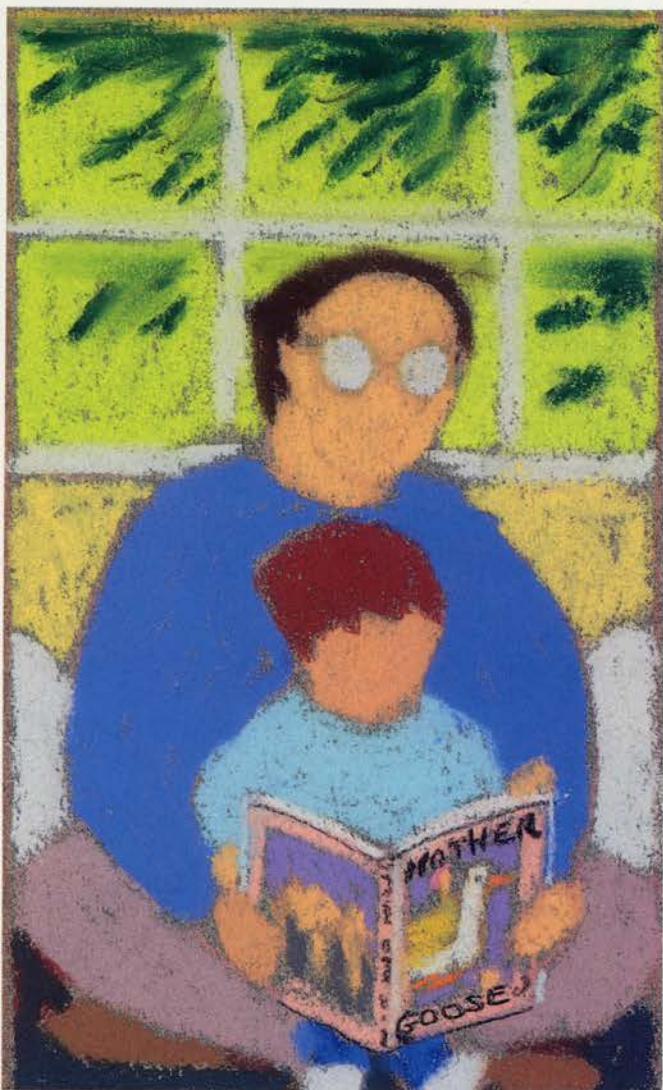
gerating the meter of the songs and poems, children can be led to discover the existence of syllables. By contrasting rhyming words and playing with alliteration, they can be led to discover that syllables themselves can be teased apart. And having thereby introduced their essence, the phonemes can be more directly explored, separated, rearranged, and recombined. Kindergarten children who attend programs that emphasize such language play become significantly better readers and spellers when they move into the primary grades than children who are not offered such programs (e.g., Lundberg, Frost & Petersen 1988).

2. Helping young readers to break the code. In their initial efforts with print, many children rely solely on selective visual cues (Ehri 1992; Gough & Hillinger 1980), similar to those recommended by advocates of the "psycholinguistic guessing game." Instead of examining words as a left-to-right sequence of letters, beginning readers tend to treat letter strings more as pictures (Byrne & Fielding-Barnesley 1989), basing recognition on the words' lengths, initial letters, or other distinctive features of their place or visual appearance. For the beginner with a limited reading vocabulary, the visual cue strategy might seem wholly serviceable. Yet, continued reliance on such partial visual cues eventually leads to severe difficulties in learning to read (Gough & Juel 1991; Snowling 1987).

Productive word learning in alphabetic orthographies ultimately depends on viewing words as a sequence of letters and associating their spellings with sounds. Some researchers believe that children first associate single phonemes with single graphemes, gradually learning to use orthographic units with experience (e.g., Bruck & Treiman 1992; Marsh, Desberg & Cooper 1977). Other researchers believe that even very beginning readers make associations between larger orthographic units, such as the rhymes of words, and their sounds (e.g., Goswami & Bryant 1990). Despite these yet-unresolved controversies surrounding the details of the process, it is important to emphasize that scientific research converges on the point that the association of spellings with sounds is a fundamental step in the early stages of literacy instruction. Furthermore, reading fluency and comprehension depend not merely on knowing about these relationships but on using them, on overlearning, extending, and refining them, such that word recognition becomes fast and nearly effortless.

There are literally hundreds of articles to support these conclusions. Over and over, children's knowledge of the correspondences between spellings and sounds is found to predict the speed and accuracy with which they can read single words, while the speed and accuracy with which they can read single words is found to predict their ability to comprehend written text (see, e.g., Curtis 1980; Stanovich, Cunningham & Freeman 1984). Again, readers with fast and accurate word recognition skills have greater cognitive resources to direct attention to the meaning of text. Conversely, to the extent that children expend energy figuring out the identities of individual words, it can only be at the relative expense, in terms of time and mental capacity, of comprehending the meaning of the sentence or text.

For purposes of establishing the spelling-sound link, research indicates that teaching letters with sounds is





more effective than teaching either alone (Ohnmacht 1969), that developing phonemic awareness in concert with letters and sounds is better than presenting letters and sounds alone (Ball & Blachman 1991), and that developing phonemic awareness with letters is more effective than developing phonemic awareness alone (Bradley & Bryant 1983; Byrne & Fielding-Barnesley 1991; Cunningham 1990). In short, the general pattern of results reasserts that development of skilled reading depends on the mastery of both the parts of the system and the functional relations among them. Again, these relations are just as important in guiding each other's acquisition as in supporting their fluent operation.

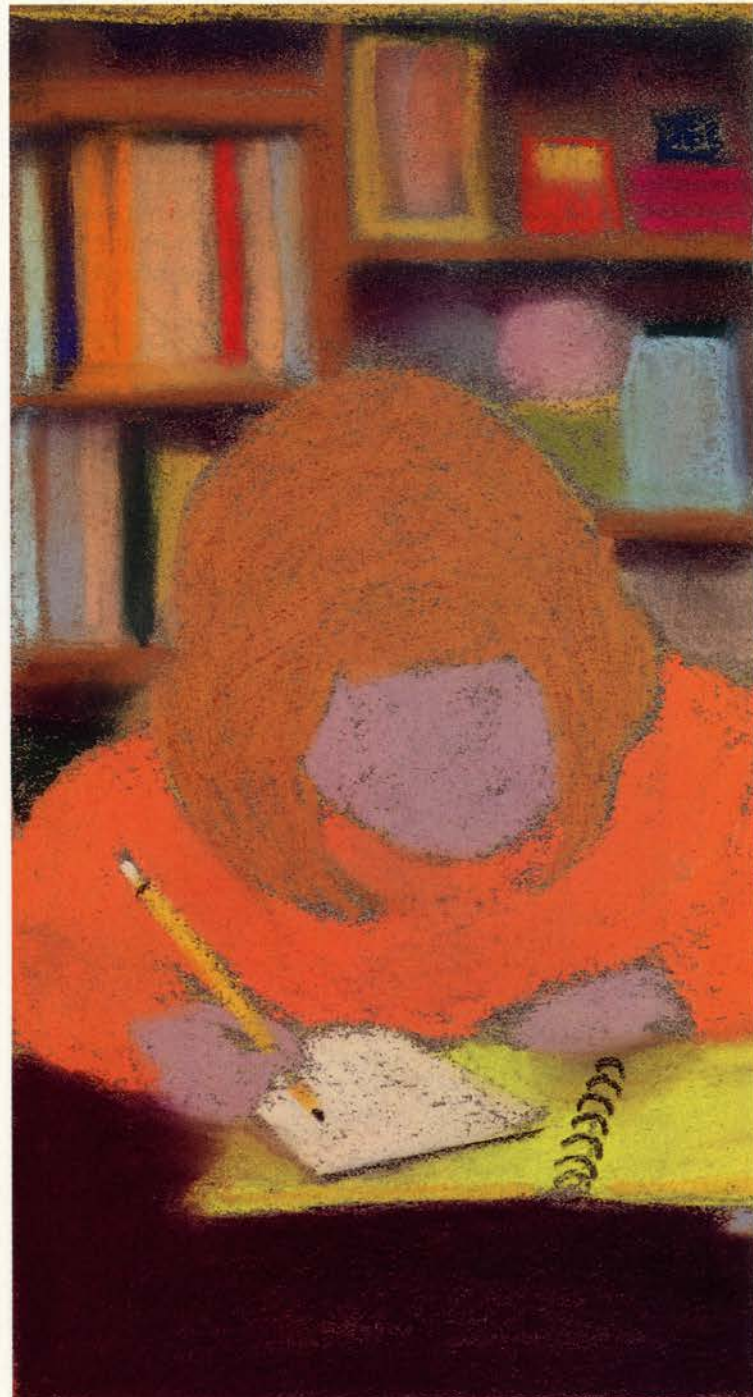
Significantly, research indicates that many of the same skills that underpin word recognition equally influence the acquisition of spelling skills (e.g., Waters, Bruck & Seidenberg 1985; Bruck & Treiman 1990; Griffith 1992). For example, Griffith (1992) found that phonemic awareness contributes directly and powerfully to beginners' ability to spell independently. And reciprocally, once children have established a basic awareness of phonemes and a willingness to print, independent writing is an excellent means of furthering both of these capacities. Moreover, because asking children to generate their own spellings is a way of engaging them in thinking actively and reflectively about the sound of words in relation to their written representations, independent spelling can be an invaluable component of their phonics development.

Even so, independent spelling is not enough itself. After all, not all the conventions of English orthography are intuitive. To read or write well, children must eventually learn how to spell correctly. At some point, therefore, they must be helped to do so. In developing children's spelling, one can alert them to such context-sensitive letter-sound rules as that /ē/ may be spelled with *y* at the end of words but not at the beginnings. Further, structured spelling activities provide an ideal medium for analyzing and exploring those difficult consonant blends (e.g., rain, train, strain). Moreover, through methodical use of word families, one can direct the children's attention to spelling patterns, ranging from the basics (e.g., pill, will, mill, ...; came, name, same ...) to more subtle or sophisticated patterns (e.g., -tle, -ture, -tion).

Importantly, spelling instruction serves not only to improve the children's spelling but also to direct their attention to the range and composition of orthographic patterns that are to be perceptually consolidated in reading. In keeping with this, research indicates that more systematic attention to spelling results in exceptional progress in both reading and writing, especially for children who have already started independent writing (Uhry & Shepherd 1990).

As valuable as writing is, however, it is not enough. Young writers very often cannot read what they once wrote or even what they have just written (see e.g., Chomsky 1979). In the end, reading with fluency and comprehension depends on a prodigious amount of perceptual learning. In significant measure, just as this learning is specific to reading, it can only be gained through reading.

The ability to decode proficiently and nondisruptively while reading depends integrally on familiarity, not just with individual letter-sound correspondences, but with the spelling patterns of which frequent words and syllables are comprised. Kindergartners and beginning first-graders are generally insensitive to the orthographic features of words as they tend to process all in a simple letter-by-letter manner (Bruck & Treiman 1992; Ehri & Robbins 1992; Juola, Schadler, Chabot & McCaughey 1978; Lefton & Spragins 1974; McCaughey, Juola, Schadler & Ward 1980). However, these children quickly show signs of their sensitivity to orthographic conventions (Gibson, Osser & Pick 1963; Lefton & Spragins 1974) and to the frequencies with which spelling patterns occur within words (Treiman, Goswami &



Bruck 1990). By third grade, normal readers exhibit adult patterns of responding with differential speed and ease to familiar words and typical spelling patterns (Backman, Bruck, Hebert & Seidenberg 1984).

From this perspective, phonics instruction per se takes on a very special value. In order to sound out a new word as they read, children must attend to each and every one of its letters, in left-to-right order. Each time they do so, the printed word will become more strongly and completely represented in memory so that, very soon, it will be recognized at a glance (see Ehri 1992). Of relevance, explicit, direct attention to phonics supports reading and spelling growth better than spelling instruction along with opportunistic attention to phonics while reading (Foorman, Francis,

Novy & Liberman 1991).

Importantly, however, it is not just teaching children phonics that makes a difference but persuading them to use and extend it on their own, and a strong determinant of these tendencies lies in whether or not the children find it useful in their earliest efforts with print (Juel & Roper-Schneider 1985). More generally, there is strong rationale for ensuring that students' first books consist largely of simple, short, and liberally repeated spelling patterns. To the extent that the new words in their texts are decodable, they reinforce the value as well as the process of approaching them as such. To the extent these short simple patterns are basic, they will effectively anchor the longer, more complex, and less frequent patterns that are yet to be mastered.

3. *Later stages.* Relative to the overall literacy challenge, learning to recognize words is, in fact, a relatively small component. In terms of both linguistic and cognitive skills, there is so very much more to becoming a competent and productive reader and writer. In principle, because this is as true in speaking and listening as it is in reading or writing, one might expect the development of such knowledge to be reasonably independent of experience with text. In practice, however, there is a growing body of evidence to the contrary: Instead, such knowledge appears strongly influenced by children's success with the initial hurdles of learning to read (for review and discussion, see especially Stanovich 1986, 1992).

Briefly the argument is as follows. Children who quickly master the early stages of reading find reading less aversive, less time consuming, and more rewarding than those who do not. Because of this, better readers are likely to read more than children with poorer skills (Juel 1988) and, as a consequence, their early facility cascades into a sea of advantages. Most obviously, more reading is clearly the best path to better reading. In addition, however, through their experiences with text, these children acquire new language and vocabulary, new conceptual knowledge, new comprehension challenges, and new modes of thought to which they would not otherwise be exposed (e.g., Nagy, Anderson & Herman 1987). Meanwhile, to the extent that children struggle with reading, they can read far less even as they gain less from it. To the extent that they read less, even the opportunities are diminished.

Back to Whole Language

The attitudes about teaching and learning phonics and about the naturalness of reading acquisition that characterize the whole language movement date back to its very beginnings. Yet their continuing centrality to the rhetoric of the movement may be owed no less to their historical precedence than to the fact that, even in their introduction, they were tightly connected to the other issues of teacher empowerment, child-centered education, and the reading-writing connection. We believe, moreover, that it is these latter issues that inspire the deepest commitment and passion of the movement.

In particular, over the twenty years since the first publication of *Understanding Reading*, the whole language movement has become extremely important and





extremely complex. To treat it today as an issue of phonics versus no phonics is not only to misrepresent it, but to place all of its valuable components at genuine risk.

Just sticking within the domain of first-grade language arts instruction, the goals of the whole language movement are many and complex. It is an acknowledgement that there is more to reading than phonics; and through such activities as read-alouds, big-book sharing, language experience, and creative writing, it is an effort to invite active exploration and appreciation of its many dimensions. It is a reaction to mindless worksheets designed to occupy rather than instruct; and it is a movement to replace them with activities that will usefully develop and enrich. It is a reaction to boring, overly controlled stories in children's reading books; and it is a movement to provide text that's worth reading and learning to read. It is a reaction to compartmentalization of instruction. Instead of doing reading before or separately from writing and spelling, it's a movement to develop these disciplines together; and more, it's a movement to do science and math and literature through reading and writing and vice versa. Both theory and research indicate with unqualified force that this sort of integration is incredibly important for productive education (Adams 1989).

In this spirit, the whole language movement can be seen as but one reflection of a broader movement—a movement that extends across the curriculum, that grows from a profound reconception of the goals of education, and that is fueled by concern over productivity and competitiveness in the information age. The purpose of education can no longer be to help students acquire any simple and listable set of facts and skills. It must instead be to help them acquire knowledge and understanding in the deepest and most useful senses of those words. What our students need most is to develop the thoughtfulness to discern when and what they do not understand, along with the confidence and capabilities to go out and learn it on their own. In its quest for integration across the curriculum, the whole language movement offers itself in vital recognition of these changing goals.

Whether or not Smith gave it "scientific legitimacy," the empowerment prong of the whole language movement was undoubtedly furthered by the "blame-it-on-the-teacher" rhetoric of the eighties. We have never met a teacher who didn't care deeply about her or his students' progress and well-being. But even while teachers are entrusted with our most precious resources, they are rarely given the respect of the office. America's denigration and neglect of teachers is as thoroughly unfair as it is destructive: In the classroom, where success depends so critically on sensitivity and flexibility, there is neither room nor time for the paralysis of defensiveness or demoralization. To the extent that the whole language movement serves to restore the confidence, authority, and self-esteem on which good teaching depends, it is invaluable.

Last but not at all least is the issue of child-centered education. Children's knowledge and preparedness for reading differ in as many ways as reading is complex. Effective instruction therefore depends on a deep, thor-

ough, and flexible understanding of the knowledge and processes involved in reading and of how they vary across development and children. Yet its realization depends additionally on constant and acute sensitivity to each child's person and progress—on meeting and responding to each child's needs by building on her or his strengths, interests, and confidences. The whole language movement is a valiant effort to remind us that effective instruction is accomplished not through prescription, censure, or regulations, but by teachers and children.

Properly, then, the whole language movement should be a core component of a long-overdue and highly constructive educational revolution. It should be about restoring the confidence and authority of teachers. It should be an affirmation that education can only be as effective as it is sensitive to the strengths, interests, and needs of its students. The whole language movement should be about displacing compartmentalized instruction and rote facts and skills. And it should be about displacing such outmoded instructional regimens with highly integrated, meaningful, thoughtful, and self-engendering engagement with information and ideas.

If, in fact, these are goals that drive the whole language movement, then they must be supported wholeheartedly by all concerned. These goals are of paramount importance to our nation's educational health and progress. At the same time, however, they are strictly independent from issues of the nature of the knowledge and processes involved in reading and learning to read. On these latter questions, the research is resoundingly clear. Only by disentangling these two sets of issues can we give either the attention and commitment that each so urgently deserves.

Yet this disentangling cannot take place so long as there exists an anti-research spirit within the whole language movement. Many of the leaders of this movement actively discredit traditional scientific research approaches to the study of reading development and more specifically to the evaluation of their programs. The movement's anti-scientific attitude forces research findings into the backroom, making them socially and, thereby, intellectually unavailable to many educators who are involved in whole language programs. As a result, too many primary school teachers are now entering the field without fair education on how to teach or assess basic skills, much less on why or how they are important. This void is not only evident in the general curriculum for reading but also in the various programs suggested as remedial measures for reading-disabled children. Keith Stanovich recently commented on this situation as follows:

Sadly, very little of [the research on reading] had filtered through to reading teachers, parents and educational administrators It is also unfortunate that so little of this information has reached the somewhat separate groups of parents and special education personnel that deal with severe reading disability. Remedies for dyslexia are still more likely to emanate from cuckoo land than from the research literature (1991a: 79).

Yet, to the extent that this situation reduces to one of which of the adults win, too many children must lose. Reading disability threatens a child's entire education.

Over the last few decades, reading researchers have

developed a far better understanding of the nature of print processing and how it feeds and fits into the rest of the reading system. They have learned why poor word recognition is a stumbling block for so many young readers and why, too, it is so frequently associated with poor comprehension. They have also learned much about how children learn to read words and how to help them do so. Educators can and should keep the positive initiatives of the whole language revolution. But it is also time to put this knowledge about word recognition into college classrooms and into practice.

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THE ROLE OF DECODING

(Continued from page 8)

one of the questions she asks is why the mallards didn't want to live next to foxes and turtles. The only information given in the story is that "[Mrs. Mallard] was not going to raise a family where there might be foxes or turtles." The reason is not explained, yet the children are able to infer that Mrs. Mallard doesn't want to live next door to foxes and turtles because they might harm the ducklings.

The discussion also provides evidence that the children have control over some sophisticated language structures. Consider such complicated syntax as "But the people on the boat threw peanuts into the water, so the Mallards followed them all round the pond and got another breakfast, better than the first." When the teacher asks several of the children what that sentence means, none has difficulty capturing the notion that the mallards liked the peanuts more than what they had gotten to eat on their own.

Most children entering school have fairly sophisticated knowledge about language and stories. The children described here had enough knowledge of syntax, vocabulary, story elements, and aspects of the world around them to comprehend and enjoy *Make Way for Ducklings*. But no story in any first-grade preprimer can match the literary quality and level of language found in *Make Way for Ducklings*. Why? Because the children will be unable to read many words and therefore have no reliable way to translate the written text into their familiar spoken form of language. Until their word recognition skill catches up to their language skill, they are unable to independently read a story that matches the sophistication of their spoken vocabularies, concepts, and knowledge.

There has been much legitimate criticism of the reading materials used in early reading instruction. Although these materials need improvement, it is important to acknowledge that because children can recog-

nize only a limited number of words, even the most creatively developed materials cannot compete with stories such as *Make Way for Ducklings*. Our goal as educators is to quickly provide children with the tools they need to read some of the marvelous stories gifted writers have created for them. The major tools we can give children are ones that allow them to decode printed words for themselves. To facilitate a discussion of the issues associated with helping children gain control of the code that links the printed word to the spoken word, let us first define some terms.

Defining Reading Terms

Various terms have been used to describe the way children come to recognize printed words. We begin with a discussion intended to sort out a set of easily confused terms: the code, decoding, word attack, word recognition, phonics, and sight words.

One dictionary definition of *code* is "a system of signals used to represent assigned meanings." Signals can be numbers (as in a military code), dots and dashes (Morse code), or letters (as in an alphabetic language like English). In themselves these signals are meaningless. They become meaning-bearing units only when an individual knows what meanings can be assigned to the signals. When an individual can apply meaning to signals, that person has learned to decode.

In written alphabetic languages such as English, the code involves a system of mappings, or correspondences, between letters and sounds. When an individual has learned those mappings, that person is said to have "broken the code." Now the individual can apply his or her knowledge of the mappings to figure out plausible pronunciations of printed words. Most of the time, competent adult readers do not need to apply their knowledge of the mapping system consciously to recognize the words they encounter. If they do encounter a word they have never seen before, however, they are able to bring their knowledge of the code to





bear in a deliberate and purposeful way.

A number of terms are used to describe the application of the code when reading. It may be useful to consider the terms in light of two extremes of attention a reader pays to the code. At one extreme readers apply their knowledge of the code immediately and without any apparent attention. The terms used to describe this immediate phenomenon are *word recognition*, *word identification*, and *sight word recognition*. At the other extreme, readers consciously and deliberately apply their knowledge of the mapping system to produce a plausible pronunciation of a word they do not instantly recognize, such as the name of a character an English-speaking reader might encounter in a Russian novel. The term associated with this self-aware "figuring out" is *word attack*.

Individuals involved in either extreme are decoding in that they are using symbols to interpret a unit that bears meaning. Hence, word recognition, word identification, word attack, and sight word recognition are all terms applied to decoding, albeit to decoding with different levels of conscious attention.

Two terms that can be confused are sight word *vocabulary* (sometimes called sight word recognition) and sight word *method*. The former is a critical goal of all reading instruction—that children come to respond to most words at a glance, without conscious attention. This goal should not be confused with the instructional strategy called the sight word method (also known as the whole word or look-say approach), in which words are introduced to children as whole units without analysis of their subword parts. By repeated exposure to words, especially in meaningful contexts, it is expected that children will learn to read the words without any conscious attention to subword units. Hence, sight word recognition, or the development of a sight word vocabulary, is a goal of sight word instruction.

The issue of instructional strategies brings us to the terms *phonics* and *word attack*. Phonics embraces a variety of instructional strategies for bringing attention to parts of words. The parts can be syllables, phonograms (such as *an*), other letter strings (such as *ple*), or single letters. The goal of phonics is to provide students with the mappings between letters and sounds but, unlike the goal of the sight word method, phonics is not an end point. Rather, phonics merely provides a tool that enables students to "attack" the pronunciation of words that are not recognizable at a glance; hence the term word attack.

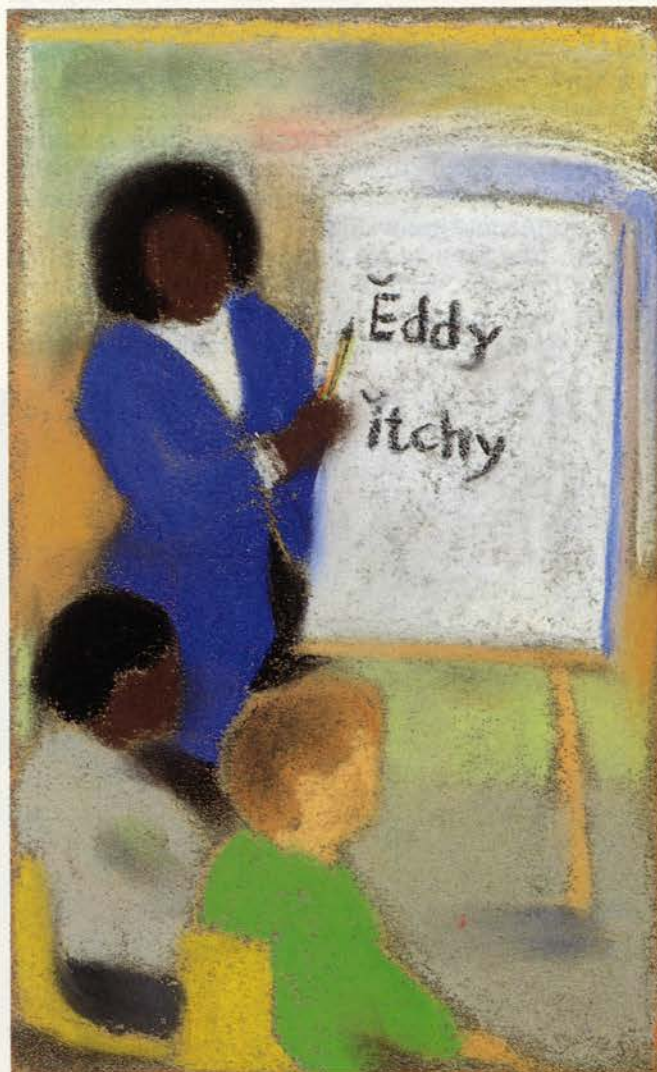
The Importance of Early Decoding Skill

Early attainment of decoding skill is important because this early skill accurately predicts later skill in reading comprehension. There is strong and persuasive evidence that children who get off to a slow start rarely become strong readers (Stanovich, 1986). Early learning of the code leads to wider reading habits both in and out of school (Juel, 1988). Wide reading provides opportunities to grow in vocabulary, concepts, and knowledge of how text is written. Children who do not learn to decode do not have this avenue for growth. This phenomenon, in which the "rich get richer" (i.e., the chil-

dren who learn early to decode continue to improve in reading) and the "poor get poorer" (i.e., children who do not learn to decode early become increasingly distanced from the "rich" in reading ability), has been termed the Matthew effect (Stanovich).

The importance of early decoding skill can be illustrated through the findings of several studies. In a longitudinal study of fifty-four children from first through fourth grades, Juel (1988) found a .88 probability that a child in the bottom quartile on the Iowa Reading Comprehension subtest at the end of first grade will still be a poor reader at the end of fourth grade. Of twenty-four children who remained poor readers through four grades, only two had average decoding skills. By the end of fourth grade, the poor decoders still had not achieved the level of decoding that the average/good readers had reached by the beginning of second grade. The poor decoders also had read considerably less than the average/good readers, both in and out of school. They had gained little vocabulary compared with the good decoders and expressed a real dislike of both reading and the failure associated with reading in school.

Lesgold and Resnick (1982) found that a child's speed of word recognition in first grade was an excellent predictor of that child's reading comprehension in second grade. In a longitudinal study of children learn-



ing to read in Sweden, Lundberg (1984) found a .70 correlation between linguistic awareness of words and phonemes in first grade and reading achievement in sixth grade. Moreover, Lundberg found that of forty-six children with low reading achievement in first grade, forty were still poor readers in sixth grade.

Clay (1979) discusses results of a longitudinal study of children learning to read in New Zealand:

There is an unbounded optimism among teachers that children who are late in starting will indeed catch up. Given time, something will happen! In particular, there is a belief that the intelligent child who fails to learn to read will catch up to his classmates once he has made a start. Do we have any evidence of accelerated progress in late starters? There may be isolated examples which support this hope, but correlations from a follow-up study of 100 children two and three years after school entry lead me to state rather dogmatically that where a child stood in relation to his age-mates at the end of his first year in school was roughly where one would expect to find him at 7:0 or 8:0 (p. 13).

What Helps Children Learn the Code

The studies reported above all point to the importance of arranging conditions so that children gain reading independence early. The task of learning to decode printed words is made easier when the child has certain prerequisite understandings about print. These include knowing that print is important because it carries a message, that printed words are composed of letters, and that letters correspond to the somewhat distinctive sounds heard in a spoken word. Often these prerequisites develop as a result of a child's having been read to (especially by an adult who has made occasional references to aspects of the print), having attended preschool and kindergarten programs, or having watched instructional television programs like *Sesame Street*. Let us look at these three prerequisites and why children sometimes have difficulty acquiring them.

Printed Words Carry Messages

First, young children need to know that some systematic relationship exists between printed symbols and spoken messages. They need to know that looking at the print itself is important to determine these messages. This idea is not as obvious as it may first appear. Storybooks contain colorful, enticing pictures designed to capture children's interest and attention. In comparison, the black marks at the bottom of the page are rather uninteresting. Likewise, print in the environment is often embedded in rich contexts that are more noticeable and "readable" than the print itself (e.g., for a child, the color and shape of a stop sign has more meaning than the letters forming the word *stop*).

Words Are Composed of Letters

Observations of children's first unguided attempts to use print show that they frequently find some distinctive feature of a word that acts as a cue to identify the word for them (Gates & Boeker, 1923; Gough & Hillinger, 1980). Often this distinctive feature will be tied to a picture or a page location (e.g., *police car* is the last string of letters on the page with a picture of a policeman). Or a child will remember distinctive fea-

tures of a particular word (e.g., *mallard* is a long string of letters with two straight lines in the middle). Initial letters are frequently used as recall cues (for instance, *duck* starts with a *d*). The problem with this approach is that for each additional word it is harder to find a single, distinctive cue (*d* for *duck* will no longer suffice when *deer* is encountered). At this point, reading can become an increasingly frustrating activity unless a better cue system is developed.

Children often try to combine distinctive features of words (for instance, first letters) with context cues to figure out an unknown word. This hybrid approach is not particularly reliable, however. For example, consider the difficulty a young child would encounter in figuring out an unknown word in the sentence "Mrs. Mallard _____ her eight ducklings." What word fits in the blank? It could be almost any verb. What if the child looked at the first letter (which in this case is *D*), or looked at the first and last letters (*l* and *s*) and approximate length (five letters)? Even with these three feature cues, the word might be *loves*, *likes*, *loses*, or *leads*, to list a few. Learning to look at *all* the letters is important.

Letters Correspond to the Sounds in Spoken Words

Once children know that words are composed of letters, they need to be able to map, or translate, the printed letters into sounds. In order to do that, children first need to be able to "hear" the sounds in spoken words—that is, to hear the /at/ sound in *cat* and *fat*, for example, and perceive that the difference between the two words lies in the first sound. (In this article slashes // indicate a speech sound.) If children cannot perceive these sound segments, they will encounter difficulty when trying to sound out words, in both reading and writing. This understanding has been termed phonemic awareness.

Phonemic awareness is not a single insight or ability. Rather, there are various phonemic insights, such as being able to rhyme words as in the *cat/fat* example above, or knowing that *fat* has three distinctive, yet overlapping and abstract, sounds. The last insight is particularly difficult because phonemes often overlap in speech (e.g., we begin saying the /a/ sound in *fat* while still uttering the /f/).

Although it is not clear how children gain phonemic awareness, certain activities do appear to foster it. Home factors such as time spent on word play, nursery or Dr. Seuss rhymes, and general exposure to storybooks appear to contribute to phonemic awareness. In a fifteen-month longitudinal study of British children from age three years, four months, Maclean, Bryant, and Bradley (1987) found a strong relationship between children's early knowledge of nursery rhymes and the later development of phonemic awareness. In addition, phonemic awareness predicted early reading ability. Both relationships were found after controlling for the effects of IQ and socioeconomic status.

There is growing evidence that phonemic awareness can be taught to young children and that such teaching can occur in a playful, interactive way. Lundberg, Frost, and Petersen (1988) showed that preschool children can be trained to manipulate the phonological elements in words. Their eight-month training program in-



volved a variety of games, nursery rhymes, and rhymed stories. A typical game designed to foster syllable synthesis included a troll who told children what they would get as presents

through the peculiar method of producing the words syllable by syllable. Each child had to synthesize the syllables in order to figure out what the troll was offering. Children who participated in the training showed considerable gains in some phonemic awareness skills—such as phoneme segmentation—compared with children who did not participate in the program. Positive effects of the preschool training were still evident in children's reading and spelling performance through second grade.

Clay (1979) found that many six-year-olds who were not making adequate progress learning to read could not "hear" the sound sequences in words. She adopted a phonemic awareness training program developed by the Russian psychologist Elkonin (1973) to train these children. Clay found that the children could learn and apply the strategy of analyzing the sound sequence of words. This strategy improved both their reading and their writing.

Unfortunately, many children come to school without phonemic awareness, and some fail to gain it from their school experiences. Juel, Griffith, and Gough (1985) found that well into first grade the spelling errors of many children were not even in the domain of what has come to be known as invented spellings (such as using the sounds captured in letter names to spell *light* as *lt* or *rain* as *ran*). These researchers found that many children entered first grade with little phonemic awareness and had difficulty learning spelling-sound relationships. For example, these children's misspellings of *rain* used in a sentence included such things as *yes, wetn, wnishire, rur*; and drawings of raindrops. The course of learning the code for these children will be different and more difficult than for children who are able to hear the sounds in spoken words and who know that these sounds can be mapped to letters.

Instructional Approaches

Given that letters and sounds have systematic relationships in an alphabetic language such as English, it stands to reason that those responsible for teaching initial reading would consider telling beginners directly what those relationships are. Indeed, until about 60 years ago this is what most teachers in the United States did. The techniques used, however, left much to be desired.

Phonics: The Past

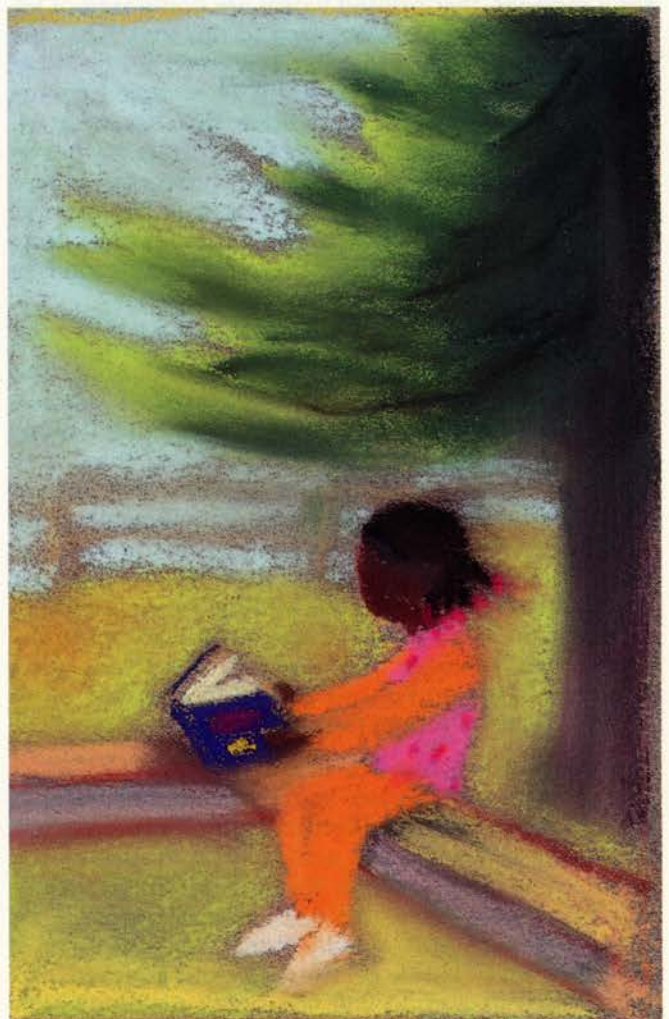
It is important to recognize that phonics is not a single procedure. Under the label phonics can be found a variety of instructional strategies for teaching the relationship between letters and sounds. It appears that the kind of phonics practiced in the first decades of this century was an elaborated "drill and more drill" method. Diederich (1973) describes the scene:

Initial instruction in letter-sound relationships and pronunciation rules was done to death ... children had

to learn so much abstract material by rote before doing any significant amount of reading (p. 7).

To illustrate more concretely what Diederich was describing, picture the following: It is October 1921, and forty first graders are seated at rows of desks. The teacher stands at the front of the class and points with a long wooden pointer to a wall chart that contains columns of letters and letter combinations. As she points to a column of short vowel and consonant *b* combinations, the class responds with the sound of each combination: /ab/, /eb/, /ib/, /ob/, /ub/. She goes to the next column and the class responds, /bab/, /beb/, /bib/, /bob/, /bub/. Then the teacher asks, "What's the rule?" The children respond in unison, "In a one-syllable word, in which there is a single vowel followed by a consonant...." So it went day after day, with "letter-sound relationships and pronunciation rules ... done to death."

It is no wonder that educators as prominent as William S. Gray described this kind of phonics as "heartless drudgery" and urged that it be replaced with what initially was termed the look-say approach and subsequently called the sight word or whole word method. The relief from extended drill with letter sounds, their synthesis into often meaningless syllables, and the recitation of rules of pronunciation is evident in Diederich's (1973) own response to the look-say method:



When [this] writer began his graduate study of education in 1928 ... no less an authority than Walter Dearborn had to send his students to observe several classes that were learning to read by the new "look-say" method before they would believe that it was possible. When prospective teachers like the students of Walter Dearborn discovered what a relatively painless process the teaching of reading could be, using the ... whole word approach, they were not disposed to demand evidence of superior results. It was enough to know that the new method worked about as well as the old and with far less agony (p. 7).

Look-Say

By the 1930s, the look-say method prevailed. The idea behind this approach was that children could learn to recognize words through repeated exposure without direct attention to subword parts. The existence of ideographic writing systems (like Chinese or Japanese Kanji, which is based on Chinese characters) shows that this type of visual learning can occur, but it is difficult. The characters are learned slowly. A child in Japan is expected to learn only seventy-six Kanji in first grade and 996 by the end of sixth grade. In contrast, many Japanese children enter school already reading Kana, which is based on phonetic segments. Most ideographic writing systems have been (or are in the process of being) replaced by alphabetic ones.

English is not an ideographic written language. To teach it as if it were ignores the systematic relationships between letters and the sounds that underlie them. Proponents of the look-say method have been quick to point out the imperfections of these relationships, which are most apparent in some high frequency words (e.g., *come*, *said*). It should not be overlooked, however, that the pronunciations of even these irregular words do not deviate widely from their spellings. We do not pronounce *come* as *umbrella*, or *said* as *frog*.

The look-say method continued virtually unchallenged until 1955, when Flesch, in his book *Why Johnny Can't Read*, vehemently attacked the approach and demanded a return to phonics. Although the general public and press reacted favorably to Flesch's book, it was rejected by reviewers in educational journals—chiefly because it took the form of a propagandistic argument that presented conclusions beyond what research evidence allowed. A decade later, Chall's (1967) *Learning to Read: The Great Debate* provided a reasoned presentation of the research with the conclusion that the evidence points to benefit from those programs that include early and systematic phonics. Subsequent researchers confirmed this advantage (e.g., Barr, 1972, 1974, 1975; DeLawter, 1970; Elder, 1971; Evans & Carr, 1983; Guthrie et al., 1976; Johnson & Baumann, 1984; Resnick, 1979; Williams, 1979).

Phonics: The Present

Several years ago, the National Commission on Reading, comprising a range of representatives from the research community (and sponsored in part by the National Institute of Education), developed a report that synthesized and interpreted the existing body of research on reading. The report, entitled *Becoming a Nation of Readers* (Anderson et al., 1985), observes in its discussion of early reading that "most educators" view phonics instruction as "one of the essential ingredi-

ents." It goes on to note: "Thus, the issue is no longer ... whether children should be taught phonics. The issues now are specific ones of just how it should be done" (pp. 36-37). Approaches to phonics instruction generally can be described by one of two terms—explicit phonics and implicit phonics, referring to the explicitness with which letter sounds (phonemes) are taught in a given approach.

In explicit phonics, children are directly told the sounds of individual letters (the letter *m* represents the /m/ in *man*). In implicit phonics, children are expected to induce the sounds that correspond to letters from accumulated auditory and visual exposure to words containing those letters (for instance, they would induce /m/ from hearing the teacher read *man*, *make*, and *mother* as she or he points to the words on the chalkboard). In terms of the effectiveness of one approach over the other, *Becoming a Nation of Readers* observes that "available research does not permit a decisive answer, although the trend of the data favors explicit phonics" (p. 42). Let us look more closely at both approaches, beginning with implicit phonics.

As noted above, in implicit phonics the sounds of individual letters are never pronounced in isolation. Instead, the child is expected to induce these sounds from reading words in stories and lists that contain similar spelling-sound patterns. Continuing with the *m* example, a child who encountered the new word *met* and who had seen and heard *man* and *make* would be instructed to think of other words that begin with the letter *m* in order to identify the sound at the beginning of the new word. In order to comply with the instructions, the child needs to be able to identify distinct sounds in spoken words to make a connection between the sound and the target letter. To be able to induce the sound of the letter *m* or the sound of the *et* phonogram, the child must be able to distinguish between the sound of the initial consonant and the rest of the word. This is a difficult task because in speech the sounds of individual letters actually overlap and blend as a word is pronounced. Thus, in actuality, the ability to extract the sound of a letter from a spoken word is more "in the mind" than "in the mouth."

A problem with implicit phonics is that many children fail to induce the sounds because they are unable to segment a word into distinctive sounds. It takes very sophisticated phonemic awareness to do so. Many children do not come to school with such awareness, yet implicit phonics requires this ability right from the start.

Explicit phonics requires less sophisticated phonemic awareness because the sounds associated with letters are directly provided. Explicit phonics, however, has its own potential problem; the sounds of some consonant letters cannot be said in isolation without adding a schwa, or /uh/ (e.g., the isolated sound of the letter *b* in *but* is distorted to /buh/). Do we harm children by telling them these distortions? Not if instruction in how to blend letter sounds is provided. In reviewing the research associated with this question, Johnson and Baumann (1984) noted that "there is no substance to the long-held belief that pronouncing sounds in isolation is detrimental" (p. 592). Similarly, the

(Continued on page 39)

TALKING SUBSTANCE

Common Curriculum and Time Together Bring Depth and Direction to Teacher Discussions

BY MARCIA REECER

AMERICAN TEACHERS enjoy an unusual amount of independence. Since U.S. schools do not have a common curriculum, teachers often have broad latitude to choose what they want to teach from the textbook and state and district objectives and to decide how they want to teach it. But this freedom comes at a price.

New teachers find out about the price right away. Just as they are discovering that knowing a subject doesn't mean you know how to teach it, they also discover that they can't expect much help from their more experienced colleagues. Those teachers are busy teaching their own classes. Besides, the idea seems to be that "professionals" figure out their own best way of getting across the material. So young teachers learn to go into the classroom, shut the door, and work things out for themselves.

There are positive sides to this freedom, but it can also limit people instead of liberating them. Throughout their careers, most teachers are cut off from all but casual contact with other teachers in their school. There is no accepted forum in which they can talk about their problems or share their expertise. This means there is little chance to build on or preserve professional knowledge. And except for pockets of peer coaching or mentoring, there is no way for experienced teachers to pass on what they have learned to novices. It is as

Marcia Reecer is assistant director in the Office of the President, American Federation of Teachers. She has taught at the elementary, high school, and college levels.

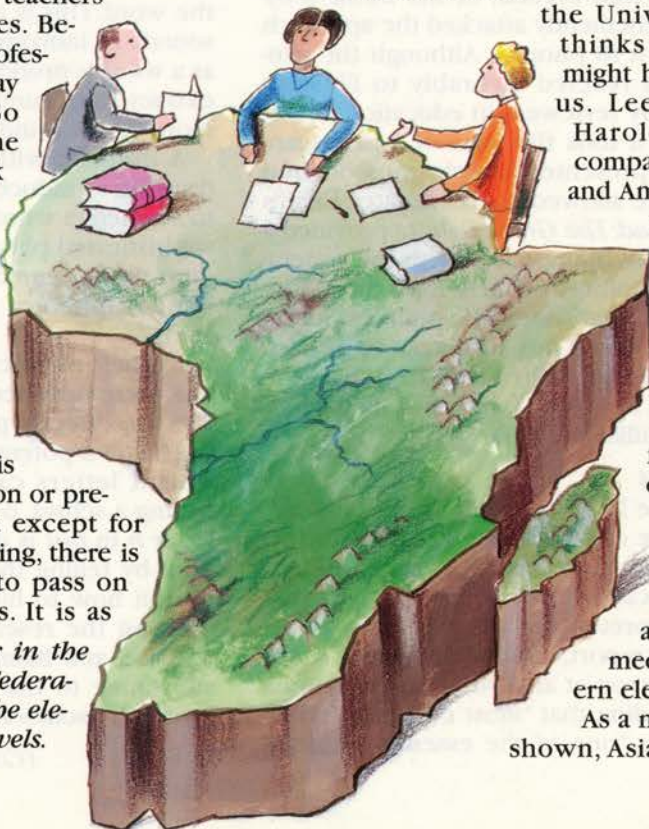
though all teachers have to begin from the beginning, like cave men (and women) in their separate caves.

This may work for gifted teachers, though many of them burn out. But (as is the case with any profession), not all teachers are gifted. In failing to acknowledge the importance of refining and transmitting professional knowledge, our system fails the many teachers who could improve their teaching practice—and cheats their students. Most schools as they are now structured seem to offer little hope for fixing this problem.

Shin-Ying Lee, a developmental psychologist at the Center for Human Growth and Development at the University of Michigan, thinks that Asian schools might have some answers for us. Lee has worked with Harold Stevenson on his comparative studies of Asian and American schools for 17 years and has visited

classrooms in Japan, China and Taiwan. She believes that Japanese schools in particular offer a useful model for American teachers, and she has been working for the last several years on a project that transplants Japanese-style teacher meetings into a midwestern elementary school.

As a number of studies have shown, Asian students regularly





achieve at higher levels than U.S. students, especially in math. And although Japanese classes are heterogeneous and large by our standards, there is a much smaller gap between the top and the bottom scorers than is the case in the U.S. Japanese elementary schools do better from the standpoint of equity as well as achievement. Harold Stevenson and James Stigler discuss what they believe to be the contributing factors in *The Learning Gap: Why Our Schools Are Failing and What We Can Learn from Japanese and Chinese Education* (Summit Books, 1992). The common curriculum is one factor: When everyone has agreed on what to teach, teachers are able to build on what they know the children learned the previous year. There is no time wasted trying to make sure that everyone is beginning at the same point. As a result, children are able to learn more. Another factor is the regular and frequent meetings in which teachers talk about their lessons and their practice in very specific terms.

The Japanese school year is much longer than ours, but teachers teach many fewer hours per year than American teachers. This is because they spend up to a third of their time meeting with other teachers and talking about their classes. Elementary school teachers—and to a lesser extent high school teachers—have time set aside in which they can talk concretely about how to present a given topic and, after they have given the lesson, about what approaches worked and what

ones didn't. Since the subject matter is prescribed, teachers can concentrate on the best way to present the material. These meetings allow teachers to learn from one another and encourage them to craft and polish a lesson until they can reach as many children as possible.

The Michigan school where Shin-Ying Lee and her graduate student Heidi Schweingruber have been trying out Japanese-style teacher meetings is a K-6 school of 500 students not far from Ann Arbor. The community is conservative and the teachers mostly traditional in their approach to teaching. The students are nearly all white, but the range in socioeconomic status is fairly broad: One-third of the students are eligible for Title I money.

Three years ago, after hearing Lee talk at a district-wide retreat about the way Japanese schools are organized, the school principal asked her to come and work with her and her teachers on a school improvement plan. Lee made a number of suggestions that pertained mainly to classroom and school management—for example, scheduling math classes in protected, uninterrupted time the first thing in the morning when the children are fresh and restricting announcements and other housekeeping items like sending down lunch orders to a time period before the beginning of classes. She also suggested homework notebooks (they go home each day with students and contain homework assignments and messages for parents) and a system of student classroom monitors designed to give the children more responsibility for their own behavior. The principal and teachers were enthusiastic about these suggestions, and they were initiated on a school-wide basis.

But Lee was particularly interested in seeing what would happen if she got some of the teachers together twice a month for a couple of hours at a time and led them in discussions about the strategies they were using in their math classes. This began in the academic year of 1993-94. Time, a big problem in many schools, was not a difficulty here. Lee had a small grant that paid for substitute teachers. One of Lee's groups was the first-grade teachers, chosen because Lee and the principal agreed that it was important for kids to get a solid foundation in math. The third-grade teachers were chosen because their students would soon be taking the Michigan Educational Assessment Program tests and the principal wanted them to be well prepared. Lee did not plan to instruct the teachers about strategies they should be using but to guide them into thinking and talking concretely about their classes. Were the children catching on to a particular concept? If not, what seemed to be the source of their difficulty? What approach or approaches might work better?

Lee soon discovered that the teachers were not accustomed to reflecting on their teaching and did not have the analytical tools to do so. Discussing their teaching generally meant talking about which kids were having a hard time learning—or, sometimes, which parents were being a nuisance. These were very real problems for the teachers, but they were not related to how math concepts were being taught or where the kids were running into trouble understanding them. One teacher might say, "Five of my kids still can't subtract," but, Lee says, she would not take the next step: "What different approach might I take that would help them learn?" Lee remembers a time when the first-grade teachers were talking about their students learning to count by fives:

"They'd say, 'Oh, you can just see it click when a kid finally knows how to count by fives.' Or, 'Once the children get to 20 they have no problem counting by fives.' But the teachers did not ask themselves *why* kids have trouble counting by fives below 20. They didn't try to pull out the rule: Once you get to 20, counting by fives is very regular. It goes 20, 25, 30, 35; but 10, 15 is not regular. They could formulate the problem but they couldn't analyze it."

There was also a tendency to explain difficulties children had in grasping math concepts largely in terms of their personalities or developmental levels. A teacher would say, "I have this group of immature boys, and it's practically impossible to keep them on task." Or "This child is not catching on at

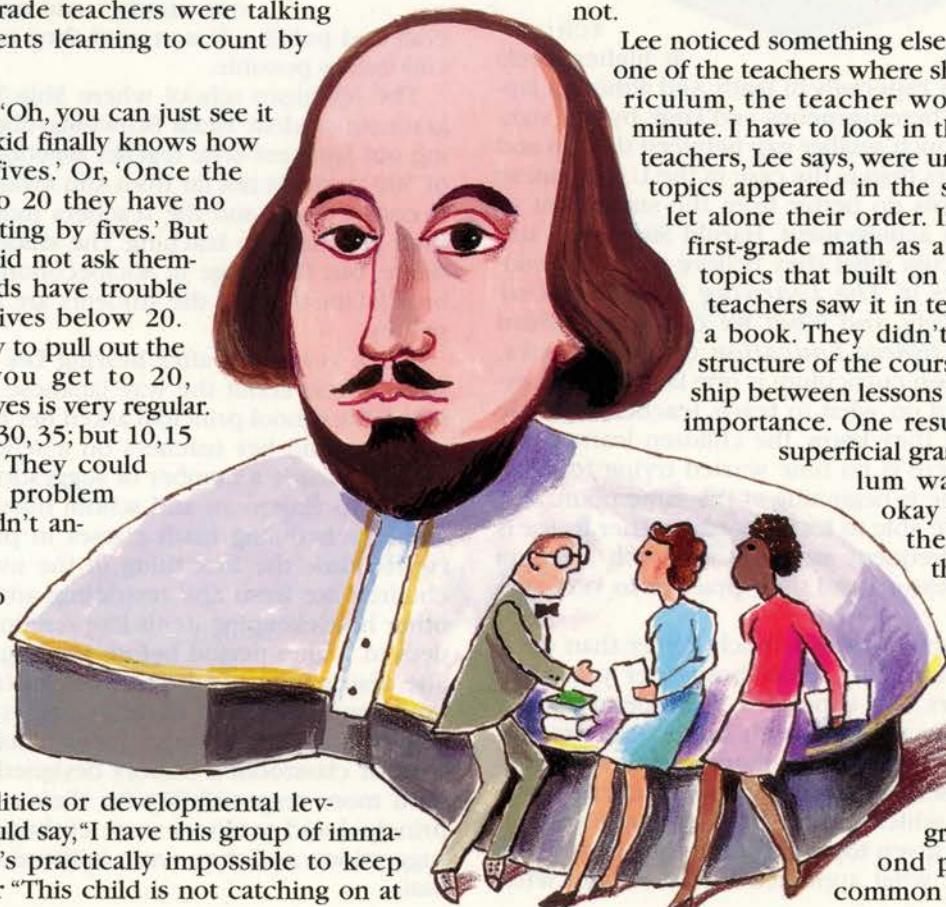
all. I suspect he is learning disabled." With her experience of heterogeneous Japanese classrooms, where teachers expect a large majority of kids to master the basic concepts—and the kids do—Lee was troubled by this tendency.

Initially, there was a great lack of openness among the teachers. "Some of the teachers had wonderful ideas," Lee says, "and they would tell *us* about them, but they were reluctant to share them with the other teachers." When Lee arranged to have each of the teachers teach demonstration lessons, she also found that they were unwilling to criticize anything about another teacher's presentation. This desire to be positive went so far, Schweingruber recalls, that when one teacher blocked the overhead projector during her presentation, none of the others mentioned that they couldn't see the screen. When the math coordinator taught a demonstration lesson, the teachers did not pick up on the strategies she used or question or talk about them any more than they had commented on one another's lessons. It's understandable that teachers who have never been asked to look critically at their own or anybody else's practice would be hesitant. But it was also clear that they were not accustomed to thinking in these terms and did not have the vocabulary to do so.

As the year and the meetings went on, the teachers did become comfortable talking together and sharing ideas about the activities they were using in their classes. But each was teaching her own curriculum at her own pace. This would have made the kind of concrete and detailed discussions of strategy that Lee was trying to encourage difficult, even if they were a natural mode for the teachers—which, of course, they were not.

Lee noticed something else. When she asked one of the teachers where she was in the curriculum, the teacher would say, "Wait a minute. I have to look in the textbook." The teachers, Lee says, were unable to say what topics appeared in the second semester, let alone their order. Instead of seeing first-grade math as a coherent set of topics that built on one another, the teachers saw it in terms of lessons in a book. They didn't understand the structure of the course or the relationship between lessons and their relative importance. One result of this rather superficial grasp of the curriculum was that they felt okay about changing the order in which they taught topics and omitting what they wanted to.

So the next year, 1994-95, Lee and Schweingruber put the second piece in place: a common curriculum. The



first-grade teachers would all teach a common set of topics involving basic concepts that were important for all the children to master. The teachers would move more slowly and try to make sure that all the kids were on top of each concept before going on to the next. And they would all use the same techniques. Lee gave them detailed lesson plans, which they discussed in advance. For example, if the children were going to do addition with single-digit numbers, no carrying, the lesson plan would ask the teachers to consider the following questions: What kind of manipulatives will I use? What kind of sequence? What kind of response do I expect? What kind of difficulties will the kids have? The new curriculum put a heavy emphasis on problem solving and using manipulatives. Teachers were to encourage students to come up with their own ways of solving a problem and talk about how they arrived at their answers. That way, when a child got a wrong answer, the teacher would be able to diagnose where the child's logic was off and be better able to help him.

What have the meetings and the common curriculum achieved so far? The teachers say they can see positive differences in their students, and they are happy with the new curriculum. One talked about how some of her children have come up with approaches to solving problems that she hadn't thought of herself. She is impressed by this and also thinks that the slower kids may have been helped by an alternative solution coming from a classmate. Another teacher said that her students' attitude toward math is different now: "They say, 'Yeah! Math!' And they are willing to try anything—even the slowest kids." Also, this year the children have gotten as far as adding and subtracting two-digit numbers, which is beyond what earlier first-grade classes have been able to do.

All agree that they are more open with each other and more ready to collaborate. They spend time together brainstorming and believe they benefit from one another's ideas, although they see this in terms of moral support and suggestions about activities rather than analysis of classroom strategies. As one said, "When you hear, 'this didn't work,' you don't have to waste your time trying it out." They also talked about the comfort they feel in hearing that their students are not the only ones having a problem with this or that lesson. And the collaboration in math has, they say, spilled over into other subject areas.

Lee and Schweingruber see the beginnings of a change that seems more profound, and although the progress has been slower than Lee had hoped, she is excited and optimistic. On the down side, Lee says the teachers still do not really connect student achievement with instructional methods. They believe that some students are ready to learn the material and some are not: "They don't think that if they do something different, they can improve things." Also, they are still not very successful at monitoring class discussions for understanding and adjusting their classroom strategies to help children who are not grasping the concept being discussed. They depend, Schweingruber says, too much on tests to find out whether the kids are having problems. Then, they may say to themselves, "Well, 30 percent of the children didn't get this concept, but I *did* cover it," and simply move on.

On the other hand, the teachers are now more likely to make connections between lessons and talk in terms of teaching strategies. As an example of this more sophisticated approach, Schweingruber talks about what happened when the teachers faced a subtraction lesson after a number of lessons on addition that had emphasized recognizing number combinations that add up to ten and combining numbers to make groups of ten:

When we came to subtraction, the teachers looked at the unit and immediately started making connections with addition. "Okay, here's how we did the addition. We put an exercise on the board where we would do this. Now, how are we going to do subtraction?" And they started talking it through together, using parallels with addition. During that session, it came out what had been successful in addition. "I had these cards made up." "Can I see them?" "Can you show me those cards?"

Lee believes progress would have been faster if she and Schweingruber had been able to meet with the teachers more frequently—or if the teachers had taken advantage of her suggestion that they call collect with their questions. Still, she is pleased by how much has been accomplished. Lee plans to continue meeting with the first-grade teachers in the school where she has been working, and she hopes to add an urban school next year. She also plans to use what she is learning in the meetings to create materials that will allow teachers to guide themselves in improving their math knowledge and their pedagogy. Among the materials will be a manual patterned after the one used by Japanese teachers. It will give teachers the kind of conceptual framework for math topics that Lee tries to get across in meetings. [See "What We Can Learn from Japanese Teachers' Manuals" in the Spring 1995 *American Educator*.] Shin-Ying Lee is convinced that many more American children can learn basic math concepts than currently do, and she is convinced that teachers who learn to reflect on their practice and talk about it can be more effective in teaching basic concepts. A modified Japanese system in which teachers meet regularly to discuss a common curriculum will, over time, lead to more effective teaching and higher student achievement. But the process, Lee realizes, will be a slow one.

THE TEACHERS' meetings that Shin-Ying Lee has been holding are part of a strategy to change the way teachers think about their teaching. In a group of schools across the country that have adopted what is referred to as the Core Knowledge curriculum, the meetings are a by-product. But Core Knowledge invites teacher collaboration; indeed, it is hard to see how a Core Knowledge school could function without it. And as they work to create a Core Knowledge curriculum, many teachers say they develop a new kind of professional relationship unlike the casual and distant relationships that are common in most American schools.

Core Knowledge schools have grown out of E.D. Hirsch, Jr.'s book *Cultural Literacy: What Every American Needs To Know* (Houghton Mifflin, 1987). In it, Hirsch said that people need a store of knowledge in order to think and communicate and that it was up to

schools to give children this knowledge. Some critics called Hirsch's position elitist. Others condemned it because they considered it boring and useless to have children learn facts: If you want to know what's in the Bill of Rights, you can always look it up in a book. Instead, we should be teaching children "higher-order" thinking skills like synthesizing, generalizing, explaining, hypothesizing, and arriving at conclusions. Hirsch, who argues persuasively that "higher-order" skills are best taught not in the abstract but as a natural element of rigorous and engaging subject matter, went on to establish the nonprofit Core Knowledge Foundation. The foundation has designed, with the help of teachers and other experts, a set of what we would now call curriculum frameworks for grades K-6 (grades 7 and 8 are currently being developed). There are now 150 elementary schools in thirty states using the Core Knowledge frameworks. They include schools in the poorest neighborhoods as well as middle and upper-middle-class ones.

Core Knowledge is basically an ambitious curriculum reform. It is an integrated and coherent curriculum framework that exposes children to interesting and demanding subject matter. Hirsch gave the flavor of a Core Knowledge curriculum a couple of years ago in an article describing what youngsters study at the Mohagan School in the South Bronx: "topics like: Ancient Egypt, Greece, and Rome; the Industrial Revolution; limericks, haiku, and poetry; Rembrandt, Monet, and Michelangelo; Beethoven and Mozart; the Underground Railroad; the Trail of Tears; *Brown v. Board of Education*; the Mexican Revolution; photosynthesis; medieval African empires; the Bill of Rights; ecosystems; women's suffrage; the Harlem Renaissance" (*Educational Leadership*, May 1993). Teachers who are starting a Core Knowledge school agree to teach the subject matter specified by

the framework in each grade. This amounts, Hirsch estimates, to about 50 percent of the content taught in the grade.

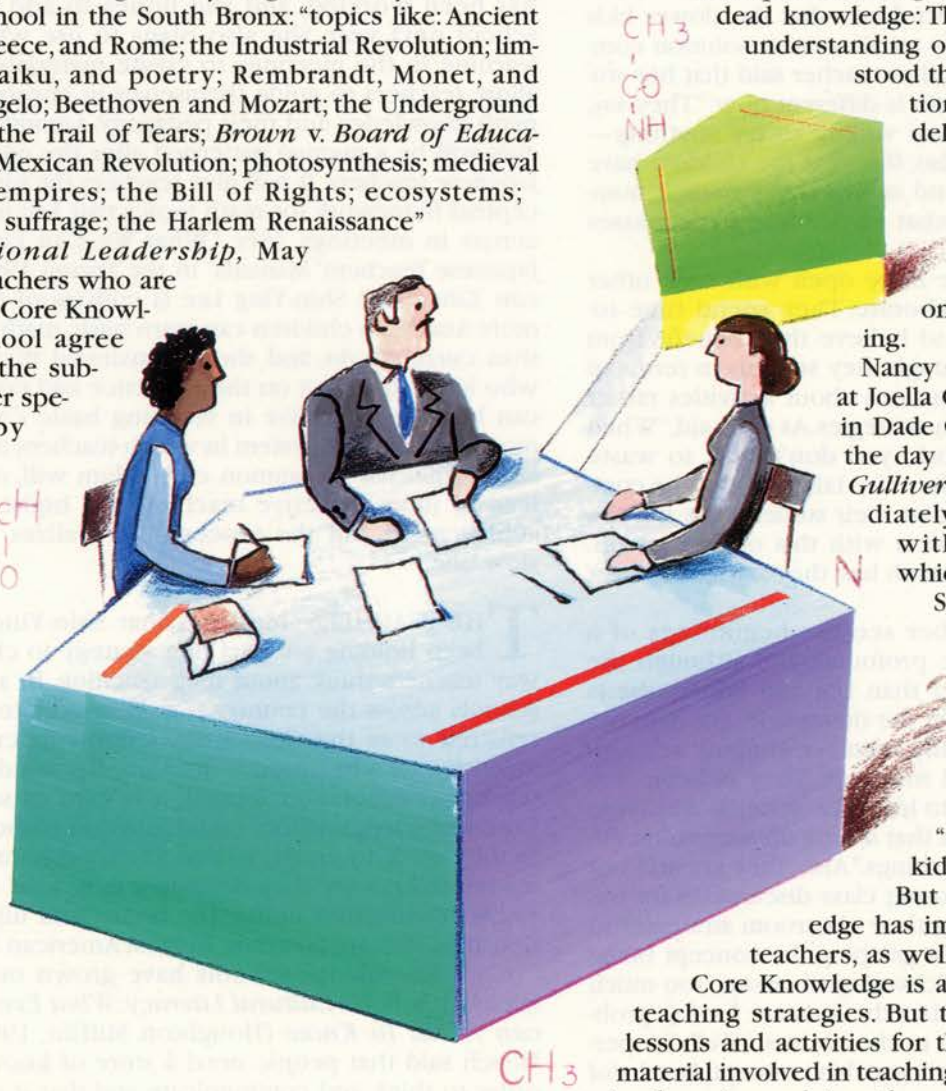
What usually strikes people about Core Knowledge schools is the enthusiasm of the children for what they are learning. Bruce Frazee, an associate professor of education at Trinity University in San Antonio, Texas, and coordinator of the Smart Schools Network, a school improvement network that includes a number of Core Knowledge schools, calls students the best advertisements for the success of Core Knowledge, and it's not hard to see why.

Thelma Celestino, Core Knowledge coordinator at Hawthorne, an elementary school in inner-city San Antonio, demonstrates this by taking visitors into a first-grade classroom where the children are singing rap versions of Aesop's fables and a third-grade class where the youngsters are reading out loud from Seymour Simon's *101 Questions and Answers about Dangerous Animals* with careful enthusiasm. "These children love coming to school," she says.

Steve Bregman, who teaches grade 6 at Coronado Village School near San Antonio, talks about how one of his students recognized a Paul Laurence Dunbar poem when it turned up at a crucial moment in a Whoopie Goldberg movie. And this was not dead knowledge: The boy, who had a good understanding of the poem, also understood the poem's thematic function in the movie. He was delighted—and so was his teacher. But, Bregman says, this kind of thing is not at all unusual because students get so turned on by what they are learning.

Nancy Carrier, resource teacher at Joella Good Elementary School in Dade County, Florida, says that the day her grade 4 class began *Gulliver's Travels*, the kids immediately started comparing it with *Robinson Crusoe*, which they'd studied earlier. She, too, stresses that this kind of enthusiastic and informed response is no exception, although she continues to be amazed by it. "Core Knowledge," she says, "works very well for the kids."

But adopting Core Knowledge has important implications for teachers, as well. Everyone stresses that Core Knowledge is about subject matter, not teaching strategies. But the difficulty of writing lessons and activities for the enormous amount of material involved in teaching Core Knowledge forces teachers to work together, particularly at the begin-

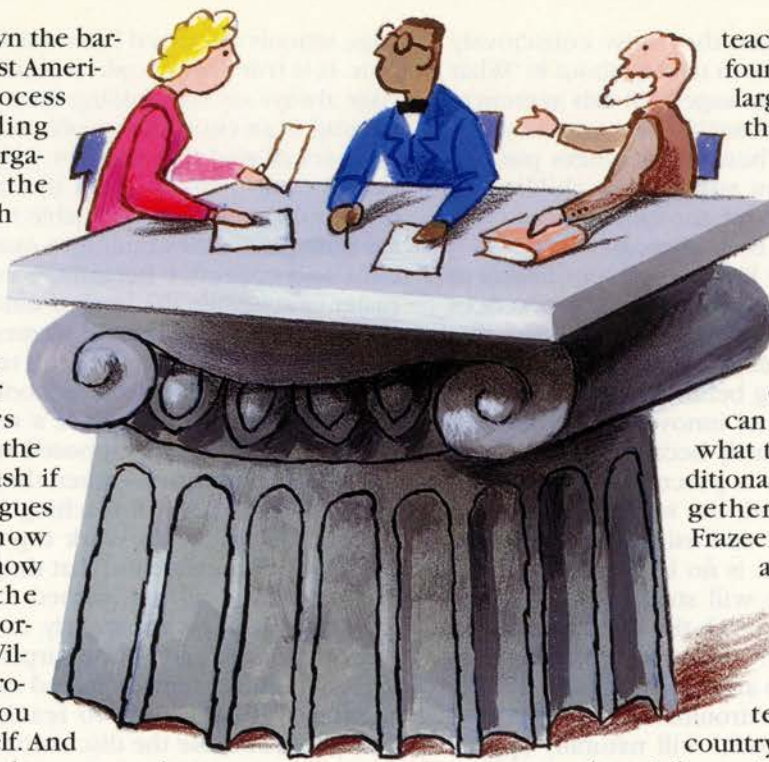


ning. That breaks down the barriers that exist in most American schools. The process varies. After deciding how they want to organize the topics for the year, teachers at each level may assign the topics to individuals who create the lessons or they may work together to write them. However they do it, teachers have to forget about the fear of looking foolish if they reveal to colleagues that they don't know something. Here is how Nancy Robinson, the Core Knowledge coordinator at Coronado Village describes the process: "You know you can't do it by yourself. And you are forced to admit your own ig-

norance: I don't know anything about light and optics or Chinese history. I've never read *Romeo and Juliet*." Everyone has to depend on the knowledge and skill of other people. And when teachers work together, they often find they produce better class units than they did working by themselves.

The necessity of cooperating can also break down another barrier—the competitiveness that our lone-wolf approach to teaching encourages. Jeanne Storm, who is now the principal of Three Oaks Elementary School in Fort Myers, Florida, remembers a wonderful astronomy unit she wrote in the days before Core Knowledge came to Three Oaks. She says she even got grant money with which she bought telescopes for her kids, but it never occurred to her to share the unit with other teachers at her grade level. She says she probably explained this to herself by saying she had spent a lot of time on the unit. Now, she thinks it was competitiveness. "Teachers were even competitive about their bulletin boards. And when the achievement scores came out..." She asks herself what all this was for: "Was it about doing the best for the kids or about the teachers' own egos?"

The cooperation and collegiality among teachers that Core Knowledge encourages can extend beyond their school. Thelma Celestino says that an AP physics teacher from a San Antonio high school teaches Hawthorne's fifth grade unit in physics. At Coronado Village, staff development consists of subject-matter seminars run by high school and college teachers on subjects like electricity and magnetism and Ancient Chinese history. Last year, an AP history teacher invited Coronado's fourth-grade teachers to a seminar on constitutional law and the Revolutionary War designed for high school teachers. Nancy Robinson says that initially administrators resisted the idea of these seminars because they were sure the high school teachers and professors would look down on the elementary school



teachers. Instead, these teachers found themselves members of a larger professional community than they knew existed.

Teachers also have a chance to draw on the experiences and expertise of teachers in other Core Knowledge schools. In San Antonio, one of the Core Knowledge schools invites the others to visit every month so teachers can meet together and talk over what they are doing. There are additional opportunities to work together at a seminar that Bruce Frazee runs every summer as well as at a yearly Core Knowledge conference. And now that Core Knowledge has come to the Internet, Core Knowledge teachers from all over the country can talk to each other and share information and activities.

Does all this collaboration on subject matter lead to critical attention to teaching practices of the kind Shin-Ying Lee is trying to encourage in her first-grade teachers? After all, Core Knowledge insists that it is about content, not teaching strategies. As Joella Good's Nancy Carrier says: "Core is just the curriculum. To me, it leads to cooperative learning, teaching higher-order skills, working with other teachers. Other people probably think it lends itself very well to true-false questions and making your own curriculum for your own class."

To some extent, this disclaimer about teaching strategies is probably designed to reassure teachers that Core Knowledge will not infringe on their professional independence. Although teachers act as resources for one another and cooperate in preparing lessons, they are still free to shut the classroom door and conduct their own classes as they see fit. However, the separation between content and strategy is not that clean. When you talk about teaching models of the universe or the importance of immigration in the building of our country, there are issues of coverage and pacing, for example, that blur the distinction between content and strategy. And there certainly is evidence that Core Knowledge affects the way people teach as well as what they teach.

Hawthorne's principal, Maureen Fitzgerald-Gray, says that, at first, Hawthorne teachers were pretty activity-driven, but as they worked together, they moved beyond just figuring out how to teach second graders to make models of the Parthenon and began to work on teaching the youngsters how to think about and use what they were learning: How does the community in Ancient Athens compare with the community in San Antonio? Integrating Core Knowledge with the skills that are tested on the Texas Assessment of Academic Skills (TAAS) forced the fifth-grade teachers at Hawthorne to become more analytical about how they were presenting material. For example, when they

teach the Gettysburg Address, they now consciously call on the skills TAAS requires in talking about it: "What is Lincoln *implying* in this passage?" "In this sentence, what does the word _____ mean?" "Give a one-sentence summary of the address." Then, the teachers put the summaries around the room and get the children to talk about which one is the best, the most succinct, the most inclusive—and defend their choices.

Nancy Robinson, the Core Knowledge coordinator at Coronado, believes that changes in teaching practices are bound to come with the openness and sharing that characterize a Core Knowledge school. When people are off doing their own thing behind closed doors, she says, you may have pockets of innovation but nobody knows about them. This is partly because talking about what goes on in your class is perceived as risky. But when everybody agrees about the subject matter and they start planning together and using one another as subject matter consultants, it is no longer risky to talk about what you do. People will start saying, "I don't have a lot of success when I teach the Roman senate in this way: What do you do?" Practice will gradually change because people who are successful will be able to give help, in a risk-free environment, to people who need it. A peer coaching model will naturally appear and evolve. Robinson believes that schools can look at teaching in three ways: (1) How do we schedule it? (2) What do we teach? and (3) How do we teach it? Most schools, she believes, stop with the first. Core Knowledge schools start with the second but will follow a natural progression to the third.

Bruce Frazee, who has been associated with Hawthorne's Core Knowledge reform ever since the teachers embraced it three years ago, says that Core Knowledge has turned the school into a community of learners. He believes that the secret of changing the way teachers teach is to change what they teach. "Give them a curriculum that is focused on content," he says, "and they will learn to teach it and teach it well."

AMERICAN TEACHERS are mostly solitaries. They are not used to talking about what goes on in their classrooms or working together. Some teachers consider this independence an enormous advantage, but in many respects it looks more like a handicap. Because teachers don't talk, they can't share their problems or insights or build together on what they have learned in their separate classrooms. They can't discuss what is working for their students and what is not. No other profession limits itself in this way.

What do teachers need to break down the barriers that separate them? For one thing, they have to be convinced that it's worthwhile to make the effort. The current state of affairs may not be wholly satisfactory but it is, at least, familiar. Also, many teachers are veterans of any number of reforms that swept in and then faded away almost as quickly as they appeared.

Another thing they need is the time. Teaching in the U.S. has traditionally been identified with contact hours: If you are not standing up in front of a class, you are not doing your job. So time is seen as a determining factor in creating and maintaining teacher isolation. In fact, neither Shin-Ying Lee's project with the first-grade math teachers nor the collaboration of Core Knowl-

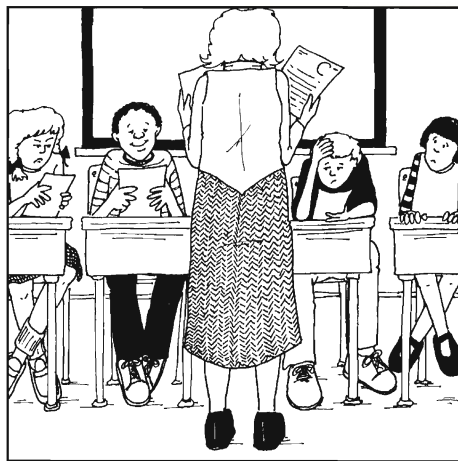
edge schools discussed here was hampered by a lack of time. It is true that people who talk about Core Knowledge always say that finding time, particularly at the beginning, is an enormous problem. And Core Knowledge teachers all said that the first year was incredibly difficult. They also talked about the various ways in which the system made time available to them. Perhaps there are now flexibilities built into many local and state systems and collective bargaining contracts that make it easier to schedule the kind of time needed for teachers to meet together, at least in elementary school.

A third critical piece for Lee's teachers and the teachers in the Core Knowledge schools seems to have been a common curriculum. Lee's teachers began really working together—as opposed to venting or offering one another activities—when they could talk about the material they were all teaching. The Core Knowledge teachers were led to work together at first because they shared a curriculum that they could not handle on their own. And having learned to collaborate because they had to, they apparently continue because they want to. This should not be surprising. Quite aside from the value for students, a shared curriculum can give direction and substance to teachers' discussions. Urgency, too, because the discussions are not about generalities but about what is actually going on in class tomorrow or next week.

A big problem with many programs and projects that try to improve education and teaching is that they require a cast of heroes, extraordinary individuals who give their all to the cause—and then probably burn out or quit. Most teachers, like most people in any profession, work hard to do the best job they can, but they are not heroes. No program or project will work unless it meets the majority of practitioners where they are, engages their interest and, without making them feel defensive or inadequate, gives them a chance to learn and develop. Shin-Ying Lee's math project acknowledges and explores the limitations of the teachers she works with, but the point is to help them look at and understand their practice and improve it. With Core Knowledge, all the teachers in a school work together in a difficult enterprise. This arrangement gives everybody a chance to grow and to mature and refine their skills; and it gives the less talented an opportunity to learn from the more talented without feeling pushed or embarrassed.

But all this would be the tail wagging the dog unless it led to better outcomes for students. Both of the undertakings described in this article are still too new to expect definitive results, although there is a general upward trend in test scores at Core Knowledge schools. That said, it is hard to believe that these two approaches, or something like them, are not what we need. What makes better sense than the idea that when professionals talk together about what they are doing, their practice will benefit? Or that when teachers' conversations are focused on a common curriculum, they'll be more exciting and useful? The good sense of these propositions disguises the difficulty of making them concrete in the schools. But Shin-Ying Lee's math project and the Core Knowledge schools provide, at the very least, some valuable guideposts. □□□

PRAISE THAT DOESN'T Demean, CRITICISM THAT DOESN'T WOUND



BY ADELE FABER AND ELAINE MAZLISH ...
WITH LISA NYBERG AND ROSALYN ANSTINE TEMPLETON

**"PLEASE ... HAVE A SEAT.
WE HAVE A LOT
TO DISCUSS."**

I shifted nervously in the seat across from the principal's desk.

"Ms. Lander, as I'm sure you know, for the first three years of teaching you are on probation." (My mind started to race. "Probation"—isn't that for convicted criminals?)"

"Every year for three years you will have a minimum of three evaluations. This is your first. I want you to know that I believe you have a lot of potential ... *but*

Adele Faber and Elaine Mazlish are the authors of the classic bestseller, How To Talk So Kids Will Listen & Listen So Kids Will Talk. This article is adapted from their new book, How To Talk So Kids Can Learn, which brings their strategies for building effective communications between adults and youngsters to the classroom setting. Copyright © 1995 by Adele Faber, Elaine Mazlish, Lisa Nyberg & Rosalyn Anstine Templeton. From the forthcoming book HOW TO TALK SO KIDS CAN LEARN by Adele Faber & Elaine Mazlish, with Lisa Nyberg & Rosalyn Anstine Templeton to be published by Rawson Associates, a division of Simon & Schuster, Inc. Reprinted with permission. How To Talk So Kids Can Learn should be available in local bookstores in August.

you are going to have to work to earn tenure. Now is the time to learn from your mistakes. Let's look at Monday's lesson to see what went wrong."

Reaching into a file cabinet, he pulled out a manila folder stamped PROBATIONARY in red block letters. Then he leaned back in his chair and, with his glasses poised on the bridge of his nose, leafed through the copious notes he'd made during his observation of my lesson. "Let's see ... I believe the purpose of your lesson was to teach the students how to write a letter. Am I correct?"

"Yes, Mr. Steele." (What was he getting at?)

"You told the students that you had a book with celebrities' names and addresses in it so that they could write to the star of their choice. *That was your first mistake.* As soon as you told them about the possibility of contacting a celebrity, they stopped listening to you and began talking to each other. You lost them. Instead of focusing on the protocol for letter writing, they were discussing celebrities. In the future I suggest that you refer to the district guidelines for curricular decisions. If you follow these guidelines with your students, they will be better prepared to take the state writing assessment in the spring. While employed in this district, you need to teach the standards as written."

I tried to defend myself. "I thought that if I generated a little enthusiasm for the letter writing..."

"That brings us to my next point. The students' enthusiasm was expressed in a number of inappropriate

ways. During your half-hour lesson, three notes were passed, mouth noises were made, a desk was pounded on, and one student got out of his seat to talk to a classmate. Were you aware that all of that activity was going on in the back of the class?"

"Well, yes ... but the kids were just a little excited, Mr. Steele."

He leaned forward in his chair. "Ms. Lander, we have specific standards for conduct in our classrooms. You may not be aware of how quickly a problem can escalate. Students of this age are very volatile. If they aren't kept in line, the situation can easily get out of control. Even if we work with this celebrity letter idea, improvements can be made. I suggest you keep the focus of your lesson on the correct form of writing a letter and spend less time discussing which celebrities your students admire."

The secretary's voice came over the intercom. "Mr. Steele, the superintendent is on line one. Would you like to take the call or shall I take a message?"

Mr. Steele looked at his watch. "I'd better take it," he said as he flipped through more of his notes. "Well ... I have several other points to discuss with you, but perhaps you have enough to work on for now. I suggest you sit in on Mrs. Harding's class. She's a fine teacher. You could hear a pin drop in her room. Let's schedule a second meeting for tomorrow, so we can finish smoothing out the rough spots."

Back in my empty classroom, I closed the door behind me and mindlessly sifted through the pile of papers on my desk. Tears welled up in my eyes. Didn't he like anything about my lesson? Sure the kids were a little rowdy, but I'd rather have them excited about the topic than slumped in their seats looking comatose. I wanted them to care about what they wrote, whether it was to a celebrity or a friend or someone in Congress. Isn't *what* they write just as important as *how* they write? I looked again at the stack of uncorrected letters lying on my desk, picked up my red pencil, and put it down again. I had no desire to mark those papers. No desire to teach. No desire ever to set foot in a classroom again.

I heard a knock at the door. It was Maria carrying a folder filled with student drawings. "Sorry to bother you," she said cheerfully, "but could I borrow your stapler?"

"Sure."

"You okay?" Maria asked, staring at me.

"I just had a rough afternoon. I don't know ... I'm beginning to think I should have gone into business instead of teaching."

"How can you say such a thing? You're a wonderful teacher. One of the best! I think you're outstanding!"

I looked up at Maria. She was smiling down at me, searching my face for a return smile. I managed to mumble, "Thank you, Maria," and handed her the stapler.

A moment after she left, Jane entered. "You look as if someone kicked you in the stomach," she observed.

I told myself to be "professional" and not burden Jane with my troubles. But one look at her face, and I blurted out the whole story.

Jane listened and shook her head sympathetically.

"And to top it off," I said tearfully, "he said I was too

animated, that I couldn't control my class, and that I should sit in on Mrs. Harding's class to see how a *good* teacher teaches."

"Mrs. Harding?" Jane sneered.

"He said you can hear a pin drop in her room."

"That's because the kids are asleep."

"Jane," I burst out, "don't joke. He took the heart out of me."

"I know ... I know. I'm just mad that you had to be subjected to Steele's warped idea of 'constructive criticism.'"

"Maria was just in," I sniffled. "She's such a dear. She tried to make me feel better. Told me I was a wonderful teacher."

"But you didn't believe her."

"I wanted to. But all I could think about when she said that were all the times I wasn't so wonderful."

"That's the way it seems to go," Jane sighed. "Criticism can knock the stuffing out of you. And praise like 'You're great ... wonderful ... marvelous' is too much for anyone to take."

"I know. I wanted to tell Maria she was all wrong about me."

"Because it's hard to accept such extravagant praise. Did you ever notice how uncomfortable you get whenever anyone evaluates you? I know the minute someone tells me I'm 'good' or 'pretty' or 'smart,' all I can think about are the times I was bad or felt ugly or did something dumb."

"That's just what happened! As Maria was insisting that I was 'the best,' I thought of last Monday when I came to school tired, poorly prepared, and terrified that the principal would pay me a surprise visit."

Jane laughed out loud. "She meant well. People always mean well when they praise you. They just don't know how."

"What is there to know?"

"That instead of *evaluating* what someone has done, you need to *describe* it."

"Describe it?"

"Right. You need to describe—in detail—exactly what it is the person did."

"I don't get it. Give me an example."

Jane looked at me intently. "Okay," she said. "Liz, you were required to teach your class how to write a formal letter and you could easily have settled for a standard lesson. But you knew that kids don't usually get turned on by headings and salutations and inside addresses. So you gave the subject some thought and came up with a motivation that fired your students' imaginations and had them writing with passion and purpose *and* correct form."

I sat up in my seat. "That *is* what I did!" I exclaimed. "It could easily have been a boring lesson, but I *did* get the kids excited and involved. And they *did* learn how to write a formal letter. ... You know what? I don't care what anyone says. It was a very good lesson."

"Aha!" said Jane triumphantly. "Look what just happened! All I did was describe what you did, and you, recognizing the truth of my words, credited yourself."

Maria returned with the stapler and apologized for interrupting us.

"Maria," I said, "don't go. You've got to hear what Jane has been telling me about praise. I want to know what

you think of it. Jane, please say it all over again.”

Jane obliged. She told Maria that children have trouble accepting praise that evaluates them. She said, “Telling a child ‘You’re so well organized’ usually leads to ‘Not really.’ But the kind of praise that a child can ‘take in’ and that truly builds self-esteem comes in two parts. First, *the adult describes what the child has done.* (I see you’re all ready for school tomorrow. You finished your homework, sharpened your pencils, packed your books, and even made your lunch.)” Second, *the child, after hearing his accomplishment described, praises himself.* (I know to organize and plan ahead.)”

Maria looked distressed. “I don’t understand,” she said. “All I know is that the way I was raised wasn’t good. My mother and father believed that they shouldn’t say nice things about the children to their faces because they could get big heads. But I think children should get compliments. It helps them to be proud of themselves. I always tell Marco and Ana Ruth how good they are and how smart they are.”

Very gently Jane said, “So you wanted your children to have what you never did.”

Maria closed her eyes and nodded. “But maybe I overdo it. When I tell Marco how smart he is, he says, ‘Raphael is smarter.’ When I tell Ana Ruth what a great violinist she is, she says, ‘Mama, stop bragging about me.’”

“That’s the point I’ve been trying to make,” Jane said. “Children become very uncomfortable with praise that evaluates them. They push it away. Sometimes they’ll deliberately misbehave to prove you wrong.”

Maria stared at her. “Oh, my goodness,” she said. “Now I understand what happened in Mr. Peterson’s class when I was helping out yesterday.”

“What do you mean?” I asked.

“This boy, Brian, who drives everybody crazy, finally sat in his seat and finished his work. So I patted him on his back and told him he was a good boy. I thought that would encourage him to keep on behaving himself, but it didn’t. He crossed his eyes and let his tongue hang out of the side of his mouth and he fell out of his seat. I couldn’t understand it.”

I was confused. “And now you do?” I asked.

“Well, according to what Jane has been saying, he *had* to make nothing of my compliment. It made him too nervous. He couldn’t live up to it. He had to show me that he wasn’t really good.”

“But he was good,” I protested. “For the moment.”

“Then Maria could have described the moment,” Jane said.

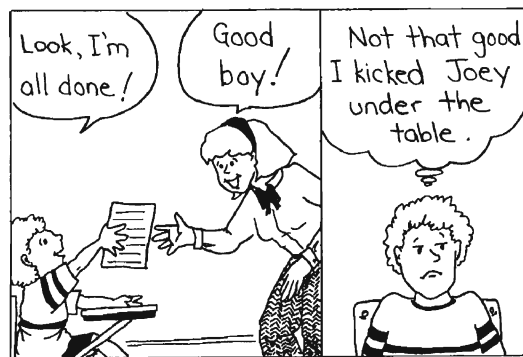
“Yes,” Maria agreed. “Maybe I should have told him...”

That was the beginning of what turned out to be a long, animated discussion among the three of us. Describing a child’s accomplishments, rather than evaluating them with an easy “good” or “great,” turned out to be harder than we thought—not because it was difficult to describe, but because we were so unaccustomed to doing it. However, once we got into the swing of looking carefully at a child’s achievement and putting into words what we saw or felt, we did it more and more easily and with ever-growing pleasure. Below you’ll see, in cartoon form, some of the examples we worked out showing how teachers can use descriptive praise.

As we studied the examples we had worked out, we had many additional thoughts to share with each other.

DESCRIPTIVE PRAISE IN THE CLASSROOM

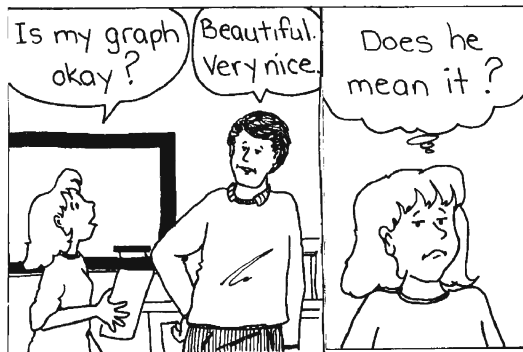
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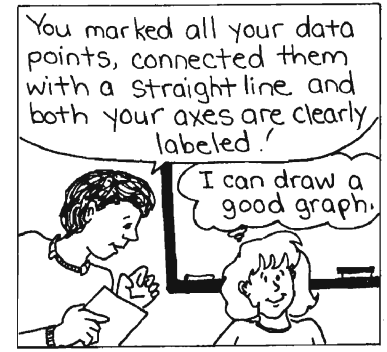
DESCRIBE



INSTEAD OF EVALUATING . . .



DESCRIBE



INSTEAD OF EVALUATING . . .



DESCRIBE



Me: Descriptive praise takes work, doesn't it? If you're going to tell a child what you see or feel, then you have to really look and pay attention. It's much easier to say "That's great" or "Fantastic" or "Terrific." You don't even need to think for that kind of praise.

Jane: It's true. Descriptive praise is harder and takes longer, but look at the payoff for the child.

Maria: I understand what you're saying, but if a child has always been criticized and has never heard any praise at all, wouldn't it be better for him to hear "You're a good boy" instead of nothing?

Jane: If a kid is starving, even cotton candy is better than nothing. But why settle for so little? We want to give our children the kind of emotional nourishment that will help them become independent, creative thinkers and doers. If we train them to constantly look to others for approval, what message are we sending them?

Me: You can't trust yourself. You need everybody else's opinion to tell you how you're doing.

Maria: That's not a good message, is it?

Jane: No, because we want our children to trust their own judgment, to have enough confidence to be able to say to themselves "I'm satisfied" or "I'm not satisfied with what I've done." And to make corrections or adjustments based upon their *own* evaluations.

That evening I found myself actually looking forward to reading and correcting the letters my students had written. The first one was a pleasant surprise. Instead of "Very good!" I wrote: "A pleasure to read. Clear topic sentences and lively examples of how Michael Jordan affected your life." The second paper didn't disappoint either. I wrote: "A thoughtful exploration of the problems of homeless people. My guess is the president will find your original proposal very interesting."

I swelled with pride at the high level of my students' writing and took full credit for having inspired it. (So much for you, Mr. Steele.) The next paper looked as if it were written by a second grader. It was Melissa's letter to Barbra Streisand and it barely filled half a page. I picked up my red pencil and wrote: "Poor work. No inside address. Where's the date? Misspelled words. Underdeveloped content."

I looked again at my big, red, angry comments and thought, "How could I do that to Melissa?" That's the kind of criticism Mr. Steele threw at me.... I was stopped in my tracks. It wasn't hard to praise what you liked, but how do you criticize what you don't like? How do you point out what's wrong without demoralizing the person you're criticizing? Was there any way that Mr. Steele could have expressed his displeasure to me without discouraging me completely?

I stared out the window. Maybe if he started by appreciating what I *had* accomplished—however little—I could have heard what bothered him without going to pieces. Maybe if he had said something like "Liz, you've achieved your goals. You motivated your students to learn how to write a letter. The one thing I see that still remains to be worked on is how to generate enthusiasm for your topic and still maintain order." If he had said that, I could have heard him. More than that. I would have given serious thought as to how to prevent the kids' excitement from getting out of hand in the future.

Maybe that was the key to helping children improve. *Instead of focusing on what's wrong, start by acknowledging what a child has accomplished. Then point out what still needs to be done.*

Okay, now what could I write on Melissa's paper? She hadn't accomplished anything. Or had she? I looked again and found it.

I took out my eraser and made a red blur on Melissa's paper. Then I carefully inked in my new comments. I wrote: "I like your line, 'You are my favorite of favorites.' I think Ms. Streisand will like it, too. I also think she would enjoy seeing an example of exactly what it is you admire about her. Please check your paper to make sure all underlined words are spelled correctly and that you've included the date and inside address. I look forward to reading your revised letter."

It seemed to me that I'd come upon an important principle. Yes, we can all, teachers and students and parents, benefit from having an outsider with an objective point of view tell us how we can do better. But before we can even consider making changes, we need to believe that there is more right with us than wrong and that we have the power to fix whatever is wrong. To help myself imagine how this theory would work in other situations, I thought of two examples that might occur—one in the home setting and one at school. They are illustrated on the page opposite.

Over the next few weeks I found myself thinking a great deal about praise and criticism. Mr. Steele's "constructive criticism" had left me hurting and discouraged. Maria's extravagant praise had left me feeling unconvinced and unworthy. But Jane's straightforward description of what I had tried to accomplish had put me together, restored my faith in myself, and given me the impetus to do even better next time.

What a simple yet amazing process! I suppose that what Jane did for me is what we all ought to do for one another as we work at meeting the challenges of our lives.

- Teachers need to be affirmed as they struggle to meet the needs of all their students.
- Parents need to be affirmed as they contend with the daily difficulties of raising their children.
- Children need to be affirmed as they try to understand their world and find their place in it.

In my perfect universe we would all be there for one another, holding up a mirror to one another's efforts and accomplishments so that we could all feel visible and valued.

QUESTIONS FROM TEACHERS

1. I have a girl in my class named Jessica who is outstanding. I'm torn between my urge to praise her enthusiastically all the time and my worry that the other kids will begin to resent her and see her as the teacher's pet. Any suggestions?

Trust your worry. You do Jessica no favor by constantly making public comments about how "outstanding" she is. It would be better for her and everyone else if you were to look for opportunities to show your appreciation for the entire class: "What teamwork! You all pitched in and did such a thorough cleanup, the custodian won't even suspect we did a science project today."

When you're especially pleased by something Jessica has done, you can describe it matter-of-factly: "I see how you managed to add up this long column of figures and get the right answer. It's because you were careful to put one number directly under the other." That's the kind of objective comment the other students can hear comfortably and possibly profit from. It

would be best to save your emotional response to Jessica for a more private moment. That's when you can tell her why and how much you enjoy having her in your class.

2. Are there any objections to pointing out to a student that she's the best writer in the class or that he scored the highest mark on the math final?

The problem with focusing on who is the "best" or "fastest" or "brightest" is twofold: The rest of the class can easily become discouraged. Some might stop trying altogether. And the star must now use all his energies not on his personal goals but on maintaining his stardom. Now his continued success rests upon the continued failure of his classmates. It would be much more helpful for your student to hear his accomplishments described without any reference to his peers. For example: "You portrayed your grandparents' farm in such detail that I could almost see it." Or, "Every answer on this paper is correct. You really understand decimal points." Statements like these help a student to measure himself

by his own standards rather than against his classmates' performance.

AT HOME

INSTEAD OF POINTING OUT WHAT'S WRONG . . .



DESCRIBE WHAT'S RIGHT AND WHAT STILL NEEDS TO BE DONE.



3. In my last school there was a heavy emphasis on having the children recite, "I am special." ... "I am lovable." ... "I am capable." The teachers were also encouraged to give out gold stars and stickers with smiley faces. Do you consider the above methods effective ways to build self-esteem?

You can't paste self-esteem on from the outside. The affirmations and stickers you describe may adhere momentarily, but they fall off easily when the evidence suggests to the child that he *isn't* so lovable or capable or special. On the other hand, words that describe what the child is doing, or has done, last forever and can be called on in time of need. For example, if a student is worried about writing a report on whales, telling himself "I am special" or looking at his collection of gold stars will do him little good. But if his recent report on redwood trees had a comment like "Full of interesting information. I learned things about these living giants that I had never known before," then the student might say to himself, "I did it before. I guess I can do it again."

IN SCHOOL

INSTEAD OF POINTING OUT WHAT HASN'T BEEN DONE . . .



DESCRIBE WHAT HAS BEEN DONE AND WHAT NEEDS TO BE DONE.



4. You suggest that a teacher be quick to acknowledge whatever effort a student makes. But suppose a child asks a question that shows total ignorance. At

one point don't you have to tell her she's wrong and give her the right answer?

Our role as educators is not to supply "right" answers but to help children arrive at answers through their own thinking process. You can start by respectfully asking a student what thoughts prompted her question and lead her to the next level of understanding with additional questions.

A special education teacher reported that she was reading a story to her class about a beekeeper when Charlene raised her hand and asked, "Do a bee be a bird?" The class was electrified by the question. Several children raised their hands and waved them eagerly.

The teacher said, "Wait a minute. Charlene, that's such an interesting question! What makes you think that a bee could be a bird?"

Very solemnly Charlene replied, "They both got wings."

"Is there anything else that's the same?"

"They fly."

"You noticed two things that were the same. Class, is there anything that makes birds different from bees?"

"Birds got feathers."

"Birds is bigger."

"Birds don't sting you."

Suddenly Charlene's face lit up. "I know, I know," she called out. "A bee bees an *incest!*"

All the heads nodded.

On the board the teacher wrote the children's conclusion: "A bee is an INSECT."

STORIES FROM TEACHERS

AN ELEMENTARY SCHOOL TEACHER REPORTED THAT her children responded best to praise and criticism when she used a fanciful description. The following excerpt from her letter illustrates her playful approach.

To the girl who swiftly finished her math test I said, "You went through all those examples like a mouse nibbling cheese."

To the boy whose composition was difficult to read because he ran one word into the next, I said, "Oh, dear, those poor words are squished together. They look very uncomfortable. But ahhh, look at these two words! They seem very happy. They've got lots of room between each other."

To the child who had difficulty getting his letters on the line, I said, "This *c* is floating in the air, but this one is sitting right on the line. ... Uh-oh, this *n* is sticking its feet through the floor and the plaster is falling in the neighbor's apartment."

To help all the children during a handwriting exercise, I suggested that they have a "beauty contest" and circle the most beautiful letter on their paper to be the winner. Some children felt they had two equally beautiful letters. In that case both letters were declared "co-winners."

* * *

A FIFTH-GRADE TEACHER REPORTED HOW SHE used descriptive praise when her students were *not* behaving.

The class was in an "I don't wanna, I'm not

gonna" mood. They had endured a solid week of bad weather and were restless. When we all returned to the room from another indoor recess, the kids continued to play and run around. This is not usually a time when praise is the first thing that comes to mind, but I scanned the class and saw two kids who had settled down and were sitting quietly.

I turned to the chalkboard and wrote their names under the words "Art Time." Then I said to my "model students," "You put your games away immediately when the bell rang. Now you're in your seats ready to see what's next. I appreciate that." The other kids looked at me and then at the two names on the board. A few of them quickly put away their games and hustled to their seats. I added their names to the list and said, "Thank you." Three more sat down.

It was wonderful. I didn't have to raise my voice or issue ultimatums. The kids saw what needed to be done and did it. For those slow to respond, the other students offered loud whispered reminders. But eventually they *all* settled down.

* * *

THIS FINAL STORY SHOWS HOW A GYM TEACHER IN A city high school managed to give positive feedback to a rebellious, hostile student without undermining the boy's position with his peers.

Carlos Hernandez did not like to be praised in public. He saw himself as a tough guy who didn't care about school or about what teachers thought. He was admired by the other kids for his defiant attitude. The only time he smiled was when he was being reprimanded for his behavior. Only then did he grin at his peers as if to say "I showed 'em."

During gym class, Albert, one of the less popular students, was having trouble making a basket. Some of the boys were telling him that he "shot like a girl" and others were starting to laugh. Carlos looked at the boys and shook his head.

Greg, the ringleader, said, "What? You like him or something?"

Carlos narrowed his eyes and said one word, "Chill."

They chilled. They didn't say another word. They just shot baskets.

When it was time for the class to head to the locker room, I yelled across the court in a gruff voice, "Hernandez, I want to see you." A few of the boys clustered around the locker room door waiting to see the outcome. I looked over my clipboard at Carlos while turning my back to the other boys. With a stern expression and a low voice I spoke to Carlos.

"Hernandez, I saw what you did for Albert. It takes a strong man to stick up for somebody when others are laughing. You're all right."

Carlos turned and ambled toward the locker room door. The boys who were waiting looked at Carlos's eyes to get a clue of what had happened. Carlos smiled. □□□



THE ROLE OF DECODING

(Continued from page 25)

commission that developed *Becoming a Nation of Readers* concluded that “isolating the sounds ... and teaching children to blend the sounds of letters together to try to identify words are useful instructional strategies” (p. 42). Thus, the prevailing conclusion seems to be that isolating sounds offers an advantage when it is done in moderation and when it includes good blending instruction.

Explicit phonics is helpful because it provides children with the real relationships between letters and sounds, or at least approximations of them. But knowledge of letter-sound relationships is of little value unless the child can use that knowledge to figure out words. Whether children have learned the sounds of letters through implicit or explicit phonics, figuring out a new word still requires that the sounds of the letters be merged or blended.

We will return to the topic of blending in considering instructional issues. First we address another major issue associated with phonics—the relationship between what children learn in phonics and the stories they read.

Phonics and Reading Materials

We begin this section by recalling that among the serious problems Diederich (1973) pointed to about the way phonics was presented in the past was that “children had to learn so much abstract material [i.e., letter-sound relationships] by rote before doing any significant amount of reading” (p. 7). This “abstractness” problem can be eliminated by recognizing that adequate instruction gives students opportunities to apply what they are learning. Children need a lot of early experience reading meaningful material that includes many words that exemplify the sound-spelling patterns being introduced.

Current beginning reading programs tend to fall into two groups: (1) those in which there is a strong relationship between the sound-spelling patterns children are learning in their phonics lessons and the words in the stories they read, and (2) those in which this relationship is weak. To illustrate the differences, *Becoming a Nation of Readers* presented excerpts from two representative programs. Both excerpts came from material that would be read some time in or near November of first grade, when both programs would have introduced about thirty letter-sound relationships. A twenty-six-word passage from the weak-relationship program contained seventeen different words, out of which “only three (or 17 percent) could be decoded entirely on the basis of letter-sound relationships that [had] been introduced in the program’s phonics lessons” (p. 45). In contrast, out of eighteen different words in the passage from the strong-relationship program, seventeen (or 94 percent) “could be decoded entirely on the basis of letter-sound relationships that students should know from the program’s phonics lessons” (p. 46).

This gap in the percentage of decodable words results from the word selection process for the stories of

each program. The first program selected high-frequency words that are likely to be in a young child’s vocabulary. Word choice was not constrained by the letter-sound relationships or letter patterns introduced in the program’s phonics lessons. In the second program, word choice was, to a large extent, constrained by the letter patterns introduced.

These two excerpts reflect the findings of Beck’s (1981) analysis of eight beginning reading programs. The analysis included all the material students would read in the first third of each program. The percentage of decodable words in the four programs that based word selection on the letter-sound relationships introduced in their phonics lessons was 100 percent, 93 percent, 79 percent, and 69 percent, respectively. In contrast, the percentage of decodable words in the programs that selected their words from high-frequency lists was 0 percent for two programs, 3 percent for the third, and 13 percent for the fourth.

Problems arise when the relationship between what children learn in phonics and the stories they read is either too low or too high. When too few of the words are decodable it is questionable whether what is taught in phonics is of any use. On the other hand, when all but one or two of the words in a selection are constrained by the letter sounds introduced, it is virtually impossible to write interesting selections in natural sounding language. This is, in part, a result of exclusion of such high-frequency but irregular words as *said*, *come*, *have*, and *you*. At its extreme, excluding such words and overemphasizing the last few letter sounds introduced results in sentences of the “Dan had a tan can” variety.

Is there an optimal relationship between the letter sounds children are learning in phonics and the words in their readers? Clearly, the answer is no. *Becoming a Nation of Readers* makes the point that establishing a rigid guideline is a poor idea: “What the field of reading does not need is another index that gets applied rigidly. What the field does need is an understanding of the concepts at work” (p. 47). The concept at work is that a “high proportion of the words in the earliest selections children read should conform to the phonics that they have already been taught.” However, “requiring that, say, 90 percent of the words ... conform to letter-sound relationships already introduced would destroy the flexibility needed to write interesting, meaningful stories” (p. 47).

The issues we have raised in the last two sections concern instructional strategies for teaching phonics and the relationship between what is learned in phonics and the selections children read. Having raised these issues in terms of existing instructional materials, let us turn to the teacher’s role.

What Teachers Can Do

It is well established that basal reading programs are the most widely used resources for teaching reading in the elementary school. Although program implementation undoubtedly varies with individual teachers, there is strong evidence that the program teachers use heavily influences their classroom teaching (Diederich, 1973). Hence, we will frame our discussion of what



teachers can do in relationship to the kinds of programs in use.

Since the most widely used reading programs employ implicit phonics, this seems to be the most prevalent approach. In implicit phonics, individual sounds are not produced in isolation. However, we would encourage teachers to make the individual sounds available. As teachers told Durkin (1984), who observed them producing sounds in isolation even though their manuals did not recommend it, "Children need to hear the sounds" (p. 740).

Although we recommend making individual sounds explicitly available, we caution against using them in isolation. Specifically, we recommend that teachers start with a word the children already know from oral language, extract the sound from that word, and then place it back into the word. For example, in preparation for learning the sound of the letter *d*, the teacher can draw students' attention to a word like *duck* from a recent story or use a line from a nursery rhyme, such as "diddle, diddle, dumpling." Then the teacher should explain that the first letter of these words, called a *d*, represents the /d/ sound.

This strategy not only overcomes the problem in implicit phonics of requiring children to extract a sound from a spoken word, but it also reduces a potential problem in explicit phonics—the difficulty of saying the sounds of some of the consonant letters in isolation. By starting with strong words, extracting the sound from those words, and placing the sound right back into words, teachers can avoid the pitfalls of explicit phonics approaches in which a string of isolated letter sounds is accumulated.

As noted earlier, an important issue associated with phonics is blending. *Becoming a Nation of Readers* makes two important points that can be applied to this topic. The first is that blending "is a difficult step for many children. Until a child gets over this hurdle, learning the sound of individual letters ... will have diminished value" (p. 39). The second point is that when children attempt to figure out a word by blending sounds, it is not necessary for them to produce a perfect pronunciation. Rather, they need to be able to "come up with approximate pronunciations—candidates that have to be checked to see whether they match words known from spoken language" (p. 38).

We have two suggestions for promoting children's blending ability. In one the teacher models decoding of unknown words by slowly blending their component letter sounds. A model of blending involves stretching out each component sound until it merges with the next sound and then collapsing the sounds together so the word can be heard more clearly. For example, the teacher could select a new word that will be encountered in an upcoming selection, let's say *met*, write it on the board, and demonstrate how one might go about sounding it out. She or he would note that the first letter, the *m*, represents the /m/ sound, like at the beginning of *mittens*. Next the teacher would produce /m/ and add the short *e*, first elongating the sounds, /mnee/, then collapsing them, /me/. Then the teacher would add the /t/, at first giving a slightly exaggerated, then a more natural, pronunciation of *met*.

It is not difficult to involve the children in practicing this strategy. For example, the teacher can write a word on the board and tell the children to think of the sound of the first letter and keep saying it until he or she points to the next letter, and keep saying the sound of the two letters until they add on the sound of the last letter.

Resnick and Beck (1976) note that an important feature of blending instruction is merging different sounds successively—that is, /m/, /me/, /met/. Teachers should avoid using sequences in which the merging does not occur until each sound has been produced, such as /m/, /e/, /t/, /met/. Among the reasons that successive blending is preferable is that it avoids the need to keep a string of isolated sounds in memory.

Blending instruction does not have to be tedious. Teachers can choose from a variety of active and fun possibilities. For example, the teacher might give large cardboard letters to some children and start a word by telling the child who has the card that says /m/ to stand up. Then the child whose card makes /m/ say /me/ can go up and stand next to the /m/ child, followed by the /t/ bearer, who can complete the word *met*. The teacher might then ask the child who can make *met* say *bet* to go up and change places with the /m/ child.

This last example brings us to the second instructional strategy that promotes blending. Here children are involved with many opportunities to make words and to experiment with and observe the results of a letter change. A traditional implementation of this strategy involves a variety of letter substitution techniques. For example, the teacher places a phonogram such as *an* on a flannel board and then puts various consonants in front of the pattern, having the children read the resulting words (e.g., *can*, *man*). Or the teacher places the letters *s*, *a*, *t* on a flannel board and after the children read *sat*, she or he changes the vowel so the word reads *sit*, then changes it again to read *set*. This technique can be extended so that children use their own letter cards (which they can make or get from the teacher) to create words by changing letters in all positions—for instance, *sat* to *sit* to *hit* to *hot* to *hop* to *mop* to *map*. By deleting, adding, or substituting letters, more complex sequences, such as *black* to *back* to *tack* to *tick* to *trick*, can be developed.

Building words in this fashion externalizes the blending process. It makes the process readily accessible to children by making it very concrete. Children physically handle the letter cards, attach sounds to them, and manipulate the cards to produce new words.

Now let us turn to instructional issues associated with the relationship between what children are learning in phonics and the words in the stories they read and consider what the teacher can do if the relationship is either too low or too high. First, if the selections do not use words that allow the children to practice what has been taught in phonics, the teacher will need to write or find materials that do.

One teacher developed a way to write stories that incorporated the sound spelling patterns introduced in the program she was using. Essentially, she made "little books" by revising some of the stories in the basal. She started with a selection and inserted new words whose letter-sound relationships had already been taught. She



found she was able to develop meaningful stories by adding and deleting various sentences, phrases, and words. Most often, her revised stories were longer than the original ones. Sometimes they were elaborated versions of the original stories, but frequently the deletion and addition of words allowed her to vary the plots of these stories.

The teacher reported that she enjoyed revising the selections, but found it very time consuming. Since all teachers cannot be expected to have the time or knack for making such little books, published materials are needed. Some published children's stories (such as Dr. Seuss's *The Cat in the Hat*, *Hop on Pop*, *Fox in Socks*, and *There's a Wocket in My Pocket*) can be used. If a book contains too many unknown words, the teacher could use it in a shared reading situation in which she reads some of the story to the children and the children read the parts (perhaps from a "Big Book") that contain the words with learned sound spelling patterns. Other sources of material that may be useful are nursery rhymes ("How now brown cow") and tongue twisters ("How many cans can a canner can..."). In addition, teachers can give children opportunities to write their own tongue twisters.

If the program being followed is too constrained in using only phonics-related words (the "Dan had a tan can" variety), the teacher needs to incorporate into the selections some high-frequency words that have lots of utility for future readings. The teacher also should include words of interest to the children and words that have appeared in the children's writings. So we might get "Dan had a big can full of tan monsters." Or the teacher can leave blanks in a story where the children can fill in words: "Dan had a ____ can full of _____. A ____ man took the can." Basically the teacher leaves blanks where adverbs, adjectives, and prepositional phrases could go. The children might copy and illustrate these stories, collecting them into storybooks that can be taken home and read to others. The teacher also can use these types of text in chart stories or Big Books.

Children's writing can be used to foster phonic skill. For this strategy to work, children must have the prerequisite understandings discussed earlier in the sec-

tion on phonemic awareness. Bissex (1980) gives an example of how a child who could analyze words into spoken sounds gained knowledge of the code through writing. Bissex's five-year-old son, Paul, advanced by asking his mother questions concerning letter-sound relationships as he wrote. For example, Paul asked what made the "ch" sound in *teach*, to which his mother responded "c-h" (p. 12). Or this dialogue:

Paul: What makes the "uh" sound?

Mother: In what word?

Paul: Mumps.

Mother: u (p. 13).

To ask such questions, Paul had to have rather sophisticated phonemic awareness (for instance, he could segment the /uh/ sound in *mumps*). Likewise, teachers of young children may be able to foster such interaction as they respond to their young students' questions about how to write the sounds in certain words.

Just as teachers model blending to decode unknown words, they can model how to sound and blend sounds into written words. For example, "If I wanted to write the word *met* in a story, I'd first say the word to myself very slowly, /mmeett/. Then I'd think of the letter that makes the /m/ sound at the beginning of *met* and write it [writing the letter *m* on the board]. Then I'd think of what letter needs to be added to make it say /mee/ [adding the letter *e*]. Then I'd think of what letter needs to be added to make it say *met* [adding the letter *t*]." The teacher can encourage children to sound out and write the words in their stories in a similar manner.

As teachers can help children induce the code by repeatedly answering the question "What's this word?" they also can help them by answering "What letter stands for this sound in this word?" With either reading or writing, successful induction of the code will depend both on whether the child has the prerequisite understandings (i.e., phonemic awareness) and whether someone is around to answer these questions frequently. The fortunate child who has both of these conditions in place can learn the code even more quickly by being directly informed about the alphabetic code (e.g., through explicit phonics). The child



who has little prerequisite knowledge about print and who lacks an informed partner in learning may need to *depend* on systematic and explicit phonics instruction. This child has fewer opportunities to induce the code through exposure to print and is thus more dependent on instruction to lay bare the alphabetic system.

The course of acquiring the code for a child like Paul, who at age five wrote above his workbench DO NAT DSTRB GNYS AT WRK (Bissex, 1980, p. 23), will be very different from that of the child who in the middle of first grade is spelling *rain* as *yes* or *wnisbire*. Paul already had a good understanding of the alphabetic system and knew a fair amount about the code prior to first grade. He would have learned to read in first grade no matter what the instruction. Many children are not as fortunate as Paul. They depend almost exclusively on the instruction they receive in school to learn to read and write.

We have discussed the extreme importance of learning the code in first grade because early decoding reliably predicts reading comprehension in subsequent grades. Failure to teach the code in the most straightforward manner (e.g., through good, explicit phonics instruction coupled with reasonably constrained texts) would leave many children without the key to unlock the printed message. Children without this key cannot independently enter the world of quality literature; some may learn to dislike reading entirely. Each day that goes by without the child being able to read a book like *Make Way for Ducklings* is a day in which the knowledge and joy that can come from such reading are lost.

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MISSING FOUNDATION

(Continued from page 9)

level teachers are typically undereducated for the very demanding task of teaching reading and spelling explicitly. It will document and give examples of common gaps in teachers' knowledge and awareness of language structure along with reasons those gaps may exist. Further, the importance of specific linguistic knowledge for instruction will be illustrated. Finally, the article argues that policy changes are needed to improve the preparation and performance of literacy educators.

The Nature of Reading and Spelling Disability

Most children who are classified as having learning disabilities in public schools in fact have reading disabilities (Kavale and Forness 1985). Estimates of the prevalence of reading problems in the population of those with learning disabilities range from 75 percent to 85 percent nationwide. Although many of those with reading disabilities demonstrate varying degrees of language deficits in semantic and syntactic processing, most people with reading problems demonstrate a core deficit in phonological processing (Bryant and Bradley 1983; DeFries et al. 1991; Ehri 1993; Felton and Wood 1989; Goswami and Bryant 1990; Liberman and Shankweiler 1985; Stanovich 1991; Tunmer and Nesdale 1985; Vellutino and Scanlon 1987). Although phonological processing encompasses a number of linguistic skills,¹ the most evident characteristic is a lack of phonological awareness: that is, lack of explicit awareness of the *sound structure* of words. Phonological awareness is measured by performance on a variety of tasks including phoneme counting (e.g., "How many sounds are in 'sheep'?"), phoneme identification (e.g., "What is the last sound in 'cab'?"), and phoneme deletion (e.g., "Say 'steak' without the /t./")

Twenty years of research has consistently demonstrated that many beginning readers, and nearly all reading-disabled children, have difficulty on phonological awareness tasks (Adams 1990). Two points need to be made. First, phonological awareness normally develops over a number of years, progressing from early rhyming abilities to explicit awareness of the individual phonemes (see Bowey and Francis 1991, for a full discussion). Second, while learning to read enhances awareness of the sound structure of words, phonological awareness is distinct from either phonics or the ability to read and spell. A young pre-reader with no letter knowledge may nonetheless be able to perform a

variety of listening activities such as rhyming, tapping out the number of syllables in a word, or listing words that begin with a certain sound. Indeed, inability to perform these tasks reveals a weak foundation for learning an alphabetic writing system. To be a skilled reader, one needs to appreciate that words are comprised of individual speech sounds that are more or less represented by letters. (In some instances, of course, single phonemes or speech sounds are spelled with more than one letter, as in *th/r/ough*; in other instances, a single phoneme such as long a is spelled in many different ways, e.g., *eight, they, ate, say, gain*.) Lacking the knowledge that letters or letter combinations correspond to speech sounds, the learner will find our writing system an enigma. Even as children begin to discover the sound-based nature of written words, and are able to identify the initial sound in the word, they typically find the remainder unanalyzable, as witnessed by the child who writes the single letter "b" for "butterfly."²

It is known, beyond doubt, that degree of awareness of the phonological structure of words is the best predictor of a child's subsequent reading success. At the same time, there have been promising developments in early intervention research. If a child is lacking in speech sound awareness, it can be taught directly as a precursor to and along with instruction in letter-sound relationships (e.g., Ball and Blachman 1991; Yopp 1992). These findings imply that kindergarten, early elementary, and remedial classes need to incorporate direct instruction in the structure of language in order to provide the foundation children need to become skilled readers and spellers (see Brady, Fowler, Stone and Winbury, for discussion of training methods).

A second area of limited structural awareness for the beginning or poor reader/speller is appreciation of the morphemic structure of words. Morphemes are the smallest meaningful units in words. They may be whole words (e.g., *foot, finger*) or parts of words (e.g., *un+teach+able; medic+al*). Awareness of the mor-

¹Deficits in the ability to process and produce language at the level of phonology may be manifest on a variety of linguistic tasks, including word pronunciation (Catts 1989), word memory and retrieval (Wolf, Bally and Morris 1986), short-term memory for lists of words and numbers (Brady 1986), and reading nonsense words (Rack, Snowling and Olsen 1992).

²Spelling errors in general often reveal a student's limitations in phoneme awareness and phoneme identification. See Goswami 1992; Lindamood 1993; Moats, in press; and Treiman 1993 for discussions of the relationship between phonological awareness and spelling.





phemes in words facilitates both reading and spelling, and not only for the advanced reader. For example, beginning writers often spell plurals and past tense forms as they sound (e.g., *dogz*, *wakt*), before they have grasped the plural concept represented by the consistent spelling “s,” or the past tense concept represented by the consistent spelling “ed.” Further, to progress to more advanced stages of reading and spelling, the learner must become aware that the spelling of meaningful word parts often stays constant even when pronunciation changes from one word form to another, as in *compete* and *competition*, *resign* and *resignation*, *define* and *definition* (Henry 1993; Moats and Smith 1992).

A related key finding in reading research is the importance of code-emphasis instruction for students who do not automatically learn to read and spell. It is beyond the scope of this paper to review the methods debate, but two points are important: inclusion of code-based instruction does not preclude well-designed instruction in comprehension, and code-based instruction is not necessarily the “phonics” of old that was largely workbook oriented. When it is skillfully implemented, systematic code instruction is most effective for beginning and for problem readers (e.g., see Adams and Bruck 1993; Chall 1989; Liberman and Liberman 1990; and Mather 1992 for thoughtful, comprehensive reviews of the evidence). Effective instruction for beginning and for problem readers teaches them to be aware of speech sounds (phonemes) and how they are represented in the writing system (i.e., spelling-sound rules, syllable patterns) and of the meaningful units (morphemes) and their spelling patterns (Felton 1993; Juel 1988; Tunmer and Hoover 1993; Treiman and Baron 1983; Vellutino 1991b; Williams 1987). In fact, the research community is now focused on establishing a scientific base for refinements of code-emphasis intervention, including the most desirable unit of instruction (Adams 1990; Ehri and Robbins 1992; Gaskins et al. 1988; Goswami and Bryant 1990; Treiman 1992), the degree to which instruction should be systematic rather than incidental (Tunmer and Hoover 1993), and the timing and emphasis of such instruction in the curriculum (Calfée 1991).

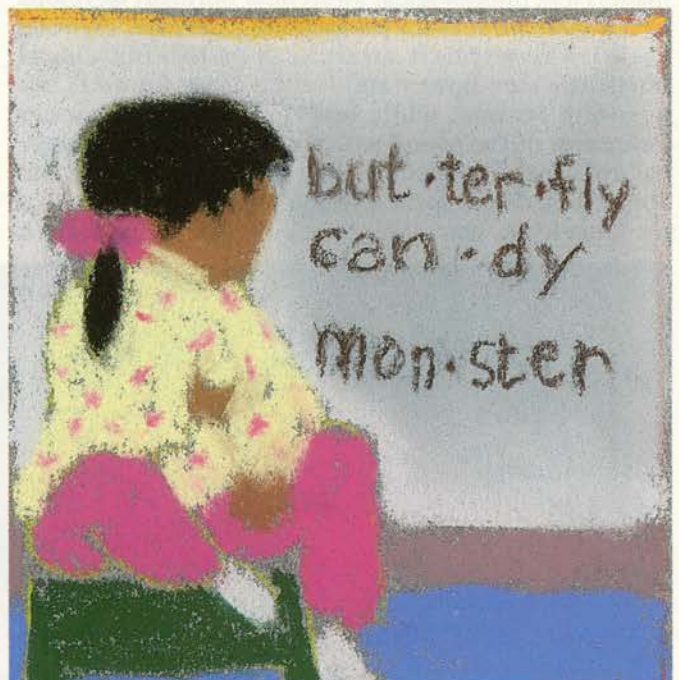
Certainly, knowledge of the structure of language and the alphabetic writing system that represents it is not all that teachers must know in order to teach reading well. Nevertheless, given the evidence cited above, it is imperative that teachers have such knowledge to be successful with a range of learners. As will be elaborated in the discussion, the informed teacher will be able to present linguistic concepts accurately and with appropriate examples and will be able to assess and interpret a student’s stage of reading and spelling development based on direct observation of his or her performance.

In summary, practitioners now have a solid research foundation on which to base their instructional practices (Adams 1990). Better readers, who generally can be predicted to have good phonemic awareness, may need less explicit and intensive teaching to process spoken and written linguistic units, as they are often able to grasp structural relationships between written

phonograms and words with exposure to just a few examples. Yet even these students may benefit from such instruction, showing more rapid progress and better spelling skills. On the other hand, it is now quite clear that poorer readers, depending on the severity of their lack of phonemic awareness, need remediation of this handicap and benefit from intensive, systematic exposure to examples and explicit teaching of linguistic concepts. Even if there are several paths to the same goal, teachers of those with reading/spelling difficulties must themselves have command of word parts, spoken and written, to be able to illustrate and interpret them for children. Unambiguous presentation of information requires detailed familiarity with phonemegrapheme correspondences and other units of word structure. Are we currently requiring teachers to have such a command of their language? Both indirect and direct evidence regarding teacher training suggests that we are not.

Do We Prepare Teachers for Explicit Reading and Spelling Instruction?

General Gaps in Teacher Education. The general insufficiency of teacher training in the area of reading and learning disabilities has been discussed in other sources. Nolen, McCutchen, and Berninger (1990), for example, concluded after surveying general teacher preparation in reading and writing instruction that program requirements and state certification standards must be upgraded nationwide. Teachers could not, in their estimation, be prepared to meet the diverse needs of students who are at risk for reading/writing failure on the basis of current, minimal requirements in teacher education. Lyon, Vaasen, and Toomey (1989), after surveying both regular and special education teachers’ perceptions of their own training, argued more specifically that many training programs were inadequate. They found that both regular and special education teachers were lacking content expertise, knowledge of validated pedagogical principles, and supervised experience with diverse learners. Lyon et al. also



characterized the teaching of reading and other basic academic skills as a job for an expert, a process that should involve deliberate selection of instructional content and strategies. To reach a satisfactory level of content knowledge and procedural expertise, teachers deserve intensive theoretical and practical training that needs to include demonstration and supervised practice.

Without adequate training, teachers' sense of efficacy in their jobs is most certainly diminished. Students are usually referred to special education when teachers feel they can not bring about desired outcomes with students (Soodak and Podell 1993; Zigmond 1993). Turnover in teaching is high; about 50 percent of teachers leave their jobs within five years. Commitment and longevity is greater, however, in those whose self-efficacy ratings are strong (Billingsley 1993). Many factors contribute to the erosion of efficacy, but the mismatch between teacher preparation and the expertise demanded by hard-to-teach children may be a significant contributor to this high rate of turnover.

A recent survey of several hundred learning specialists in one midwestern state suggests the gaps that may exist between the content knowledge held by learning specialists and the language knowledge needed for teaching reading and writing (Kavale and Reese 1991). Although 73 percent acknowledged that reading was the basic problem in most students categorized as LD, only 22 percent attributed the core deficit to linguistic processing. Endorsements of vague terms for the underlying nature of reading/learning disability included problems with "information processing," "memory," "attention," and "faulty learning strategies." Further, teachers surveyed believed we should teach to strengths, not deficits, and that teachers should enhance learning strategies. A specific orientation toward language-based remediation for children with language-based deficits was not endorsed.

As one might expect, the beliefs and practices of professors and other experts seem to reflect teachers' beliefs. Reynolds, Wang, and Walberg (1992) surveyed a broad field of more than 100 "experts" in learning disabilities, including university faculty, to determine by consensus the requisite knowledge and skills that should distinguish teachers of children with learning handicaps. The most important aspects of remedial teaching valued by the experts consulted included such procedural basics as time on task, time spent in direct instruction on basic academic skills, provision of direct feedback, appropriate error correction, monitoring of task difficulty, and individualization. Although these principles of instruction are certainly important, mastery of structural language elements (phonemes, syllables, morphemes), the way they are represented in print, and how children learn them, were not designated as critical for teacher competence. It is thus easy to see why teachers may obtain certification without acquiring knowledge of the language content and processes critical to reading and spelling acquisition.

Encouraging this lack of content specificity are the non-categorical certification practices of more than half the states in the U.S. Teachers take three-hour courses such as "Teaching Students with Learning Problems" rather than specific and more extensive courses

on the remediation of reading disability (Cranston-Gringas and Mauser 1992). Admittedly, categorical training programs giving certificates in learning disabilities and other handicaps have not been shown to benefit children with handicapping conditions more than non-categorical preparation (Marston 1987); however, their content may be no more specific than that of the general certification programs. Certificate programs in learning disabilities usually do not require teachers to be experts in the way print corresponds to speech. At present, motivated teachers are often left to obtain specific skills in teaching phonology, phonetics, orthography, and other language skills on their own by seeking out workshops or specialized instructional manuals.

Professional organizations such as the International Reading Association (International Reading Association 1978) and the Division for Learning Disabilities of the Council for Exceptional Children have issued competency lists for teachers of children with reading/spelling difficulty to guide professional preparation, but these seem to contribute to the diffusion of teacher education. These lists usually include, among many other skills, a few competencies in understanding language development and language disorders, but not its specific relationships to reading, spelling, and writing. Typically there is no designated level of competence in knowledge of the oral and written language itself. Further, the lists of competencies are so extensive as to discourage intensive focus and study in depth (Anderson et al. 1985). The level of language knowledge necessary for teaching a person with language processing difficulties, however, exceeds what can be learned from casual or cursory training.

The limited phonemic awareness of teachers, their gaps in basic linguistic knowledge, and the difficulty with which the requisite information about language is gained have become apparent to this author through a series of teacher training experiences. Contrary to expectation, teachers do not display fully explicit awareness of spoken language structure and its relationship to writing just because they themselves are literate. Further, it has become clear that gaining the requisite information about linguistic structure takes time and effort. In fact, learning to appreciate and articulate the structure of spoken and written language challenges many adults despite (and perhaps because of) their own reading skill. Evidence for these conclusions was obtained from a survey given at the outset of a number of classes for teachers. The results of the survey presented here shed light on which aspects of spoken and written language structure are often not well understood by teachers.

Teachers' Knowledge of Linguistic Concepts

Survey of Background Knowledge of Language

The information about teachers' background knowledge of language was obtained from a survey given to teachers at the first meeting of a course entitled Reading, Spelling, and Phonology. The data presented here was collected in six sections of this class. The survey was designed to assess the knowledge teachers have of speech sounds, their identity in words, correspondence between sounds and symbols, concepts of language,



and presence of morphemic units in words. The survey assessed the specificity and depth of teachers' knowledge, in order to reveal misconceptions or unfocused concepts as well as outright absence of information. Teachers were asked to define terms, locate or give examples of phonic, syllabic, and morphemic units, and analyze words into speech sounds, syllables, and morphemes. The course the teachers were entering was designed to teach this material and by the conclusion of the class, most students had mastered it at a satisfactory level. The test is presented in Table I:

Table I
Informal Survey of Linguistic Knowledge

(Answers are given in italics.)

1. From the list below, find an example of each of the following:

inflected verb _____	<i>impeached</i>
compound noun _____	<i>scarecrow</i>
bound root _____	<i>phonograph</i>
derivational suffix _____	<i>nameless</i>
scarecrow nameless terrible phonograph	
impeached tables weakly	

2. For each word on the left, determine the number of syllables and the number of morphemes:

	Syllables	Morphemes
salamander	4	1
crocodile	3	1
attached	2	3
unbelievable	5	3
finger	2	1
pies	1	2
gardener	3	2
psychometrics	4	3

3. How many speech sounds are in the following words?

ox	3
boil	3
king	3
thank	4
straight	5
shout	3
though	2
precious	6

4. What is the third speech sound in each of the following words?

boyfriend	/f/	prayer	/e/
thankyou	/ŋ/	higher	/r/ or /y/
squabble	/w/	chalk	/k/
educate	/y/ or /yu/	witchcraft	/ç/
stood	/ʊ/	badger	/j/

5. Underline the schwa vowels:

about melody sofa effect difficult definition

6. Underline the consonant blends:

doubt known first pumpkin squawk scratch

7. Underline the consonant digraphs:

wholesale psychic doubt wrap daughter think

8. When is a "ck" used in spelling?

(immediately after a short, stressed vowel)

9. What letters signal that a "g" is pronounced /j/? (e, i, y)

10. List all the ways you can think of to spell "long a":

(a; ai; a-e; ey; ay; eigb)

11. List all the ways you can think of to spell /k/: (c, k, ck, ch)

Note: qu and x also correspond to [kw] & [ks]

12. What are six common syllable types in English?

(open, closed, r-controlled, vowel team, silent-e, consonant-le)

13. When adding a suffix to a word ending with "y," what is the rule?

(When a root word ends in a y preceded by a consonant, change y to i when adding a suffix except -ing. If the root

word ends in a y preceded by a vowel, just add the suffix.)

14. How can you recognize a word of Greek origin?

(presence of y for [j] as in gym; ch for [k] as in chorus; ph for [f] as in sphere; or a Greek combining form such as psych+ology)

15. Account for the double "m" in comment or commitment:

(The first m closes the syllable to make it short; com is a Latin morpheme as are ment and mit.)

Subjects

The teachers surveyed ($n = 89$) were a diverse group, educated at a variety of colleges and graduate schools and very experienced in classroom teaching. They included—in approximately equal distribution—reading teachers, classroom teachers, special education teachers, speech-language pathologists, classroom teaching assistants, and graduate students. The average length of time in teaching was five years, with a range of 0 to twenty years of experience. Subjects reported that they were, or were going to be, responsible for teaching language, writing, and/or reading to students from kindergarten to adulthood.

The teachers were also self-selected for participation in the class. The course was not required for certification or for any degree offered by the graduate education department at the college, so that most students enrolled out of interest in the topic and recognition of their own knowledge gaps. As a group, these students' written language skills were above average, judging from the quality of their written examinations and papers. They were among the more motivated and informed of professionals, and the results of the survey may therefore be overly optimistic as a reflection of teachers' knowledge in general.

Survey Results

The first survey of preexisting knowledge was given to fifty-two individuals, and a somewhat refined survey was given subsequently to another thirty-seven subjects. The test revealed insufficiently developed concepts about language and pervasive conceptual weaknesses in the very skills that are needed for direct, language-focused reading instruction, such as the ability to count phonemes and to identify phonic relationships (Table II).

Terminology. Descriptive terminology about morphology, such as *inflection* and *derivation* was foreign, as was the distinction between a *compound* and an *affixed* word form. Teachers were unaware of the difference between *phonetics*, *phonology*, and *phonics*, and although they had heard of *phonological awareness*, they themselves were typically unsure of the identity or number of component phonemes in words. Many subjects were unsure of what was meant by the term *speech sound or phoneme*, as they believed that letters were equivalent to speech sounds. (Refer to Table I for correct answers to these and subsequent questions.)

Phonic Knowledge. Knowledge of phonics was surprisingly weak. Typically, about 10 percent to 20 percent of all subjects tested could consistently identify consonant blends in written words. Although they knew, for example that *str* was a blend, many also thought the *tch* in *stretch* and the *bt* in *doubt* were blends, because the concept of a blend as a representation of a spoken consonant cluster was not differenti-

ated from the occurrence of consonant letters adjacent in spelling. Almost no one in any group could reliably identify a consonant digraph. Less than half of those tested could identify the reduced vowel *schwa* consistently. Only 30 percent could explain when *ck* was used in spelling.

Table II
Percent of teachers who were successful on informal survey of linguistic knowledge ($n = 52$)

Identified an inflection and inflected word form:	21%
Identified the number of morphemes in a word:	27%
Consistently identified consonant blends:	10%
Consistently identified consonant digraphs:	0%
Counted the number of phonemes in the following words:	
ox (3)	25%
straight (5)	39%
king (3)	43%
precious (6)	25%
thank (4)	39%
Identified the number of syllables in <i>talked</i> :	77%
Identified <i>schwa</i> vowels in written words:	45%
Explained when <i>ck</i> was used:	30%
Explained the "y to i" rule:	30%
Knew six syllable types:	15%
Explained Greek spellings:	10%
Explained spelling of double m:	20%

Phoneme and Morpheme Awareness. At the level of morpheme structure, only 27 percent of subjects were able to identify the component morphemes of transparent words. Many teachers remarked they had never been asked to analyze words at this level. Words with an indirect relationship between spelling and speech sounds were particularly difficult on the phoneme counting and phoneme identification tasks. Only 25 percent of this group knew that the word "ox" is comprised of three speech sounds, although it has only two letters (*x* corresponds to /k/ + /s/). On a revised form of the pretest given to another thirty-seven subjects, additional examples of the confusion between speech sounds and symbols were elicited by words whose spellings do not correspond directly to their speech sound constituents (Table III).

When teachers were asked to isolate and pronounce specific speech sounds, they were typically unable to recognize the nasal /ŋ/ (the final sound in *sing*), the glides /w/ and /y/ when the spellings of words obscured their presence.

Table III
Percent of correct responses of second group ($n = 37$) of teacher/students to specific phoneme identification items

Identified the third speech sound in:	
thank (/ŋ/)	10
educate (/y/ or /yu/)	15
squabble (/w/)	20
higher (/y/ or /ɪ/)	35
prayer (/e/)	40
stood (/ʊ/)	45
witchcraft (/k/)	55
badger (/j/)	60
chalk (/k/)	65
boyfriend (/f/)	70

While the survey speaks for itself with regard to the linguistic misinformation held by many teachers, other misconceptions came to light in the course of class time and study. Among the more common were the belief that the letters "ng" represent an amalgam of /n/ and /g/; the belief that the letter *x* corresponds to /z/; the belief that silent letters such as those in *balk*, *clam*, and *comb* should be pronounced; the belief that digraphs such as *th* represent a melding of two consonant phonemes (/t/ + /h/) rather than a unique phoneme; and the belief that a doubled consonant such as the *t*'s in *little* represent two distinct speech sounds. With regard to spelling rules and conventions, ignorance was the norm. For example, few teachers could answer the final question in Table I concerning why we double the *t* in *committed* but do not double it in *commitment*.

Discussion of Survey Results

The results of this survey indicate that teachers who are literate and experienced generally have an insufficient grasp of spoken and written language structure and would be unable to teach it explicitly to either beginning readers or those with reading/spelling disabilities. Teachers commonly are misinformed about the differences between speech and print and about how print represents speech. Before elaborating on the importance of this knowledge for instruction, we should ask, why do such wide gaps in teachers' background knowledge exist?

The absence of previous coursework, although an obvious explanation, does not fully explain this phenomenon. First, there is evidence (Lindamood 1993) that complete and explicit awareness of phonemes in syllables is an underdeveloped metalinguistic skill in many people although they have learned to read. Lindamood also reported that those individuals who have trouble comparing the speech sounds in words tend to be those who are below average on tests of spelling ability. Thus, many average adults may have acquired linguistic awareness sufficient for basic reading though not sufficient to teach reading and spelling elements explicitly to children. Lindamood, and others, suggest that phonological analysis skill may be distributed normally, like many other language abilities. This variation, presumed to be intrinsic, appears to be relatively independent of intelligence.

In addition, many adults, even experienced teachers of reading and writing, conceptualize words in their written rather than their spoken form unless they are taught to pay attention specifically to speech sound structure. For example, when asked to count speech sounds in known words, they will count letters rather than phonemes (e.g., *yellow* will be viewed as having six speech sounds). Explicit phonemic awareness in many adults may even be limited *because* of their knowledge of print. Children who are first learning the alphabetic principle show in their creative spellings the capacity to analyze words phonetically (e.g., they will spell *dragon* as JRAGN and *use* as YUZ) (Treiman 1993). However, as they become familiar with print and as decoding becomes more automatic, children begin to judge what sounds are in words by their letters. Ehri



(1984) showed that fourth graders are beginning to store words in their lexicons (mental dictionaries) as orthographic or written images. Once they could read, Ehri's elementary school subjects believed there is an extra /t/ in *ditch* that is not present in *rich*, although only the initial consonants differ in these words. The adults surveyed in this study made similar judgment errors. They needed formal instruction and many examples to think beyond print while analyzing speech. Time and practice were needed to grasp concepts such as the identity of speech sounds, the nature of sound-symbol correspondence, the existence of minimally contrasting pairs of words in English (*rich-ridge*), historical changes in English spelling and pronunciation, and the organization of the English spelling system.

Why Is This Knowledge Important?

Many teachers are charged with teaching children who have not been able to learn the written language as easily as they did, and whose primary disability in many cases resides in the realm of phonological processing and sensitivity to language structure. The teachers' content knowledge is critical to successful instruction because they can then choose what to teach, when, how, and to whom. Some advantages of a good knowledge base include:

1. *Being Able To Interpret and Respond to Student Errors.* The error patterns of reading disabled and normal students reveal their awareness of spoken word structure and knowledge of the spelling system (Moats in press; Read 1986; Treiman 1993). For example, if a student repeatedly misspells consonant blends (DES/dress; SIK/silk), it is likely that the student is not consciously aware of the speech sounds that comprise the blends. A student who habitually substitutes voiced for voiceless consonants and vice versa (MAB/map; DRAK/drag) may not have attended to consonant voicing as a distinguishing feature of these consonants. Reading and spelling problems can be very specific to certain phonological and morphological word features (Moats 1993) and often respond best to instruction that addresses the source of a student's confusion.

2. *Being Able To Pick the Best Examples for Teaching Decoding and Spelling.* Concepts must be presented as clearly as possible for all children and especially for children with learning difficulties or disabilities. For example, "short e" and "short i" are the most difficult vowel associations for many students to learn (Ehri, Wilce, and Taylor 1987); they are very close in place of articulation, there are only subtle articulatory cues to differentiate them, and the letter name "e" is articulated in the same place as the "short i" phoneme. Many learners cannot detect the differences or remember the symbols. An informed teacher can use the feel and look of the mouth, in addition to words chosen as examples, to teach these distinctions. In addition, certain key words will be better than others. Purer forms of the "short e" and "short i" vowels occur in words such as *Eddy* and *itchy*. In contrast, "short" vowels are distorted in pronunciation before the back consonants /k/ and /g/; the /e/ in *egg* is close to a "long a" in articulation, and the /i/ in *igloo* is close to a "long e." Thus

words such as *egg* and *igloo* would be poor key words and should not be used as examples until students are secure with the sound-symbol relations in words with a more obvious correspondence.

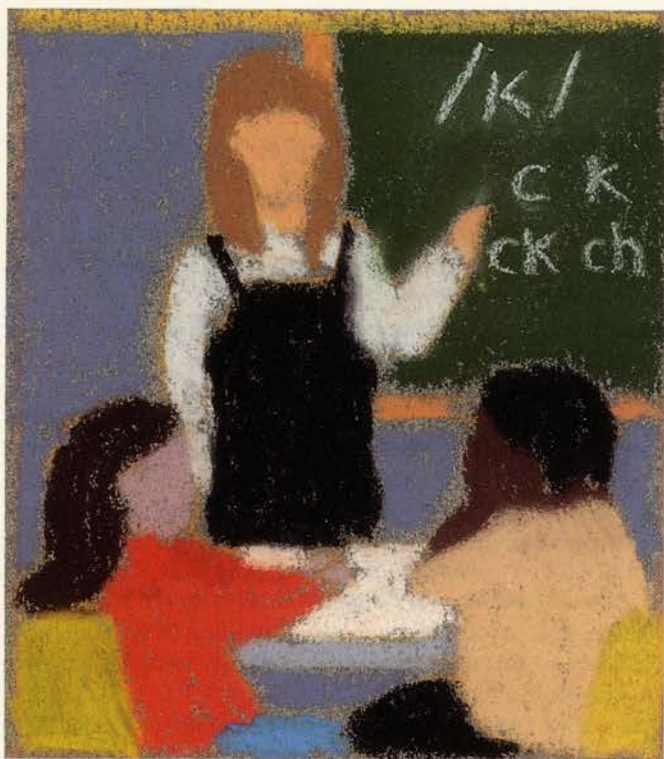
3. *Being Able To Organize and Sequence Information for Instruction.* The informed teacher is able to impose an order or system into linguistic information by classifying it and grouping it for instruction. For example, syllable patterns can be grouped into six types: closed, open, r-controlled vowel, silent-e vowel, vowel team, and consonant-le (Stoner 1985). The first two are easier to learn than the vowel team and r-controlled syllables, which should be taught later.

4. *Being Able To Use Knowledge of Morphology to Explain Spelling.* Teachers who are aware of the meaningful parts in words can teach students the reasons many words are spelled as they are. *Accumulate* has two c's because it is composed of a Latin prefix (*ad*, which has become *ac* to fit the root beginning with *c*) and a root (*cumulare*). The word *acute*, in contrast, is one morpheme and there would be no reason to double the *c*. In other instances, knowing how a root word is spelled will help students remember derivations that are pronounced differently, such as *magic* and *magician*, *differ* and *different*, *anxious* and *anxiety*.

5. *Being Able To Integrate the Components of Language Arts Instruction.* The informed teacher can apply the principles of systematic, explicit instruction to the teaching of reading and spelling, and can do so flexibly. Instruction needs to be balanced and complete: while students are learning the code they also profit from learning to comprehend and compose (Adams 1990). With proper training, the teacher can integrate word study with meaningful reading and writing of text. Lincoln's Gettysburg Address, for example, is a goldmine for study of word derivation (*dedicate-dedication*; *consecrate-consecration*). Creative use of worthwhile texts lessens dependence on isolated instructional units, but is possible only when the teacher knows enough about language to exploit teaching opportunities.

Evaluations by Teachers

Acquiring the requisite content knowledge is a time-consuming, challenging process for a teacher candidate. The teachers who completed a semester of graduate study in lower level language processes and in how to teach them rated the content as "difficult" in comparison to other graduate education courses. Explicit and detailed knowledge of language organization was not learned simply through experience with speaking and with print; just as with children, teachers acquired it through study and practice. Some needed rather extensive work to develop phonemic awareness, as Lindamood (1993) predicts, and about 10 percent were not able to acquire that skill through a graduate course. Nevertheless, the teachers who completed the course were emphatic in their endorsement of the usefulness of the information in their teaching. Eighty-five to 93 percent of each class agreed that the information would be either highly useful or essential in their teaching, regardless of their specialty. Many commented that they should have learned the content be-



fore they started to teach, and 91 percent reported that such a course should be required for all teachers who are charged with teaching reading, writing, or language. How they would apply linguistic knowledge varied according to teachers' roles and philosophies of intervention, but they typically thought the knowledge would be useful in allowing them to interpret student errors, select examples wisely, explain sound-spelling relationships accurately, and logically organize instruction.

Recommendations for Teacher Education

In conclusion, several changes are recommended for the preparation of teachers responsible for teaching reading, especially if they will be teaching low-readiness or at-risk children or those with language-based learning difficulties.

To begin, our competency lists and licensing practices should state clearly that licensed teachers must themselves demonstrate phonemic awareness, have a working knowledge of the speech sound system, and know how our orthography represents spoken English. Moreover, the opportunity to learn this information in depth, through study of basic linguistics and application of the concepts in clinical teaching practice, must be part of every teacher training program in literacy education. Activities that promote such learning include discovering and classifying the speech sounds of the language, performing phonetic transcriptions, analyzing spelling errors, and completing phonemic awareness exercises.³ The concept of the morpheme and the principles by which words are constructed from meaningful units can be explored by dividing words, identi-

fying derivational relationships, and studying word origin in English. Based on prior teaching experience, it seems that at least six weeks of study and practice must be devoted to these levels of language, using a linguistics text (e.g., Fromkin and Rodman 1993) and other material, before most teachers are secure with them. Even then, a few teachers and teacher-candidates will continue to show significant deficits in phonemic awareness that may severely limit their effectiveness. If possible, these individuals should be identified with reliable measures of phonological processing prior to their enrollment in a course of study, and the individuals counseled regarding the implications of their difficulty.

When language concepts are firmly entrenched, teachers are then ready to study English spelling and the manner in which it represents speech. The specific content of "phonics" should be learned (Hull 1985) but extended to include understanding of sound-symbol correspondences for both spelling and reading, syllable patterns and syllabication, and the effect of word meaning and word origin on spelling. This knowledge can then be applied to discovering error patterns in the work of students, designing lesson plans, critiquing published materials, and creating diagnostic instruments.

This type of course would be distinct in format and content from traditional introductory language courses taught in departments of communication science or speech-language pathology. Teachers would typically not find the emphasis on oral-written language relationships needed for reading/writing instruction in courses designed to train speech-language pathologists. The speech-language pathologist must be trained in specialty areas such as voice, articulation, and audiological problems, but the literacy educator must be an expert in reading and writing acquisition. Although the professional territory of both disciplines includes language knowledge, and some content would be common to the introductory training of both, the literacy educator needs coursework focused on literacy development. Nevertheless, a common understanding of language elements should enable greater interdisciplinary sharing to occur in the workplace.

Coursework encompassing lower level language organization (i.e., phonetics, phonology, morphology, sound-symbol correspondence) and how it is learned by beginning readers requires at least one semester; two would be preferable. It takes time for teachers to acquire knowledge of word structure and to adjust their views about the relationships between speech and print, even if they have the prerequisite linguistic analysis skills to do so. Other courses, of course, are needed to address topics in higher level language processing, including reading comprehension, written expression, and study strategies.

Summary

Unfortunately, state certification practices, preservice teacher training, and the social contexts of schools do not adequately prepare reading and writing teachers for the demands of classroom practice. More specifically, neither undergraduate nor graduate training of

³Other concepts of speech production that have not been discussed here also need to be taught, such as coarticulation, articulatory salience; and the effect of prosody on the production of speech sounds. These concepts provide a framework for understanding why certain speech sounds are difficult to isolate, identify, and represent in spelling.



teachers typically requires the command of language structure necessary to teach reading and spelling well. Consequently, teachers are inadequately prepared to teach emergent literacy, reading, and spelling to beginning readers and those encountering reading failure. The reasons for teachers' insufficient knowledge include the difficulty of the subject matter, the time required to learn it, the absence of specific standards for training, and the failure of teacher education programs to offer or require the appropriate course work. Furthermore, speech sound awareness and understanding of orthography are elusive even for many literate persons, who may have intrinsic limitations in their linguistic sensitivity. In addition, many adults' concepts of language structure are so grounded in print that detailed awareness of speech is difficult to reactivate. This knowledge, once acquired, however, can lead to better understanding of student errors, and to the ability to give corrective feedback, choose good examples, and create theoretically sound lesson plans.

Until we recognize that teachers do not naturally acquire the kind of expertise in language structure that is required of them for remediating and preventing reading problems, we will neglect to provide the necessary training. Teachers will continue to teach without understanding the alphabetic orthography and how it represents speech, will continue to give students misinformation, and will be unable to clarify concepts or to organize language instruction beneficially. Lower level language mastery is as essential for the literacy teacher as anatomy is for the physician. It is our obligation to enable teachers to acquire it.

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LETTERS

(Continued from page 2)

these important issues. Implementing these effective programs with fidelity across the country is our current challenge. Unfairly attacking them, diluting them or terminating them is a retreat.

—DOUGLAS KIRBY
DIRECTOR OF RESEARCH
ETR ASSOCIATES
SANTA CRUZ, CA

Barbara Dafoe Whitehead responds:

As Douglas Kirby knows from our several exchanges in other publications, my criticism was not aimed at all sex education programs but at comprehensive sex education, the approach advocated by former Surgeon General Joycelyn Elders and a host of health, school, and sex education advocacy organizations. More specifically, my article criticized early grade comprehensive sex education programs, which are among the most controversial and least well evaluated of all sex education programs. As Kirby indicates, the defining characteristics of effective sex education are *not* the defining characteristics of comprehensive sex education. Moreover, as he acknowledges, the most appropriate message for younger teens is "Wait until you are older to have sexual intercourse." This message is very different from the message of comprehensive sex education, which encourages teenagers to explore and enjoy sex while minimizing its "risks" through a combination of noncoital and contraceptive practices.

Moreover, Kirby is wrong when he says that I fail to cite sex education programs that work. I discuss two: Postponing Sexual Involvement, a program for young teenagers; and Reducing the Risk, a curriculum for older teens. I'm surprised the latter escaped Kirby's notice since it is marketed by his employer, ETR Associates, a leading publisher of sex education curricula.

Finally, though much of the summary evidence Kirby presents in his letter is informative, it fails to address the main point of my piece: namely, that sexual activity is increasing among younger teens and

that once they become sexually active, younger teens are unlikely to use contraception regularly, no matter what they're taught in school. Moreover, recent studies show an alarming high incidence of teen pregnancies where the fathers are post-high school males who are beyond the reach of school-based sex education. For example, studies from Massachusetts and California show that adult men, not teenage boys, are the fathers of a majority of babies born to teenage mothers. In Massachusetts, men 20 years or older were responsible for 64% of the births in which the father's age was known; in California, a much larger study shows that adult men were the fathers in nearly 75% of the cases, including half of the babies born to girls 11-15. Given the combined evidence of earlier sexual activity and significant age (and power) differences between teenage girls and their sexual partners, it is hard to see how sex education will be anything more than a weak factor in influencing behavior or how schools alone will be able to reduce the risks associated with these behaviors.

Moreover, although Kirby notes that various approaches to sex education achieve modest increases in contraception among sexually active teens, he fails to mention one crucial fact: these modest gains occur primarily among older teens. Since there is reason to believe that the older teens who do practice contraception regularly are among the more socially competent and cognitively sophisticated adolescents, he overlooks an important social implication in this evidence. An emphasis on contraceptive skills and techniques favors the most mature, advantaged and successful teens and does little for teenagers who are less competent and mature and therefore least able to overcome the harmful and long-term effects of early sexual activity. This is why most societies provide social, as well as technological, forms of protection against the hazards and predations of teenage sex and why we are kidding ourselves if we think that handing out condoms and birth control pills to thirteen-year-olds will even "modestly" reduce the problems associated with adolescent sexual activity. □

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