# EFFECTIVE School Practices

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## FOCUS: EMBRACING THE EVIDENCE TO BECOME A MATURE PROFESSION

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ADI

## Philosophy of *Effective School Practices*

1. Teachers are responsible for student learning.
2. The curriculum is a critical variable for instructional effectiveness.
3. Effective teaching practices are identified by instructional research that compares the results of a new practice with the results of a viable alternative.
4. Experiments should not be conducted using an entire generation of Americans. The initial experimentation with a new practice should be small in scale and carefully controlled so that negative outcomes are minimized.
5. A powerful technology for teaching exists that is not being utilized in most American schools.

*Effective School Practices* is published quarterly by the Association for Direct Instruction. The mission of the Association for Direct Instruction, as stated in the by-laws, is to promote the improvement of educational methods.

The name *Direct Instruction* originated with the highly effective instructional model first developed by Zig Engelmann in Project Follow Through during President Johnson's Great Society legislation. Although the evaluation of Project Follow Through showed the Direct Instruction model to be far more effective than the other models on every identified outcome, education in America remained generally unchanged.

A few educators, impressed by the extraordinary results of the original Direct Instruction model and the programs that were developed as DI evolved, formed the Association for Direct Instruction in 1981.

Today, this organization is a vanguard in promoting school practices that have been validated as effective through the use of the scientific method in educational research.

The Association for Direct Instruction was incorporated in 1981 in the state of Oregon for educational purposes. ADI is a nonprofit, tax-exempt corporation under Section 501(c)3 of the Internal Revenue Code and is a publicly supported organization as defined in Sections 170(b)(1)(A)(ii) and 509(a)(1). Donations are tax-deductible.

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# A View From Askance

# *Technology in Education— Much Ado About Not Much*

**Bob Dixon**
**Board of Directors, Association for Direct Instruction**

Recently, I visited the web sites for the departments of education for every state in the country. I was looking, specifically, for information on what each state offers in the way of special reading programs. In a few cases, a state's home page would prominently display information on reading. (Texas, for instance.) But for the most part, I had to dig and dig and dig within a web site to find information specifically on reading.

On the other hand, just about every state has a very noticeable reference to *technology* on its home page. I thought that was interesting. It would appear that just about every state department of education is eager to advertise what it is doing in the area of *technology*, but few states are similarly eager to emphasize their activities related specifically to *reading*.

I guess technology is hot in education. I attended

OPINION

*Thank you to our Sustaining Members*

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a meeting in Washington D.C. some time back, during which some fellow from the White House talked about putting a computer on the desk of every child in America, with Internet access. I commented that I thought that achieving such a goal would amount to a cruel hoax on somewhere between one third and one half of the school children in the country, if not more. And an *expensive* cruel hoax at that. I must have made quite an impression: The Gore campaign is advocating an internet-connected computer at the desk of every child in the country.

Well, I didn't get invited back to any more meetings like that. (That's okay: I'll take Washington State over the *other* Washington, anytime.) My dreams of becoming a White House advisor went up in smoke. But my views haven't changed. What is going on with this technology in education craze? What's all the excitement about? I don't get it.

Now before I go any further, I need to make a distinction that is far from original with me. One application of technology in education is that of technological *tools*: word processors, grade book programs, databases of various sorts, and the like. Technological *tools* have a great deal of potential in education, but moreover, they have proven their usefulness in many ways. I love the fact that kids have access to word processors. I love the fact that speech pathologists have access to some powerful tools for helping children with speech and hearing difficulties. I love any tool that helps reduce the paperwork burden of special education teachers.

I can envision other tools that would be of particular value to Direct Instruction schools. For example, if all of a school's day-in-program data were entered into a computer, then it would be possible to automatically calculate the rate of progress through each program, and to automatically predict where students will be at different times in the future, given that rate of progress, or other rates of progress. That would be of great help in ordering materials for the following fall, arranging grouping, and even predicting performance on various types of tests.

In contrast to technological *tools*, there is the possibility of using technology more directly to *teach*. From the very beginning of readily available personal computers, which preceded the IBM computer by a few years, pundits vigorously proclaimed the potential of using computers to *teach*. The basic premise is, and always has been, that computer-based instruction is *individualized* instruction. We start with the assumption that the best instruction is *individualized*.

I contend that this assumption is a bit oversimplified and isn't necessarily true all the time. As a simple example, given the choice between teaching *Reading I* to one child or to five well-placed children, I'd rather teach five. (For starters, I can't reinforce incompatible behavior if no one else is around.) But the other reservation I have with the general notion of *individualized* instruction is that the whole idea is just too broad: we don't know the *basis* upon which instruction is individualized.

For instance, some schools of thought suggest that computer-based instruction could be individualized upon the basis of *student interest*. In that approach, one child works on multiplication facts with basketballs in the background (because that child is interested in sports), while another child sees leaves in the background (because that child is interested in Mother Nature). First, no one has even begun to demonstrate that accommodating student interest thusly improves a child's achievement. Second, we could hypothesize that those differing backgrounds could constitute a distraction from the task at hand, thereby having a detrimental effect on achievement. Either hypothesis could be tested, but to my knowledge, neither has been.

From the start, the principal meaning of *individualized* in computer-based education has been: *the child works alone*. That's not a very impressive notion of individualization. A child can work alone on a very good worksheet, or a very poor one, and that child's "aloneness" doesn't have much of an impact on the result. Kids "working alone" are touted as "working at their own pace." What does that mean, *exactly*? Their *own pace*? Is that the pace they elect to work at? If so, what if they happen to be pretty low performing students *and* they happen to elect to work at a slow pace? Then they'll *stay* low performing, but can be slightly consoled by the fact that they're getting *individualized* instruction, while *working at their own pace*.

Well, let's just accept the premise that in one way or another, computer-based instruction can be meaningfully individualized, in some way that positively influences achievement. (I think it can be.) In another article, at a different time, I'd like to write about *meaningless* individualization, whether computer-based or not.

How does the Internet fit in with all this—tools or individualized instruction? For the most part, the uninhibited claims for the Internet refer to improved student achievement, on the one hand, but most frequently boil down to one sort of *tool* application or another. Often, the Internet advocates talk about all the information students have access to through their personal computer. When they talk about that, they're basically talking about a *reference tool*. Get-

ting access to information, *per se*, doesn't ensure that anyone will actually learn anything. The opposite might be true in some instances: if I keep looking up grammar and usage rules (or use a grammar checker), I might never actually *learn* any grammar and usage rules.

But let's be charitable. Let's just accept the premise that having access to more information is a good thing. Well, I think that the instructional potential of information to an individual is a function of the skill and knowledge that individual already possesses. Clearly, it's just fine that many of use look information on the Internet for reasons other than getting educated, but the schools aren't in business so that kids can find the lyrics to their favorite rap song (using the word "song" loosely).

Neither computers in general nor the Internet in particular have much of a noticeable track record when it comes to demonstrably improving student achievement. Some tool applications probably help to make learning *more efficient*, but not more effective. A word processor makes writing more efficient, but not necessarily more effective.

Going back to the emphasis on technology that nearly every state department of education displays prominently on its home page, I have to repeat that I just don't get it. Yes, I believe some pretty impressive things *are coming*, but there isn't much there yet to knock my socks off.

About twenty years ago, Marty Siegel—a protégé of Siegfried Engelmann—developed an individualization utility that *truly* and *meaningfully* adapts instruction to individual student needs. The name of that utility—the Corrective Feedback Paradigm—doesn't begin to communicate the power of the utility.

What happened to it? Well, it originally existed on the PLATO system—an expensive main frame system with extremely limited access. A key to using Marty's system effectively is having instruction and a management system working interdependently. That *could* have been done several year back with ILS's (Integrated Learning Systems, or in more human language, "computer labs"). But those systems lacked the flexibility to really implement fully managed, sophisticated individualized instruction.

Enter the Internet. Any computer than can connect to the Internet suddenly becomes a viable platform for delivering that type of fully managed, sophisticated individualized instruction that Marty pioneered those many years ago. Someone is going to catch on to this substantially new potential. Some people already are. Keep your eyes open. Within a few years, there might actually be a justifiable reason for connecting students to the Internet. ◆

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# Embracing the Evidence

Sara G. Tarver, Co-Editor

OVERVIEW

This issue of *Effective School Practices (ESP)* focuses on evidence of effective teaching methods, the educational establishment's tendency to reject such evidence, and emerging directions which offer hope that the educational profession will mature into one that accepts and even reveres scientific evidence. In the lead article, Doug Carnine provides examples of how educators have shunned scientific evidence of effective teaching methods at the same time that they have embraced a variety of methods that are unsupported by such evidence. He discusses Project Follow Through as a prime example. Clearly, Follow Through validated Direct Instruction as a highly effective instructional approach and invalidated a number of more constructivist approaches. Nonetheless, educational leaders continued to advocate constructivist practices and to reject Direct Instruction. Educators' continuing rejection of converging scientific evidence about beginning reading instruction is discussed as another example of the establishment's embracing what does not work while rejecting what does work.

Even knowledgeable Direct Instruction diehards are faced with hard decisions about the particular Direct Instruction programs most appropriate in their particular situations.

Should they adopt *Teaching Your Child to Read in 100 Easy Lessons, Reading Mastery, Reading Mastery Fast Cycle, Corrective Reading, Horizons,* or *Journeys?* Conversations on the Direct Instruction listserv in recent months reveal a need for information about the similarities and differences among these reading programs. In particular, there seems to be a call for more information about how *Horizons*, a more recently published Direct Instruction reading program, compares to *Reading Mastery*. Of course, no one knows these programs as well as Zig himself. I am grateful to him for explicating the important similarities and differences in this issue of *ESP*.

An April, 2000, summary report of the National Reading Panel is included in this issue of *ESP* to update readers on NICHD findings and recommendations regarding the most effective approaches for teaching children how to read. The reader should note that both **systematic phonics instruction** and **synthetic phonics instruction** are in bold type (as in the original report). This emphasis on systematic and synthetic phonics, rather than just "phonics" as in some previous reports, represents a giant step forward that should encourage educators to opt for effective phonics instruction rather than other kinds of so-called phonics instruction that lack scientific support (e.g, *implicit phonics; phonics in context*).

Whether educators will choose to use the information from the report of the National Reading Panel to make more intelligent decisions about beginning reading programs and methods remains to be seen. According to Carnine, the presently immature profession of education is not likely to grow into a mature profession that relies on objective rather than subjective decision making without considerable pressure from outside the profession. Educators, however, can hasten that maturational process by taking a stand in favor of practices supported by scientific research.

In many instances, it is not easy for educators, even those who wish to embrace scientific evidence, to determine which instructional practices really are *best practices*. Practitioners are inundated with sales materials for hundreds of instructional programs, each of which has its advocates who claim that it is based on research. For example, advocates of reading programs with even a smidgin of phonics claim that the NICHD research supports their particular programs. Yet we know that all phonics programs are not equally effective — some are superb, some are o.k., and others are simply awful (see Dixon, in *ESP*, Volume 17, Winter, 1999). Most educators haven't the foggiest notion of the details that must be considered in evaluating a beginning reading program. Even among the more enlightened, many lack the knowledge and skill required to make *fine* distinctions among instructional programs for teaching any of the academic subjects. Increasing numbers of such educators are seeking professional judgments/evaluations on which they can rely to make important decisions.

A number of professional organizations and review teams are responding to the needs of practitioners and parents by evaluating instructional approaches and rendering judgements about their effectiveness. For example, the Division for Research

(DR) and Division for Learning Disabilities (DLD) of the Council for Exceptional Children (CEC) are jointly publishing a series of research alerts that focus on different instructional approaches.

Each issue in the series will provide its readers access to an objective, independent, and authoritative review of what is known about a current or emerging practice. Each issue will also include a judgment regarding the degree of confidence that can be placed in the practice. Readers will be encouraged to "Go For It" when the approach is adequately validated by research or to "Exercise Caution" when the approach has not yet been adequately validated. The first topical alert focused on "Direct Instruction" and the judgment rendered was "Go For It". I worked with DLD and DR to produce that Direct Instruction alert; the final product is reprinted in this issue of *ESP*.

A call for greater political activism on the part of the Association for Direct Instruction has arisen on the DI listserv in recent months. In response to that call, I asked Doug Carnine to prepare a brief article on the educational agendas of the two major presidential candidates — Bush and Gore. It should be disclosed up front that Doug has served as an educational consultant to Bush. This did not deter me from requesting that he write an informative article, for I have observed and admired Doug's propensity for objectivity over the years. Realizing the need to provide information without endorsing either candidate, Doug simply presents the achievements and initiatives as stated on the candidates' websites and encourages the reader to "Let the record speak." The intent is to provide information, not to endorse. ADI's focus is on education, not politics; the political persuasions of members run the gamut from the most liberal to the most conservative (see Bob Dixon's "A View From Askance" in the Summer, 1999, issue of *ESP*).

As a newly appointed co-editor of *ESP*, I encourage feedback from readers and will be happy to receive your "Letters to the Editor". They may be addressed to me at my university address (University of Wisconsin-Madison, 432 N. Murray St., Madison, WI 53706-1496) or at the ADI address (P.O. Box 10252, Eugene, OR 97440). ◆

# Why Education Experts Resist Effective Practices (And What It Would Take to Make Education More Like Medicine)

**Douglas Carnine**
**Director of the National Center to Improve the Tools of Educators**
*Reprinted with permission from the Thomas B. Fordham Foundation report of April, 2000.*

PERSPECTIVES

Education school professors in general and curriculum and instruction experts in particular are major forces in dictating the "what" and "how" of American education. They typically control preservice teacher preparation, the continued professional development of experienced teachers, the curricular content and pedagogy used in schools, the instructional philosophy and methods employed in classrooms, and the policies espoused by state and national curriculum organizations.

Although they wield immense power over what actually happens in U.S. classrooms, these professors are senior members of a field that lacks many crucial features of a fully developed profession. In education, the judgments of "experts" frequently appear to be unconstrained and sometimes altogether unaffected by objective research. Many of these experts are so captivated by romantic ideas about learning or so blinded by ideology that they have closed their minds to the results of rigorous experiments. Until education becomes the kind of profession that reveres evidence, we should not be surprised to find its experts dispensing unproven methods, endlessly flitting from one fad to another. The greatest victims of these fads are the very students who are most at risk.

The first section of this essay provides examples from reading and math curricula. The middle section describes how experts have, for ideological reasons, shunned some solutions that do display robust evidence of efficacy. The following sections briefly examine how public impatience has forced other professions to "grow up" and accept accountability and scientific evidence. The paper concludes with a plea to hasten education's metamorphosis into a mature profession.

## Embracing Teaching Methods that Don't Work

The reaction of a large number of education experts to converging scientific evidence about how children learn to read illustrates the basic problem. Data strongly support the explicit teaching of phonemic awareness, the alphabetic principle, and phonics, which is often combined with extensive practice with phonic readers. These are the cornerstones of successful beginning reading for young children, particularly at-risk youngsters. The findings of the National Reading Panel, established by Congress and jointly convened by the Department of Education and the Department of Health and Human Services, confirm the importance of these practices. Congress asked the panel to evaluate existing research on the most effective approaches for teaching children how to read. In its February 1999 Progress Report, the panel wrote,

> [A]dvances in research are beginning to provide hope that educators may soon be guided by scientifically sound information. A growing number of works, for example, are now suggesting that students need to master phonics skills in order to read well. Among them are *Learning to Read* by Jeanne Chall and *Beginning to Read: Thinking and Learning about Print* by Marilyn Adams. As Adams, a senior scientist at Bolt, Beranek and Newman, Inc., writes, "[It] 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."[1]

Even the popular media have recognized this converging body of research. As James Collins wrote in *Time* magazine in October 1997: "After reviewing the arguments mustered by the phonics and whole-language proponents, can we make a judgment as to

who is right? Yes. The value of explicit, systematic phonics instruction has been well established. Hundreds of studies from a variety of fields support this conclusion. Indeed, the evidence is so strong that if the subject under discussion were, say, the treatment of the mumps, there would be no discussion."[2] Yet in the face of such overwhelming evidence, the whole-language approach, rather than the phonics approach, dominated American primary classrooms during the 1990s. Who supports whole language? As Nicholas Lemann wrote in the *Atlantic Monthly* in 1997, "Support for it is limited to an enclosed community of devotees, including teachers, education school professors, textbook publishers, bilingual educators, and teacher trainers. Virtually no one in the wider public seems to be actively promoting whole language. No politicians are crusading for it. Of the major teachers' unions, the American Federation of Teachers (AFT) is a wholehearted opponent and the National Education Association (NEA) is neutral. No independent scientific researchers trumpet whole language's virtues. The balance of parental pressure is not in favor of whole language."[3]

*In education, the judgments of experts frequently apear to be unconstrained by objective research.*

This phenomenon is not just the story of reading. Math education experts also live in an enclosed community. In 1989, the National Council of Teachers of Mathematics (NCTM) developed academic content standards that have since been adopted by most states and today drive classroom practice in thousands of schools. The standards not only specified what children were to learn, but how teachers were to teach. According to the NCTM, these standards were designed to "ensure that the public is protected from shoddy products," yet no effort was made by the NCTM to determine whether the standards themselves were based on evidence. Indeed, the document setting them forth also urged that the standards be tested, recommending "the establishment of some pilot school mathematics program based on these standards to demonstrate that all students—including women and underserved minorities—can reach a satisfactory level of mathematics achievement."[4] There's nothing wrong with testing the NCTM approach to math education. But should NCTM's standards become the coin of the realm before they have proven their efficacy in rigorous experimental settings?

What is striking about the math episode is the NCTM's inconsistent stance toward evidence. At one point there seems to be a reverence for evidence. "It seems reasonable that anyone developing products for use in mathematics classrooms should document how the materials are related to current conceptions of what content is important to teach and should present evidence about their effectiveness," wrote the NCTM experts.[5] The NCTM pointed to the Food and Drug Administration (FDA) as a model for what it was doing in creating content standards.

Yet it is impossible to imagine the FDA approving a drug—indeed, urging its widespread use—and later proposing "the establishment of some pilot ... program" to see whether the drug helps or harms those to whom it is given. The FDA uses the most reliable kind of research to identify what works: dividing a population into two identical groups and randomly assigning treatment to one group, with the other group serving as a control. Properly done, the "patients" don't know which group they're in and neither do the scientists dispensing the medications and placebos. (This is known as a "double blind" experiment.) Such research is virtually unknown in education.

The resistance of education experts to evidence is so puzzling that it is worth closely investigating what educators say about research. In 1995, the Research Advisory Committee of the NCTM expressed its disdain for the kind of research that the FDA routinely conducts: "The question 'Is Curriculum A better than Curriculum B?' is not a good research question, because it is not readily answerable." In fact, that is *exactly* the kind of research question that teachers, parents, and the broader public want to see answered. This kind of research is not impossible, though it is more complicated to undertake than other kinds of research—particularly the qualitative research that most education experts seem to prefer. (The role of qualitative research is discussed later in this essay.)

For some education professors, the problem with experimental research runs deeper. One prominent member of the field, Gene Glass, a former president of the American Educational Research Association, introduced an electronic discussion forum on research priorities with the following remarks: "Some people expect educational research to be like a group of engineers working on the fastest, cheapest, and safest way of traveling to Chicago, when in fact it is a bunch of people arguing about whether to go to Chicago or St. Louis."[6]

With research understood in this way, it should not be surprising to find that the education profession has little by way of a solid knowledge base on

which to rest its practices. But if we don't know what works, how are teachers to know how to respond in a sure and confident way to the challenges they face? Hospitalized some months ago with a pulmonary embolism, Diane Ravitch, former assistant secretary of the U.S. Department of Education, looked up at the doctors treating her in the intensive care unit and imagined for an instant that she was being treated by education experts rather than physicians. As she recounts:

> My new specialists began to argue over whether anything was actually wrong with me. A few thought that I had a problem, but others scoffed and said that such an analysis was tantamount to "blaming the victim" . . .
>
> Among the raucous crowd of education experts, there was no agreement, no common set of standards for diagnosing my problem. They could not agree on what was wrong with me, perhaps because they did not agree on standards for good health. Some maintained that it was wrong to stigmatize people who were short of breath and had a really sore leg; perhaps it was a challenge for me to breathe and to walk, but who was to say that the behaviors I exhibited were inappropriate or inferior compared to what most people did?
>
> A few researchers continued to insist that something was wrong with me; one even pulled out the results of my CAT-scan and sonogram. But the rest ridiculed the tests, pointing out that they represented only a snapshot of my actual condition and were therefore completely unreliable, as compared to longitudinal data (which of course was unavailable).
>
> ...The assembled authorities could not agree on what to do to make me better. Each had his own favorite cure, and each pulled out a tall stack of research studies to support his proposals. One group urged a regimen of bed rest, but another said I needed vigorous exercise.... One recommended Drug X, but another recommended Drug Not-X. Another said that it was up to me to decide how to cure myself, based on my own priorities about what was important to me.
>
> Just when I thought I had heard everything, a group of newly minted doctors of education told me that my body would heal itself by its own natural mechanisms, and that I did not need any treatment at all.[7]

This may read like caricature, yet it is clear that many education experts have not embraced the use of rigorous scientific research to identify effective methods. But this is not the only thing that affects their judgments. In other cases, what prevents them from being guided by scientific findings is a misunderstanding of the inherent limits of descriptive or qualitative research. Such research has its place. It can aid, for example, in the understanding of a complex problem and can be used to formulate hypotheses that can be formally evaluated (in an experiment with control groups, for instance). But such research cannot provide reliable information about the relative effectiveness of a treatment, of "Drug X" vs. "Drug Not-X."

*Until education becomes the kind of profession that reveres evidence, we should not be surprised to find its experts dispensing unproven methods, endlessly flitting from one fad to another.*

Despite this simple fact of logic, many education experts assume that descriptive research will determine the relative effectiveness of various practices. Claims made by two national organizations of mathematics educators illustrate the problem. In a letter to the president of the California State Board of Education, the American Educational Research Association's Special Interest Group for Research in Mathematics Education wrote, "[D]ata from the large-scale NAEP tests tell us that children in the middle grades do well in solving one-step story problems but are unable to solve two-step story problems. A qualitative study, involving observations and interviews with children, can provide us with information about why this is the case *and how instructional programs can be changed to improve this situation*"[8] (emphasis added). In another letter to the same board, Judith T. Sowder, editor of the NCTM's Journal for Research in Mathematics Education, wrote that "by in-depth study of children's thinking we have been able to overcome some of our past instructional mistakes *and design curricula that allows (sic) students to form robust mathematical concepts*"[9] (emphasis added).

Both statements illustrate a serious reasoning fallacy, one that is pandemic in education: deriving an 'ought' from an 'is.' A richly evocative description

of what a problem is does not logically imply what the solution to that problem ought to be. The viability of a solution depends on its being compared to other options.

What is clear from these examples is that lack of evidence does not deter widespread acceptance of untested innovations in education; indeed, a pedagogical method can even be embraced in the face of contradictory evidence. Conversely, the evidence for an instructional approach may be overwhelmingly positive, yet there is no guarantee that it will be adopted. The case of Direct Instruction is a prime example.

## A Large-scale Education Experiment

In the annals of education research, one project stands out above all others. Project Follow Through was probably the largest education experiment ever conducted in the United States. It was a longitudinal study of more than twenty different approaches to teaching economically disadvantaged K-3 students. The experiment lasted from 1967 to 1976, although Follow Through continued as a federal program until 1995. Project Follow Through included more than 70,000 students in more than 180 schools, and yearly data on 10,000 children were used for the study. The project evaluated education models falling into two broad categories: those based on child-directed construction of meaning and knowledge, and those based on direct teaching of academic and cognitive skills.

*Project Follow Through included more than 70,000 students in more than 180 schools.*

The battle between these two basic approaches to teaching has divided educators for generations. Each is rooted in its own distinctive philosophy of how children learn. Schools that have implemented the child-centered approach (sometimes called "constructivist") have a very different look and feel from schools that have opted for the more traditional, teacher-directed approach (often called "direct instruction" in its most structured form).

First graders in a constructivist reading classroom might be found scattered around the room; some children are walking around, some are talking, some painting, others watching a video, some looking through a book, and one or two reading with the teacher. The teacher uses a book that is not specifically designed to be read using phonics skills, and, when a child misses a word, the teacher will let the mistake go by so long as the meaning is preserved to some degree (for instance, if a child reads "horse" instead of "pony"). If a child is stuck on a word, the teacher encourages her to guess, to read to the end of the sentence and then return to the word, to look at the picture on the page, and, possibly, to look at the first letter of the word.

In a direct instruction classroom, some children are at their desks writing or reading phonics-based books. The rest of the youngsters are sitting with the teacher. The teacher asks them to sound out challenging words before reading the story. When the children read the story, the teacher has them sound out the words if they make mistakes.

In the category of child-directed education, four major models were analyzed in Project Follow Through:

- *Constructivism/Discovery Learning*: The Responsive Education Model, sponsored by the Far West Laboratory and originated by Glenn Nimnict. The child's own interests determine where and when he works. The goal is to build an environment that is responsive to the child so that he can learn from it.
- *Whole Language*: The Tucson Early Education Model (TEEM), developed by Marie Hughes and sponsored by the University of Arizona. Teachers elaborate on the child's present experiences and interests to teach intellectual processes such as comparing, recalling, looking, and relationships. Child-directed choices are important to this model; the content is less important.
- *Developmentally Appropriate Practices*. Cognitively Oriented Curriculum, sponsored by the High/Scope Educational Research Foundation and developed by David Weikart. The model builds on Piaget's concern with the underlying cognitive processes that allow one to learn on one's own. Children are encouraged to schedule their own activities, develop plans, choose whom to work with, etc. The teacher provides choices in ways that foster development of positive self-concept. The teacher demonstrates language by labeling what is going on, providing interpretations, and explaining causes.
- *Open Education Model*. The Education Development Center (EDC) sponsored a model derived from the British Infant School and focused on building the child's responsibility for his own learning. Reading and writing are not taught directly, but through stimulating the desire to communicate. Flexible schedules, child-directed choices, and a focus on intense personal involvement characterize this model.

The major skills-oriented, teacher-directed model tested in Project Follow Through was Direct Instruction, sponsored by the University of Oregon and developed by Siegfried Engelmann and Wes Becker. It emphasizes the use of small group, face-to-face instruction by teachers and aides using carefully sequenced lessons in reading, mathematics, and language in kindergarten and first grade. (Lessons in later grades are more complicated.) A variety of manuals, observation tools, and child assessment measures have been developed to provide quality control for training procedures, teaching processes, and children's academic progress. Key assumptions of the model are: (1) that all children can be taught (and that this is the teacher's responsibility); (2) that low-performing students must be taught more, not less, in order to catch up; and (3) that the task of teaching more requires careful use of educational technology and time. (The author of this report was involved with the Direct Instruction Follow Through Project at the University of Oregon.)

Data for the big Follow Through evaluation were gathered and analyzed by two independent organizations—Stanford Research Institute and Abt Associates.[10] Students taught according to the different models were compared with a control group (and, implicitly, with each other) on three types of measures: basic, cognitive, and affective.

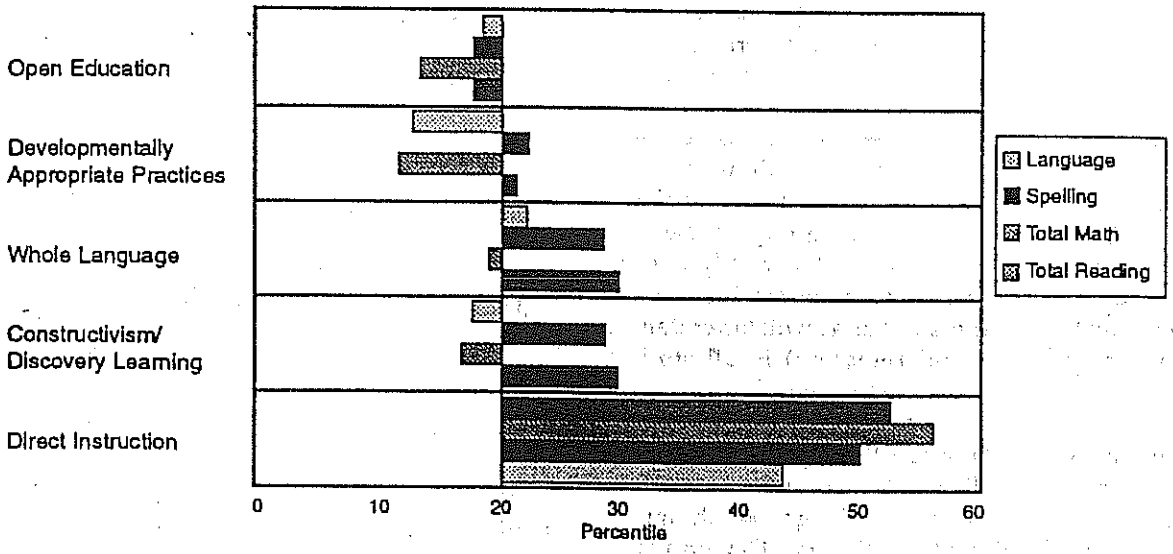
Mean percentile scores on the four Metropolitan Achievement Test categories—Total Reading, Math, Spelling, and Language—appear in Figure 1. Figure 1 also shows the average achievement of disadvantaged children without any special help, which at that time was at about the 20th percentile.

In only one approach, the Direct Instruction (DI) model, were participating students near or at national norms in math and language and close to national norms in reading. Students in all four of the other Follow Through approaches—discovery learning, language experience, developmentally appropriate practices, and open education—often performed worse than the control group. This poor performance came in spite of tens of thousands of additional dollars provided for each classroom each year.

Researchers noted that DI students performed well not only on measures of basic skills but also in more advanced skills such as reading comprehension and math problem solving. Furthermore, DI students' scores were quite high in the affective domain, suggesting that building academic competence promotes self-esteem, not vice versa.[11] This last result especially surprised the Abt researchers, who wrote:

> The performance of Follow Through children in Direct Instruction sites on the affective measures is an unexpected result. The Direct

**Figure 1. Metropolitan Achievement Test Percentile Scores for the Five Models**




Source: Becker, et al. "The Direct Instruction Model," In *Encouraging Change in America's Schools* (New York: Academic Press, 1981).

> Instruction model does not explicitly emphasize affective outcomes of instruction, but the sponsor has asserted that they will be consequences of effective teaching. Critics of the model have predicted that the emphasis on tightly controlled instruction might discourage children from freely expressing themselves, and thus inhibit the development of self-esteem and other affective skills. In fact, this is not the case.[12]

An analysis of the Follow Through parent data found moderate to high parental involvement in all the DI school districts.[13] Compared to the parents of students from schools being served by other Follow Through models, parents of DI students more frequently felt that their schools had appreciably improved their children's academic achievement. This parental perception corresponded with the actual standardized test scores of the Direct Instruction students.

These data were collected and analyzed by impartial organizations. The developers of the DI model conducted a number of supplementary studies, which had similarly promising results.

Significant IQ gains were found in students who participated in the program. Those entering kindergarten with low IQs (below 71) gained 17 points, while students entering first grade with low IQs gained 9.4 points. Children with entering IQs in the 71-90 range gained 15.6 points in kindergarten and 9.2 points in first grade.

Longitudinal studies were undertaken using the high school records of students who had received Direct Instruction through the end of third grade as well as the records of a comparison group of students who did not receive Direct Instruction. Researchers looked at test scores, attendance, college acceptances, and retention. When academic performance was the measure, the Direct Instruction students outperformed the control group in the five comparisons whose results were statistically significant. The comparisons favored Direct Instruction students on the other measures as well (attendance, college acceptances, and retention) in all studies with statistically significant results.[14]

Additional research showed that the DI model worked in a wide range of communities. Direct Instruction Follow Through sites were located in large cities (New York, San Diego, Washington, D.C.); mid-sized cities (Flint, Michigan; Dayton, Ohio; East St. Louis, Illinois); rural white communities (Flippin, Arkansas; Smithville, Tennessee); a rural black community (Williamsburg, South Carolina); Latino communities (Uvalde, Texas; E. Las Vegas, New Mexico); and a Native American community (Cherokee, North Carolina).

More than two decades later, a 1999 report funded by some of the nation's leading education organizations confirmed the efficacy of Direct Instruction. Researchers at the American Institutes of Research who performed the analysis for the Educators' Guide to Schoolwide Reform found that only three of the 24 schoolwide reform models they examined could present solid evidence of positive effects on student achievement. Direct Instruction was one of the three.[15]

## Direct Instruction after Project Follow Through

Before Project Follow Through, constructivist approaches to teaching and learning were extremely popular. One might have expected that the news from Project Follow Through would have caused educators to set aside such methods and embrace Direct Instruction instead. But this did not happen. To the contrary.

Even before the findings from Project Follow Through were officially released, the Ford Foundation commissioned a critique of it. One of the authors of that study, the aforementioned Gene Glass, wrote an additional critique of Follow Through that was published by the federal government's National Institute of Education. This report suggested that the NIE conduct an evaluation emphasizing an ethnographic or descriptive case-study approach because "the audience for Follow Through evaluations is an audience of teachers that doesn't need statistical finding of experiments to decide how best to teach children. They decide such matters on the basis of complicated public and private understandings, beliefs, motives, and wishes."[16]

After the results of the Follow Through study were in, the sponsors of the different programs submitted their models to the Department of Education's Joint Dissemination Review Panel. Evidently the Panel did not value the differences in effectiveness found by the big national study of Follow Through; all of the programs—both successful and failed—were recommended for dissemination to school districts. According to Cathy Watkins, a professor of education at Cal State-Stanislaus, "A program could be judged effective if it had a positive impact on individuals other than students. As a result, programs that had failed to improve academic achievement in Follow Through were rated as 'exemplary and effective.' "[17] The Direct Instruction model was not specially promoted or encouraged in any way. In fact, extra federal dollars were directed toward the less effective models in an effort to improve their results.

During the 1980s and early 1990s, schools that attempted to use Direct Instruction (originally known as DISTAR)—particularly in the early grades, when DI is especially effective—were often discouraged by members of education organizations. Many experts were convinced that the program's heavy academic emphasis was "developmentally inappropriate" for young children and might "hinder children's development of interpersonal understanding and their broader socio-cognitive and moral development."[18] "DI is the answer only if we want our children to swallow whole whatever they are told and focus more on consumption than citizenship," argued Lawrence Schweinhart of the High/Scope Educational Research Foundation.[19] (High/Scope had developed one of the constructivist models.)

Faced with the evidence of Direct Instruction's effectiveness, some experts still advocated methods that had not proved effective in Project Follow Through. "The kind of learning DISTAR tries to promote can be more solidly elicited by the child doing things," argued Harriet Egertson, an early childhood specialist at the Nebraska Department of Education. "The adult's responsibility is to engage the child in what he or she is doing, to take every opportunity to make their experience meaningful. DISTAR isn't connected to anything. If you use mathematics in context, such as measuring out spoons of sugar in a cooking class, the notion of addition comes alive for the child. The concept becomes embedded in the action and it sticks."[20]

Tufts University professor of child development David Elkind argued that, while Direct Instruction is harmful for *all* children, it

> is even worse for young disadvantaged children, because it imprints them with a rote-learning style that could be damaging later on. As Piaget pointed out, children learn by manipulating their environment, and a healthy early education program structures the child's environment to make the most of that fact. DISTAR, on the other hand, structures the child and constrains his learning style.[21]

The natural-learning view that underlies the other four Follow Through models described above is enormously appealing to educators and to many psychologists. The dominance of this view can be traced back to Jean-Jacques Rousseau, who glorified the natural at the expense of the man-made, and argued that education should not be structured but should emerge from the natural inclinations of the child. German educators developed kindergartens based on the notion of natural learning. This romantic notion of learning has become doctrinal in many schools of education and child-development centers, and has closed the minds of many experts to actual research findings about effective approaches to educating children.[22] This is a classic case of an immature profession, one that lacks a solid scientific base and has less respect for evidence than for opinion and ideology.

## Learning from Other Professions

Education could benefit from examining the history of some other professions. Medicine, pharmacology, accounting, actuarial sciences, and seafaring have all evolved into mature professions. According to Theodore M. Porter, a history professor at the University of California at Los Angeles, an immature profession is characterized by expertise based on the subjective judgments of the individual professional, trust based on personal contact rather than quantification, and autonomy allowed by expertise and trust, which staves off standardized procedures based on research findings that use control groups.[23]

A mature profession, by contrast, is characterized by a shift from judgments of individual experts to judgments constrained by quantified data that can be inspected by a broad audience, less emphasis on personal trust and more on objectivity, and a greater role for standardized measures and procedures informed by scientific investigations that use control groups.

For the most part, education has yet to attain a mature state. Education experts routinely make decisions in subjective fashion, eschewing quantitative measures and ignoring research findings. The influence of these experts affects all the players in the education world.

Below is a description that could very well describe the field of education:

> It is hard to conceive of a less scientific enterprise among human endeavors. Virtually anything that could be thought up for treatment was tried out at one time or another, and, once tried, lasted decades or even centuries before being given up. It was, in retrospect, the most frivolous and irresponsible kind of human experimentation, based on nothing but trial and error, and usually resulting in precisely that sequence.[24]

Yet this quote does not describe American education today. Rather, it was written about pre-modern medicine by the late Dr. Lewis Thomas (1979), former

president of the Memorial Sloan-Kettering Cancer Center. Medicine has matured. Education has not. The excerpt continues:

> Bleeding, purging, cupping, the administration of infusions of every known plant, solutions of every known metal, most of these based on the weirdest imaginings about the cause of disease, concocted out of nothing but thin air—this was the heritage of medicine up until a little over a century ago. It is astounding that the profession survived so long, and got away with so much with so little outcry. Almost everyone seems to have been taken in.[25]

Education has not yet developed into a mature profession. What might cause it to? Based on the experience of other fields, it seems likely that intense and sustained outside pressure will be needed. Dogma does not destroy itself, nor does an immature profession drive out dogma.

The metamorphosis is often triggered by a catalyst, such as pressure from groups that are adversely affected by the poor quality of service provided by a profession. The public's revulsion at the Titanic's sinking, for example, served as catalyst for the metamorphosis of seafaring. In the early 1900s, sea captains could sail pretty much where they pleased, and safety was not a priority. The 1913 International Convention for Safety of Life at Sea, convened after the sinking of the Titanic, quickly made rules that are still models for good practice in seafaring.

The metamorphosis of medicine took more than a century. As the historian Theodore Porter explains:

> In its pre-metamorphosis stage, medicine was practiced by members of an elite who refused . . . to place the superior claims of character and breeding on an equal footing with those of scientific merit. . . . These gentlemen practitioners opposed specialization, and even resisted the use of instruments. The stethoscope was acceptable, because is was audible only to them, but devices that could be read out in numbers or, still worse, left a written trace, were a threat to the intimate knowledge of the attending physician.[26]

External pressure on medicine came from life insurance companies that demanded quantitative measures of the health of applicants and from workers who did not trust "company doctors." The Food and Drug Administration, founded in 1938 as part of the New Deal, initially accepted both opinions from clinical specialists and findings from experimental research when determining whether drugs did more good than harm. However, the Thalidomide disaster led to the Kefauver Bill of 1962, which required drugs thereafter to be proven to be effective and safe before they could be prescribed, with little attention paid to the opinions of clinical specialists. (Medical interventions and intervention devices, such as coronary stents, are subject to similar reviews of safety and efficacy.)

*A mature profession is characterized by a shift from judgments of individual experts to judgments constrained by quantified data.*

The catalyst that transformed accounting in the United States was the Great Depression. To restore investor confidence, the government promulgated reporting rules to guard against fraud, creating the Securities and Exchange Commission.

In general, it appears that a profession is not apt to mature without external pressure and the attendant conflict. Metamorphosis begins when the profession determines that this is its likeliest path to survival, respect, and prosperity. Porter writes that the American Institute of Accountants established its own standards to fend off an imminent bureaucratic intervention.[27] External pressures had become so great that outsiders threatened to take over and control the profession via legislation and regulation. There are signs today that this is beginning to happen in education.

## Making Education a Mature Profession

The best way for a profession to ensure its continued autonomy is to adopt methods that ensure the safety and efficacy of its practices. The profession can thereby deter extensive meddling by outsiders. The public trusts quantified data because procedures for coming up with numbers reduce subjective decision-making. Standardized procedures also are more open to public inspection and legal review.

American education is under intense pressure to produce better results. The increasing importance of education to the economic well-being of individuals and nations will continue feeding this pressure. In the past—and still today—the profession has tended to respond to such pressures by offering untested but appealing nostrums and innovations that do not improve academic achievement. At one time or an-

other, such practices have typified every profession, from medicine to accounting to seafaring. In each case, groups adversely affected by the poor quality of service have exerted pressures on the profession to incorporate a more scientific methodology.

These pressures to mature are inevitable in education as well. Its experts should hasten the process by abandoning ideology and embracing evidence. Findings from carefully controlled experimental evaluations must trump dogma. Expert judgments should be built on objective data that can be inspected by a broad audience rather than wishful thinking. Only when the profession embraces scientific methods for determining efficacy and accepts accountability for results will education acquire the status—and the rewards—of a mature profession. ◆

## Notes

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[2] James Collins, "How Johnny Should Read," *Time*, 27 October 1997, 81.

[3] Nicholas Lemann, "The Reading Wars," *Atlantic Monthly* (November 1997), 133-134.

[4] National Council of Teachers of Mathematics, *Curriculum and evaluation standards for school mathematics* (Reston, VA: Author, 1989), 253.

[5] Ibid, 2.

[6] Gene Glass, "Research news and comment-a conversation about educational research priorities: A message to Riley," *Educational Researcher* 22, no. 6 (August-September 1993), 17-21.

[7] Diane Ravitch, "What if Research Really Mattered?" *Education Week*, 16 December 1998.

[8] Personal communication with California State Board of Education.

[9] Personal communication with California State Board of Education.

[10] L. Stebbins, ed., "Education experimentation: A planned variation model" in *An Evaluation of Follow Through III*, A (Cambridge, MA: Abt Associates, 1976), and L. Stebbins, et al., "Education as experimentation: A planned variation model," in *An Evaluation of Follow Through IV*, A-D (Cambridge, MA: Abt Associates, 1977).

[11] Stebbins et al., 1977.

[12] Abt Associates, "Education as experimentation: A planned variation model," *An Evaluation of Follow Through IV*, B (Cambridge, MA: Author, 1977), 73.

[13] Walter Haney, *A Technical History of the National Follow Through Evaluation* (Cambridge, MA: Huron Institute, August 1977).

[14] R. Gersten and T. Keating, "Improving high school performance of 'at risk' students: A study of long term benefits of direct instruction," *Educational Leadership* 44, no. 6 (1987), 28-31.

[15] Although the data supporting Direct Instruction are quite strong, it is important to note that the model is demanding to implement and results from a poor implementation may be poor.

[16] Gene Glass and G. Camilli, "FT Evaluation" (National Institution of Education, ERIC document ED244738), as cited in Nina H. Shokraii, "Why Congress Should Overhaul the Federal Regional Education Laboratories," *Heritage Foundation Backgrounder*, no. 1200 (Washington, DC: The Heritage Foundation, 1998).

[17] Cathy L. Watkins, "Follow Through: Why Didn't We," *Effective School Practices*, 15, no. 1 (Winter 1995-96), 5.

[18] Rheta DeVries, Halcyon Reese-Learned, and Pamela Morgan, "Sociomoral development in direct instruction, eclectic, and constructivist kindergartens: a study of children's enacted interpersonal understanding," *Early Childhood Research Quarterly* 6, no. 4, 473-517, as cited in Denny Taylor, *Beginning to Read and the Spin Doctors of Science* (Urbana, IL: National Council of Teachers of English, 1998), 231.

[19] Lawrence Schweinhart, "Back to School," letter appearing in *National Review*, 20 July 1998.

[20] As quoted in Ellen Ruppel Shell, "Now, which kind of preschool," *Psychology Today* (December 1989).

[21] Ibid.

[22] E.D. Hirsch, Jr., "Reality's revenge: Research and ideology," *American Educator* (Fall 1996), excerpted from E.D. Hirsch, Jr., *The Schools We Need and Why We Don't Have Them* (New York, NY: Doubleday, 1996). An interesting perspective on this topic can be found in an unpublished paper by Thomas D. Cook of Northwestern University called "Considering the Major Arguments against Random Assignment: An Analysis of the Intellectual Culture Surrounding Evaluation in American Schools of Education."

[23] Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton, NJ: Princeton University Press, 1996).

[24] Lewis Thomas, "Medical Lessons from History," in *The Medusa and the Snail: More Notes of a Biology Watcher* (New York: Viking Press, 1979), 159.

[25] Ibid, 159-160.

[26] Porter, 202.

[27] Ibid, 93.

# About Reading—
# A Comparison of *Reading Mastery* and *Horizons*

**Siegfried Engelmann**
**Direct Instruction Program Senior Author**

One way to appreciate the actual details of effective reading programs is to examine extremes—two effective programs that are very different from each other but that require roughly the same amount of time to induce the same level of reading performance across the same range of children. I have been involved in the development of two greatly different beginning-reading programs, both of which have the capacity to teach any child with an IQ of 70 or above to read in a timely fashion, if the program is delivered or taught to specifications. These programs are *Reading Mastery* and *Horizons*.

Here are the various features these programs have in common:

- Both have lessons that are generally capable of being presented in a period and both provide enough lessons to cover a school year.
- Both have scripted presentations for the teacher, which provide the exact wording the teacher is to use in presenting the tasks.
- Both introduce skills in isolation before the children need them in the reading context.
- Both operate from a "two-lesson" rule, which means that any particular item that children are responsible for learning will occur on at least two consecutive lessons before the children are assumed to have learned it.
- Both use a track design, not an "object lesson" design. The track design presents ongoing development of four or five "skills" which appear on every lesson and which are continuously integrated and upgraded in complexity. The object-lesson design, in contrast, devotes entire periods to one theme or activity.
- Both provide structured teaching for all the skills the children are accountable for learning—including identification of punctuation marks and conventions related to paragraphing, all details of comprehension, and the strategies for attacking all the words and word types they will read in the program.
- Both follow the same sequencing rule for what the children read: All the words in stories are words that have been taught in isolation before the story is presented; all sounds for letters in the words that are taught in isolation are taught before they are introduced in the words.
- Both produce a high rate of children's responses and have periodic "tests" so the teacher receives a great deal of data on each child's performance.

*Although the programs are the same in many fundamental ways, they differ greatly in the sequence of letters, the treatment of the vowels, and the kind of prompts that are used to key pronunciation of letters or letter combinations.*

- Both have lessons with a structured part (which occurs first) and an independent-work part. After children have learned enough words to read stories, the structured part consists of sounds for isolated letters, word reading (lists of words), the decoding of a story, and various comprehension skills. The independent work consists of various word- and story-related activities.
- Both focus on oral reading during the structured part of each lesson and have provisions for teaching silent reading.
- Both provide "prompts" to help the children identify the "sounds" that letters make, and both provide for the "fading" or removal of these prompts later in the program.
- Both follow the general design rule that the presentation must not permit any child to produce the correct response for the wrong reason. This rule governs the designs of prompts and suggests which sorts of prompts are taboo (such as pre-reading discussions and picture analyses that are part of many traditional programs).
- Both have provisions for dealing with phonetically irregular words; neither treats these words as mere "sight words."

- Both introduce sounds for only a few letters (not all) before children read words.
- Both teach many more words than traditional programs teach during a year (more than three times as many than traditional programs teach in a year).
- Both are "phonics" programs and present procedures for identifying the "sounds" that letters make in words, but neither uses traditional verbal "rules" for discussing the sounds.
- Both were extensively field-tested before publication and liberally revised on the basis of field-test data.

## Differences

Although the programs are the same in many fundamental ways, they differ greatly in the sequence of letters, the treatment of the vowels, and the kind of prompts that are used to key pronunciation of letters or letter combinations.

### Reading Mastery

*Reading Mastery* may be thought of as presenting unlimited prompts. *Reading Mastery* is based on the supposition that there are no constraints on letter introduction or what could be done to prompt pronunciation of various word parts. A further assumption is that the children who enter the program know absolutely nothing about reading. They are not assumed to know the alphabet, letter names, or any of the support skills assumed by reading, such as rhyming or identifying whether words alliterate. Children entering the *Fast-Cycle* program are assumed to be bright, but without knowledge.

**The primary goal of the program is to regularize the reading code so that children are able to apply the smallest set of rules to read the maximum number of words.** The primary means for achieving this goal is a modified orthography, which serves as something like training wheels. This orthography makes a relatively large number of words regular, which means that the children are able to identify the word in this set by saying the assigned sound for each of the symbols. Initially, the program introduces only one sound for any given letter or letter combination. The letter t makes the sound in **tap**, and no other sound. In the *Reading Mastery* orthography, the **t** in **tap** is this symbol, **ŧ**. The t in **th** is this symbol: **th**. Similarly, the symbols for vowels have only a single sound. The orthography provides for long vowels (as in **mādə**) and short vowels (as in **mad**). The orthographic convention for *Reading Mastery* shows long vowels with a macron (**ā ē Ī ō ū ȳ**). Short vowels are shown as traditional letters (**a e i o u y**).

*This orthography makes a relatively large number of words regular, which means that the children are able to identify the word in this set by saying the assigned sound for each of the symbols.*

In addition to these conventions, *Reading Mastery* has joined letters for dipthongs: **th sh ch wh er qu**.

A final convention is small letters. The rule about a small letter is that it makes no sound. It is part of the word and occupies a particular place in the word, but it is not pronounced. Here are examples: **have, hāl**. Note that the vowel in the word may be long or short. Each word has three sounds. The small letter makes no sound.

The small-letter conventions help make it possible to spell all words presented in the program correctly (using a variation of the same symbols that would be used to spell the word with traditional orthography). At the same time, the small letters permit the child to sound out the word with assigned values for the various symbols. Following are some of the words the children are able to read as "regular" words **where were whȳ shack little tēar tear thōse hōse tōes.**

Note that all these words may be "sounded-out" without applying any sort of traditional "phonics" rules. No vowels are talking and no other letters are walking. Children simply "sound-out" by saying the sounds for full-sized letters.

Once the reading behavior is firmly established with this set of orthographic conventions (after 200 lessons in the sequence), the children will have acquired a generalized skill that permits them to read hundreds of words and to spell any word that they can pronounce a sound at a time. Their spelling would be invented to the extent that it wouldn't always conform to conventional spelling; it would always correspond to the way the children pronounce the words.

### Limiting Prompts

*Reading Mastery* does not attempt to regularize all the words that children are to read. Some words are purposely introduced as "irregular words" and are introduced early in the program (starting on lesson 89). These irregularly spelled words are not treated as "sight" words that children are to somehow recognize as a visual "unit." If words are to be consistently recognized, they must be recognized

as a specific arrangement of letters linked to a specific pronunciation—a particular spelling that is linked to a particular spoken word. The procedures in *Reading Mastery* for teaching irregulars is guided by this fact. Children sound-out the irregular word by saying the sound values they have been taught for the various letters. In sounding-out the word **was**, for instance, they would say the sound for the three symbols **w, a, s**. They would be told, however, that the word is not pronounced wass (which rhymes with **bass**) but "**wuz**" (which rhymes with **buzz**). This treatment assures that the children do not assume that "irregular" words are arbitrarily spelled in different ways on different occasions, or that there is no firm relationship between the sounding-out and the pronunciation of the word. They do not assume that what they have learned about the sound values of the different letters is somehow attenuated or negated. They say the same sounds for the letters **a** and **s** in **was** that they say in the word **sat**. They understand simply that **was** is a funny word, and that after you sound it out, you have to remember how to pronounce them because the sounding-out is not a strict key to how to pronounce the word.

The irregulars that are introduced early in the program are **was, said, to, do, of, you, mother.**

Later in the program, children learn about another type of irregularity—the letter combinations: **ar, al, ou, oi, oy.** Combinations are irregular because when the two letters occur in combination, they have a unique pronunciation. Children learn the most common sound for these combinations. For instance, the a in **al** is not the pronunciation they learned for a. The combination al does not rhyme with **pal**. Rather, it rhymes with **Paul**.

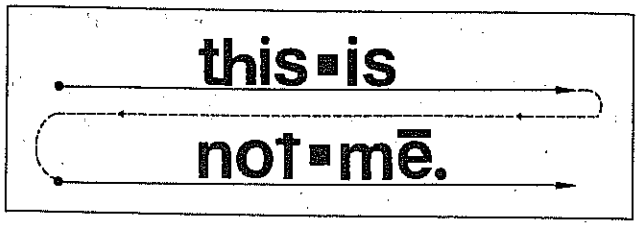
The combinations are not signaled by any visual prompts. Words with a particular combination are presented as families that are irregular in the same way. For instance, the **ar** combination is introduced with the word groups like **arm, farm, harm, charm.** Children sound out **arm** by saying the assigned value for each sound. Then the teacher says, "That's how we sound-out the word. Here's how we say the word, **arm**."

For the rest of the words, the teacher says, "This word rhymes with arm . . . Get ready." The children read the word the-fast-way: **farm, harm, charm.**

**Early in the program, no capital letters are introduced.** The reason is simply that the amount of practice required to teach these letters, especially those that are different from lower-case counterparts, does not warrant priority status early in the program.

A much higher priority is to induce behaviors of reading connected sentences. Periods, quote marks, and commas are used in a conventional manner. Early prompts for reading connected sentences are dotted lines that guide children from the end of one line to the beginning of the next.

Take-Home 61




The final set of "prompts" that are provided by *Reading Mastery* involve the shape of the letters. Some of the more difficult letters are designed in a way that makes them more readily distinguishable from letters children sometimes confuse with them. For instance, children sometimes confuse **a** with **d**. They also confuse **b** with **d**. The *Reading Mastery* orthography reduces the problems with these discriminations by using modified letters: **a d b**.

Note that these letters are not highly similar. The base of the ***d*** is modified so ***d*** and **b** are not mirror images. The **a** has a curved top, which makes it easily distinguished from **d**.

To further reduce the possibility of **b**-**d** confusion, the letter ***d*** is introduced very early in the sequence (because it has far more utility in generating words than **b** does) and **b** is introduced more than 100 lessons later. Children receive a lot of practice with words that have the letter ***d*** before they encounter **b**.

### Fading Prompts

The orthographic prompts are faded or removed during the second level of the program. Capital letters are introduced during this sequence, and the emphasis on identifying a word is shifted from "sounding-out" the word to spelling the word. Note that spelling is the only accurate means of referring to the letters that make up words, once the orthography no longer permits for each symbol to generate only one possible sound. Once the macrons are removed, the letter **a** has many possible sound values in different words; for instance, the sound in **was**, the sound in **wall**, the sound in **part**, the sound in **pan**, and the sound in **pane** or **pain**. In all cases, the sound is signaled by **a** in combination with other letters. Therefore, as part of the prompt-fading procedures, the stories and lists are designed so that students receive a lot of practice with each "faded" element.

### Sounding-Out

The sounding-out procedure that children learn assumes that the primary emphasis of the program is on reading, not spelling. **The procedure is designed to make the sounded-out word as similar as possible to the word spoken in normal conversation.**

Children are taught to say sounds without pausing between them. The word **fan** is not sounded-out as: fff ( pause) aaa (pause) nnn. It is sounded out as: **fffaaannn**, with no pauses during which there is silence. **The only difference between the sounded-out word and the word as it is normally spoken is the rate at which it is said.** This sounding-out convention permits children to process all words that do not begin with a stop-sound.

### Oral Blending

Before reading is introduced, children practice blending orally presented words. For the procedure that is most like reading, the teacher says, a word in parts or slowly, such as **mmmaaannn**. Then the teacher directs the children to, "Say-it-fast." The children say, "**man**."

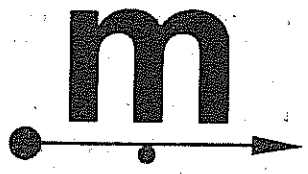
Children also practice saying the sounds of verbally presented words. For example, the teacher says **rrruuunnn**, and directs the children to "Say it with me." Following this recitation, the teacher says to "Say-it-fast."

This activity embodies all the **verbal** components of reading aloud. Without pausing between sounds, the children say the sequence of sounds that make up the word. Then they say-it-fast and identify the word. The only component that is later added to make this a **reading** task is the **written symbols** that provide the basis for the sequence of sounds the children produce when they "sound-out," the word.

Also, before children read words, they play "symbol action" games, which are signaled by pictures shown on an arrow that points left-to-right.

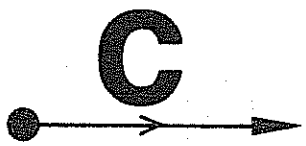
For this example, the children follow the arrow, touch under each picture and perform the sequence of actions that is illustrated (touching their nose, then touching their head). These activities acquaint children with some of the conventions of reading, particularly the notion of sequencing events that occur in time. The written code shows events that are to occur earlier to the left, and those that occur later to the right. In the word **ant**, the first event is the sound for **a**; the next event is the sound for **n**. In the symbol action games, the events are different, but the left-to-right sequencing rule is the same.

The symbol-identification exercises early in the program display letters arrows. Continuous sounds have a little ball directly under the symbol.




The teacher "follows the arrow" with her point. When she touches the ball under the symbol, children say the sound. They keep on saying it for as long as the teacher touches the ball.

Stop-sounds (and **h**) have a little arrowhead under the letter rather than a ball. The arrowhead indicates that you can't stop, but must keep going.




Children are told that these are "quick sounds" that must be said quickly. The teacher follows the arrow quickly to the end. Children say the sound for the letter as soon as the teacher's finger passes the marker under the letter.

*All mistakes that the children make are correctable by using some variation of what had been presented earlier in the program. .... Therefore, any child who meets mastery on the pre-reading activities will read.*

The pre-reading practice on sound identification, the say-it-fast component, and the symbol-action games permit children to practice all the component behaviors of initial word reading. When they do the initial reading, they follow the arrow, touch under

each symbol, and produce the sound for the symbol. They say the sounds for the letters continuously (without pausing). After they have said the sound for the last symbol, the teacher directs them to say-it-fast.


For this word, the children say **mmmaaat** as the teacher signals for the three sounds. Then children "say-it-fast."

**All mistakes that the children make are correctable by using some variation of what had been presented earlier in the program.** The references to what constitutes the "first" sound and the next sound had been established in the symbol-action games (by referring to the first picture and the next picture). The values for the sounds had been taught in sound-identification activities. The oral-blending activities had assured that the children had the phemic-processing skills implied by the initial-reading tasks. **Therefore, any child who meets mastery on the pre-reading activities will read.**

The most difficult skill for the children in *Reading Mastery* is decoding words that begin with a stop-sound (**dan, can, tan, pan**). These words are presented after children have worked with various words that begin with continuous sounds.

To prepare children for words that begin with stop-sounds, *Reading Mastery* introduces convergent rhyming. Children are told a word-ending and then are directed to affix a specified beginning to form a word.

Listen: You're going to rhyme with **at**.

What are you rhyming with? (Signal.) **At**.

Start with **mmmm** and rhyme with **at**. Get ready. *Mat.*

Start with **ssss** and rhyme with **at**. Get ready. *Sat.*

Start with **b** and rhyme with **at**. Get ready. *Bat.*

The stop-sound rhyme comes at the end of the initial series because it is more difficult than the other words.

When children initially decode words that begin with stop-sounds, they use a variation of the same task presented for rhyming. The ending of the word they read is shown in red. The first letter is black.


The letters at are red. The **c** is black. The teacher directs the sounding out of the red ending. (Children say the sounds **aaat** and say-it-fast: **at**.)

The teacher says: "This word rhymes with **at**. Get ready," and moves quickly along the arrow from the left, under the letter **c**. The children say, "Cat."

After children have learned a few words that begin with stop-sounds, subsequent words are introduced more quickly. The teacher tells the children that the word begins with a "quick sound," and prompts the children to look at the next sound in the word. The teacher then moves quickly from the beginning of the arrow and stops under the second letter as the children say the sounds for the first two letters of the word. For instance, if the word is **pat**, the teacher stops under **a** as the children say "**paaa.**" The teacher then moves under **t** as the children complete the word: **paaat.**

## Horizons

As noted earlier, *Horizons* shares many features with *Reading Mastery*. If has "symbol action" games, phonological pre-teaching activities like "say-it-fast," and a design that introduces all the component skills that are required for the complex applications that follow.

*Horizons* is different from *Reading Mastery* in sequence, procedures, prompts, orthographic conventions, and in teacher-presentation conventions. These differences stem from the general goals of *Horizons*. The program was designed to overcome some of the criticisms of *Reading Mastery*. The first column of table 1 presents the more frequent criticisms of *Reading Mastery*. The second column indicates the solution that *Horizons* provided.

To overcome criticisms 1, 6, and 7, *Horizons* had to be designed with a more "traditional" orientation toward the standard print conventions (such as capital letters at the beginning of sentences) and the traditional ways of referring to letters that compose words (rather than calling letters sounds). The adoption of these conventions created a need for a different sequence of beginning skills. If the teacher is going to refer to letter names, the reading program could not start before the children learned letter names. Therefore, letter names are taught or reviewed at the beginning of the program. If the children are expected to read words that begin with capital letters, some teaching of capital letters is needed before these words appear.

To overcome criticism 2, the program had to be designed so that blending skills are presented so that children learn how to blend orally-presented words consistently when they are "segmented" with

**Table 1. Criticisms of *Reading Mastery* and *Horizons* Solutions.**

| Criticisms of *Reading Mastery* | *Horizons* Solutions |
|---|---|
| 1. Requires children and teachers to interpret many orthographic prompts—unusually-shaped letters, joined letters, small letters, and macrons. | Utilizes adult print from the beginning of the program. The only orthographic prompts are underlining and blue letters. |
| 2. Requires teachers to learn difficult blending skills, such as sounding-out words without pausing between sounds. | Utilizes simplified blending skills that do not require children to sound-out words without pausing between sounds. |
| 3. Requires teachers to learn difficult presentation skills—displaying the presentation book to children while presenting word-attack exercises. | Simplifies presentations by utilizing the children's workbooks and readers as the presentation material the teacher refers to. |
| 4. Requires extensive teaching for children who enter the program mid-year with some reading skills. | Readily accommodates mid-year children and requires only a minimum amount of orientation to the underlining and the blue letters. |
| 5. Takes too long to introduce hard-bound books. | Hard-bound books are used exclusively from lesson 1. |
| 6. Does not use capital letters early in the program. | Capital letters appear on the first lessons that present sentences (after lesson 90). |
| 7. Does not refer to letter names early in the program. | Refers to letter names from lesson 1 and uses them to teach approximate pronunciation of letter sounds. |
| 8. Presents only limited writing and copying activities. | Provides extensive writing and copying activities. |
| 9. Has a spelling program that does not deal with a broad range of word families. | Has spelling program that provides children with practice in using the full range of basic word families (including basic combinations like **ai, ea, oa** and **ar**). |
| 10. Lacks any but a supplemental literature collection. | Provides literature lessons at regular intervals throughout the program. |
| 11. Lacks whole-class and cooperative learning activities. | Utilizes whole-class presentation formats for literature lessons and extensions for spelling and writing—many opportunities for cooperative learning and group projects. |
| 12. Lacks stimulating visual material. | Presents visually-engaging displays for each part of every lesson, all in full color and designed to augment the lessons. |
| 13. Lacks engaging comprehension activities. | Presents a variety of stimulating story-reading formats that both facilitate children's understanding of the story and engages them in analyzing the details of stories. |

pauses between the sounds.

Criticism 3 results from the fact that in each lesson of *Reading Mastery*, the children look at words and letters that are displayed in the teacher-presentation book. Presenting these words with clear directions requires coordinating pointing, touching, saying, and signaling children to respond. *Horizons* solves this problem by not using teacher-display material. Instead, nearly all the examples of words and letters that the program presents are in the children's textbook and workbook. This focus on the textbook and workbook requires *Horizons* to provide more skill preparation for the children so they perform accurately in response to verbal directions about touching and saying sounds for letters. If the directing is not effective, children will not make the appropriate letter-sound associations because they will not point to the correct letters in their book.

To overcome criticisms 5, 12 and 13, the story-reading formats were designed so the program provided a greater range of comprehension activities, presented a larger number of illustrations for each story, and presented stories in hard-bound books.

The trick in designing the program was to meet these various criticisms without reducing the program to a traditional "phonics" program, or designing it so that it would be appropriate only for high performers who were "ready" to learn reading. The challenges involved meeting the criticisms in a way that preserved the goal of designing sequences so that all children who qualified to enter the program would learn all the skills taught in the program.

**Simplified Orthographic Prompts**

*Horizons* provides orthographic prompts but they are not as extensive as those in *Reading Mastery*. Basically all of the *Reading Mastery* prompts tell exactly how to pronounce a particular letter. For instance, the letter **a** directs children to say only one sound—the first sound in the word at—while the letter **a** directs the first sound in ate.

***Horizons*** **uses only three prompts: (1) underlined letter combinations; (2) squiggled underlining for combinations or letters that are irregular; (3) blue letters, which signal children not to pronounce the letter and to say a letter name for another letter in the word.**

**None of these prompts is sound-specific. In other words, these prompts do not provide children with information about <u>how</u> to pronounce specific letters or combinations. The prompts simply show <u>where</u> the children are to use a particular pronunciation strategy.**

Horizons *provides orthographic prompts but they are not as extensive as those in* Reading Mastery.

**Underlined Combinations**

Unlike *Reading Mastery*, *Horizons* underlines letter combinations. The program presents the following combinations: **th, sh, ch, wh, ir, er, ur, ai, ea, oa, al, ar, ay, oy, oi, ou, oul, ce, ci , ge, gi.** An underlined combination always makes the same sound that the children have been taught for the combination. Here are some of the early words: **she, that, far.**

**Squiggled Underlinings**

The squiggled underline appears in parts of words that are "irregular" with respect to what children have learned about the various sound values.

was said from

The word was has a squiggled **a.** The word **said** has a squiggled **ai.** The word **from** has a squiggled **o.**

**Blue Letters**

A blue letter in a word indicates two things:

1. **The letter that is blue does not make any sound.**
2. **Some other letter in the word says <u>its name</u>.**

Blue letters appear as the second letter in combinations that make a long vowel sound. (The bold letters are blue in the program.)

ai ay ea oa

The black letter in these combinations says its name. The combination **ai,** says the letter name **A.** The combination oa says the letter name **O.**

A blue letter also appears at the end of long-vowel words that end in e, such as:

make fine flame

There would be no blue letter for the word **have** because no letter in the word says its name. Therefore, have is taught as an irregular word.

**Introduction of Sounds for Vowel Letters**

Horizons also differs from *Reading Mastery* in the order of sound introduction, largely because of the inability of the *Horizons'* conventions to distinguish between single-vowel-letters that are long, versus single-vowel letters that are short. *Reading Mastery* can easily process words like **not** and **nō**. The line over the **o** in **nō** indicates that it is long. *Horizons* is unable to show this detail of pronunciation. Therefore, a critical decision in the *Horizons'* design was whether to introduce the long-vowel sounds or the short-vowel sounds early in the program.

*Horizons* assumes that children have been taught letter names. **Therefore, the first sounds children are taught for the vowels are long-vowel sounds because those are the letter names.** Early in the program, children are introduced to words like **he, no,** and **I**. This strategy works well for words with the vowels **e, i,** or **o,** because a fairly large number of words with the vowel letters **o** or **e** (including **double e**) are available (**me, see, need, feet,** etc.). However, there are not many common words with single-vowel letters that make the long-vowel sound for **a, i,** or **u.**

*...the first sounds children are taught for the vowels are long-vowel sounds because those are the letter names.*

Consequently, the **short-a** and **short-i** sounds are introduced fairly early in the program. Also, letter combinations with blue letters (<u>ai</u>, <u>ea</u>, <u>oa</u>) are introduced very early (starting with lesson 33). Together, these variations permit the introduction of many words.

**Introducing Consonant Letters**

The sequence for introducing consonants is influenced by the fact that children know letter names. There are some systematic relationships between the name of consonants and the sounds they make. *Horizons* groups consonants that have the same pattern into "families" and presents the letters in each family at around the same time in the program sequence. Because all members of a family have the same pattern, children are able to "generalize" the pattern to all the letters in the family rather than learn the sounds for each letter through brute memorization.

The first family includes the letters **f, l, m, n, r,** and **s**. The common relationship between the name of the letter and the sound the letter makes in words is that **the sound is the last part of the letter name.** For **f** the sound is **fff.** For **l** the sound is **lll,** and so forth.

In learning this pattern, children first learn to say the letter names a sound at a time, with a pause between the sounds. For the letter name **f,** children say: **eee**(pause) **fff.**

For **s,** children say: **eee** (pause) **sss.**

For **n,** children say: **eee** (pause) **nnn.**

After children have practiced saying the letter names a part at a time, they are introduced to the rule that for all these letters: The second part of the name is the sound these letters make in words. This rule not only makes the relationship between letter name and sound explicit. **The rule also provides both teacher and children with a precise pronunciation of the sound.** For the letter **f,** the second sound is unvoiced (whispered, rather than spoken with vocal-cord activity). That's the sound the letter makes in words (not **fuh** or **fih** but simply **fff**).

For the next family, the consonant sounds are not the second part of the letter name, but the first part. The set consists of: **b, d, j, k, p, t, v, z.**

The first letters the children learn from this set are **p, t,** and **d.** The introduction to **b** is held off until lesson 103, after children have done a lot of work with the letter **d.** (Familiarity with **d** reduces the possibility that children will confuse **b** with **d.**)

Like the first set, the pronunciation of the letter sound derives fairly precisely from the letter name. If the name for **d** is said a part at a time—**d (pause) eee**— the first part is a workable pronunciation of the sound, one that will serve the children in various words.

Note that this grouping of letters provides children with the **long-i** sound for the letter **y.** This makes words like **try, my,** and **fly** regular. Words like **key** and may have blue ys.

key

The sound for **y** that occurs at the beginning of words (**yes** and **yard**) is not introduced until lesson 109.

The final family of consonants consists of the irregular sounds—**c, g, h,** and **w.** Consonants from these sets are introduced as they are needed to create texts that have increasingly natural language. Many common words children are expected to learn in a beginning-level reading program are irregular. Combinations **th, sh, ch, ar, oo, ou,** (**oi, oy**) **ce, ge,** and **al** are also introduced as they are needed for words.

Unique blue-letter words that are presented in

*Horizons* include those that have the combination ar and the word you.

farm you key

The combination ar always has a blue letter, because the combination says the letter name, R. In the word you, only the u is black. That's the letter that says its name. The word key has a blue y; the e says its name.

**Strategies for "Blending" Sounds into Words**

*Reading Mastery* teaches children to blend so there are no pauses between the sounds. ***Horizons* teaches blending that has pauses between sounds.** There are two reasons for this convention:

1. Blending continuously is relatively difficult for some teachers (not children).

2. The strategy used in *Horizons* to teach some early vowel sounds requires spelling. For spelling, saying sounds for words with pauses is more practical than saying sounds without pauses.

**Spelling for Reading**

When children spell words from the sound of the spoken word, they must be able to hold the sequence of sounds in their memory. Because there will be long pauses as children write the letters in a word like **for**, the task is easier for them if they have practiced saying the word as three sounds separated by pauses.

To make sure that children are facile in blending sounds when there are pauses between them, the children receive a lot of oral practice in saying words a sound at a time (with pauses) and identifying words that the teacher says a sound at a time (with pauses). One benefit of presenting words with pauses is that words that begin with stop-sounds become much less difficult than they are in *Reading Mastery*. The reason is that whether the initial sound in a word is continuous or a stop-sound, the same blending strategy is used.

**d (pause) iii (pause) g**
is more like
**rrr (pause) iii (pause) g**
than
**diiig**
is like
**rriiig.**

**Teaching Sounds Through Spelling**

**The spelling that children learn in *Horizons* is designed to teach some spelling but, more relevantly, to teach reading skills.**

**Spelling strategies are used when children know one sound for a particular letter or combination and the goal is to introduce another sound for that letter or combination.** For instance, after children have learned the long-vowel sound A, the short-vowel variation is introduced through spelling. Children are given a rule: "If you hear the sound aaa in a word, it is written with the letter A." They immediately apply the rule to the spelling of words like **ant, sat, man, etc.** through the same process.

Here's an example from lesson 31:

n. Touch the star. ✔
- You'll write the letters for **ran** on that line.
- **Ran** has three sounds. Say **ran** a sound at a time. Get ready. (Tap three times.) *rrr . . . aaa . . . nnn.*

o. Let's do it again.

p. Say the first sound in **ran.** (Signal.) *rrr.*
Say the next sound in **ran.** (Signal.) *aaa.*
Say the last sound in **ran.** (Signal.) *nnn.*

q. (Repeat step p until firm.)

r. What letter will you write for the sound **rrr**? (Signal.) *R.*
What letter will you write for the sound **aaa**? (Signal.) *A.*
What letter will you write for the sound **nnn**? (Signal.) *N.*

s. Touch the star. ✔
- Write the letters for **ran.** Remember the letter you'll write for the sound **aaa.** Pencils down when you're finished. (Observe children and give feedback.)

After children have spelled and written a lot of these words, they know two sounds for the letter **a:** one derived from the letter name; the other derived from the spelling strategy.

The same routine applies to the letter **i.** Children are told that if they hear the sound **iii** in a word, it is spelled with the letter **i.** They immediately apply the rule to words like **if, sit, fin,** etc.

After they are practiced at spelling one-syllable words that have the letter **i,** they know two sounds for the letter; and they have learned the combination without difficult discrimination learning. Note that this sequence is a lot easier than learning the short sounds for a and i through "reading" rather than spelling.

Even when children spell words that have either the **short-a** or the **short-i** sound, the children must choose from only two letters—i or a. When reading, on the other hand, the children must generate the appropriate sound from symbols, which is more difficult than identifying one of two letters for the sound.

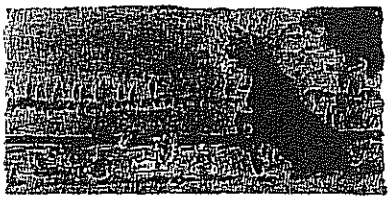
Therefore, spelling in *Horizons* serves as a bridge for reading words that have new or unusual sounds. The spelling emphasis in *Horizons* is on patterns, not individual words. The goal is not to teach the children to spell particular words, like **eat**, but rather to spell groups of words that follow the same spelling patterns.

**Comprehension**

Criticisms 12 and 13 had to do with *Reading Mastery's* lack of stimulating illustrations and extensive comprehension activities. Comprehension and the format for illustrating stories are different in *Horizons* than in *Reading Mastery*. In *Horizons*, stories that children read are a gradual extension of stories that children listen to. As part of the first lessons in the program, children listen to stories that the teacher reads to them. As part of the story presentation, children refer to illustrations in their story book and answer questions about what the characters did and said.

Here's part of the presentation from lesson 32:

m. Touch the first story picture. ✔



- Who is that mud heap? (Signal.) *Clarabelle.*
- Where is she now? (Call on a child. Idea: *At the pond.*)
- Everybody, do you think those ducks are happy that Clarabelle is near their pond? (Signal.) *No.*
- What's Clarabelle going to do? (Call on a child. Idea: *Jump into the pond.*)

n. Everybody, touch the next picture. ✔

- What is Clarabelle doing? (Call on a child. Idea: *Jumping into the pond.*)
- When she jumps in, the other animals fly out.
- What kinds of animals do you see being splashed out of the pond? (Call on a child. Ideas: *Frogs, fish, ducks.*)
- What do you think those ducks will say to Clarabelle? (Call on a child. Ideas: *Get out of our pond; You shouldn't have done that.*)
- Only one animal in this picture looks very happy. Everybody, who is that? (Signal.) *Clarabelle.*
- But after she found out how mad she mada the other animals, she felt very sad.

o. This is like a picture in your workbook. Later you'll color it.

As children learn to read words, the procedure changes so that during each lesson the teacher still tells most of the story, **but children read words, phrases, and sentences for key parts of the story.** Here's part of the story reading from lesson 44:

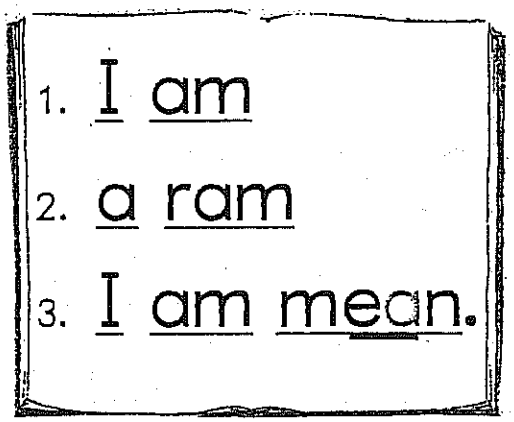
j. Touch number 2. ✔

- Gorman said, "I can hear your voice, but I want to know what kind of animal you are. Are you a horse or are you a cow?"
- The animal said, "I am . . . "
- Everybody, tell me the first word. Get ready. (Tap.) *A.*
- Next word. Touch and say the sounds. Get ready. (Tap three times.) *rrr . . . aaa . . . mmm.*
- What word? (Signal.) *Ram.*

k. So the animal told Gorman, "I am (pause) **a ram.**"

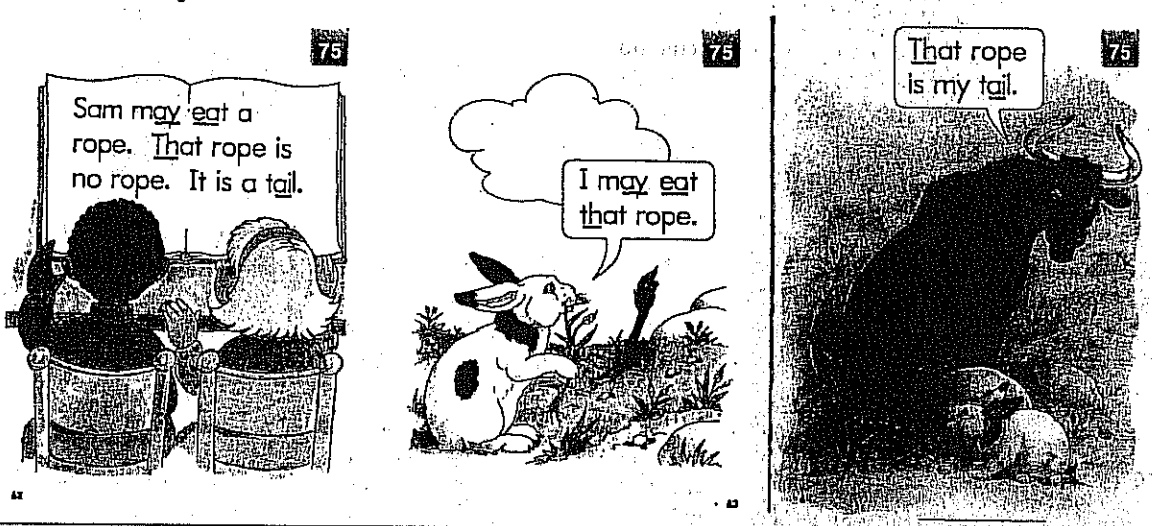
l. Your turn. The animal told Gorman, I am . . . (Signal.) *A ram.*

m. (Repeat step l until firm.)




Beginning with lesson 47, children read entire stories. They first read the story in a mock-up of a book. The focus of this reading is on accurate decoding. Then children read an illustrated version of the story. This is the comprehension version. Children answer questions that are based on the text and those that relate the text to the illustrations. Some illustrations show characters saying things in "balloons." Sometimes the wording of the second version of the story is not the same as that of the first.

Here's an example from lesson 75:



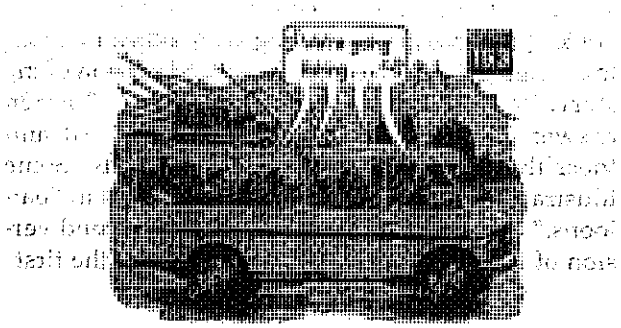

The children first read the story in the book mock-up. Then they read the illustrated version. Note that the wording of the two versions is different. As they read the illustrated version, children answer questions about whether the rope is really a rope, what could happen if Sam took a bite out of that tail, and what they think Sam will do.

Note that the story is designed so it really doesn't make a lot of sense until the illustrations are presented. This feature strongly motivates children to want to do the illustrated version.

As the children progress through the program, the stories get longer and more sophisticated. On lesson 115, the book icon is dropped for the first reading of the story and a single version of the story is presented. It has text interspersed with illustrations. However, the two-reading routine continues. For the second reading, children read what characters say in the pictures.

By the end of level A, children read stories that are 200 words long and that incorporate a variety of words that they have learned. The stories are based on more than 1100 words that children have learned. Children engage in a wide range of story-comprehension activities that require interpreting pictures as well as responding to the content of the text.

Here's the story from lesson 153:



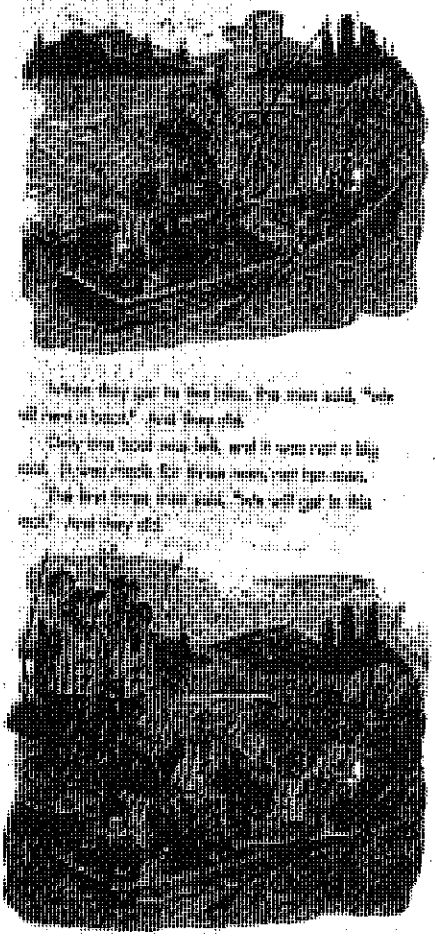
Ten Men

Ten men liked to do things with each other. When one man went to a show, the other nine men went with him. When one man went to the store, the other nine men went with him.

One day, a man said, "Let's go fishing."

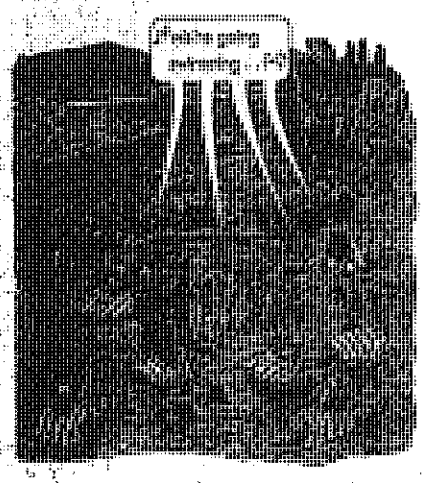
The other nine men said, "Yes, let's go fishing."

So ten men got in a van, and away they went to the lake.



As they started to leave the dock, the other men said, "We will get in this boat, too." And they did.

Did the boat hold the men? No.



So the ten men did not go boating and did not go fishing. Those men went swimming.

The end.

By the end of level B, all prompts are faded, children have mastered about 600 more words than they learn in *Reading Mastery 1* and 2, and they read selections that are very sophisticated.

Here's an example from the end of *Horizons* level B:

Owen, Fizz, and Liz
Part One

A long time ago, there were two islands that were almost the same in every way. They were the same size and the same shape. Both islands had a large beach on the north end. Both had a large mountain in the middle. Both had the same hills and the same valleys. But these islands were not in the same place. They were many, many miles apart.

Another thing that was not the same about these islands was the people who lived on them. On one island, there were ten little tiny people. These people were only about one inch tall. Some of the spiders on their island were bigger than they were. On the other island, there were three giants. They were almost twenty feet tall. They were so big that they could not walk through the doorway of your classroom. They would have to crawl in. And they would not be able to stand up after they got inside. These giants were so big and strong that they could pick up a bear and hold it like a puppy.

## Final Comparisons

The question, "Which program is better?" doesn't have a clear answer. *Reading Mastery* is the quintessence of efficiency. It requires fewer entry skills; it introduces the essential elements of the reading code in efficient ways. Because of its orthographic prompts, it is able to present a very wide range of words as "decodable" words, and it is able to fashion generalizations around these words. *Reading Mastery's* low-skill entry criteria mean that it works well with children in K and even pre-K. It is particularly valuable in working with lower-performing beginning readers.

*Horizons* teaches a greater number of words and a broader range of skills, both comprehension skills and decoding strategies. *Horizons* places more emphasis on illustrations and other features that are reinforcing to children. *Horizons* also works better than *Reading Mastery* as a remedial program for older students who have very limited decoding skills. Students entering *Horizons* do not have to learn as many new orthographic conventions. Also, after they have gone through the program, it is easier for them to transition to unprompted print.

The price of the *Horizons'* advantages is the additional preskills that entering children need. Because children should at least have some familiarity with letter names (and ideally know them) the program is not appropriate for very low beginning readers in K or pre-K. Once lower-performing children have learned letter names, however, *Horizons* is quite effective. A final advantage of *Horizons* is that it is a very good beginning-reading program for children who are second-language learners. The comprehension activities, pictures, and manner in which the text is transformed on some of the second readings give these children more information about how the language works and what various words and phrases mean.

*Reading Mastery* and *Horizons* are different in specific details, not in their overall capacity to teach children who meet entry requirements for them. Their differences highlight the fact that sounds of letters may be introduced systematically according to at least two different schemes. Both, however, are careful. Also, blending, comprehension, and other reading activities may be designed in more than one way, but the skills must be developed through systematic, small-step progressions that make it possible for all children whose performance qualifies them to begin the program to learn everything in the program and learn it in a timely manner. ◆

# National Reading Panel Reports Combination of Teaching Phonics, Word Sounds, Giving Feedback on Oral Reading Most Effective Way to Teach Reading

In the largest, most comprehensive evidenced-based review ever conducted of research on how children learn reading, a Congressionally mandated independent panel has concluded that the most effective way to teach children to read is through instruction that includes a combination of methods.

The panel determined that effective reading instruction includes teaching children to break apart and manipulate the sounds in words (phonemic awareness), teaching them that these sounds are represented by letters of the alphabet which can then be blended together to form words (phonics), having them practice what they've learned by reading aloud with guidance and feedback (guided oral reading), and applying reading comprehension strategies to guide and improve reading comprehension.

The work of this panel was guided by two unique actions. First, the panel developed a set of rigorous scientific standards to evaluate the research on the effectiveness of different instructional approaches used in teaching reading skills. Second, the work of the panel was conducted in a public forum, which allowed for public input at all of its meetings.

"For the first time, we now have guidance-based on evidence from sound scientific research-on how best to teach children to read," said Duane Alexander, M.D., Director of the National Institute of Child Health and Human Development (NICHD), which supports research in reading and learning. "The panel's rigorous scientific review identifies the most effective strategies for teaching reading."

The National Reading Panel was established in response to a 1997 congressional directive. Specifically, Congress asked the Director of the NICHD, in consultation with the U.S. Secretary of Education, Richard W. Riley, to convene a national panel to review the scientific literature and determine, based on that evidence, the most effective ways to teach children to read. The Panel is composed of 14 individuals and includes leading scientists in reading research, representatives of colleges of education, reading teachers, educational administrators, and parents. The report, along with more information about the National Reading Panel, is available at the panel's website, http://www.nationalreadingpanel.org.

The NICHD will undertake an aggressive effort to distribute the report and its findings to policy makers, educators, and parents. The NICHD will collaborate in these efforts with the National Institute for Literacy and the Public Libraries Association.

*[E]xplicitly and systematically teaching children to manipulate phonemes significantly improves children's reading and spelling abilities.*

For its review, the panel selected research from the approximately 100,000 reading research studies that have been published since 1966, and another 15,000 that had been published before that time. Because of the large volume of studies, the panel selected only experimental and quasi-experimental studies, and among those considered only studies meeting rigorous scientific standards in reaching its conclusions.

The panel's review focused on the following areas: alphabetics (phonemic awareness and phonics instruction), reading fluency, reading comprehension, teacher education, and computer technology. Phonemic awareness is knowledge that spoken words are made up of tiny segments of sound, referred to as phonemes. For example, the words "go" and "she" each consist of two phonemes. Phonemic awareness is often confused with phonics, which refers to the process of linking these sounds to the symbols that stand for them, the letters of the alphabet. A comprehensive explanation of these two concepts is available in the NICHD publication, Understanding Why Children Succeed or Fail at Reading, http://

www.nichd.nih.gov/publications/pubs/readbro.htm.

The panel found that the research conducted to date strongly supports the concept that explicitly and systematically teaching children to manipulate phonemes significantly improves children's reading and spelling abilities. The evidence for this is so clear cut that this method should be an important component of classroom reading instruction.

*[S]ystematic phonics instruction, combined with synthetic phonics instruction produced the greatest gains.*

The panel also concluded that the research literature provides solid evidence that phonics instruction produces significant benefits for children from kindergarten through 6th grade and for children having difficulties learning to read. The greatest improvements in reading were seen from **systematic phonics instruction**. This type of phonics instruction consists of teaching a planned sequence of phonics elements, rather than highlighting elements as they happen to appear in a text. Here again, the evidence was so strong that the panel concluded that systematic phonics instruction is appropriate for routine classroom instruction.

*[G]uided oral reading is important for developing reading fluency-the ability to read with efficiency and ease.*

For children with learning disabilities and children who are low achievers, **systematic phonics instruction, combined with synthetic phonics instruction produced the greatest gains. Synthetic phonics instruction** consists of teaching students to explicitly convert letters into phonemes and then blend the phonemes to form words. Moreover, systematic synthetic phonics instruction was significantly more effective in improving the reading skills of children from low socioeconomic levels. Across all grade levels, systematic synthetic phonics instruction improved the ability of good readers to spell.

The panel noted that, because children vary in reading ability and vary in the skills they bring to the classroom, no single approach to teaching phonics could be used in all cases. For this reason, it is important to train teachers in the different kinds of approaches to teaching phonics and in how to tailor these approaches to particular groups of students.

The panel also concluded that guided oral reading is important for developing reading fluency-the ability to read with efficiency and ease. In guided oral reading, students read out loud, to either a parent, teacher or other student, who corrects their mistakes and provides them with other feedback. Specifically, guided oral reading helped students across a wide range of grade levels to learn to recognize new words, helped them to read accurately and easily, and helped them to comprehend what they read.

By contrast, the panel was unable to determine from the research whether reading silently to oneself helped to improve reading fluency. Although it makes sense that silent reading would lead to improvements in fluency, and the panel members did not discourage the practice, sufficient research to conclusively prove this assumption has not been conducted.

Literally hundreds of studies have shown that the best readers read silently to themselves more frequently than do poor readers, the panel members wrote. However, these studies cannot distinguish whether independent silent reading improves reading skills or that good readers simply prefer to read silently to themselves more than do poor readers. The panel recommended that if silent reading is used as a classroom technique, intended to develop reading skills and fluency, it should be done in combination with other types of reading instruction, such as guided oral reading.

To determine how children best learn to comprehend what they read, the panel reviewed studies of three areas regarded as essential to developing reading comprehension: vocabulary development, text comprehension instruction, and teacher preparation and comprehension strategies instruction.

Although the best method or combination of methods for teaching vocabulary has not yet been identified, the panel review uncovered several important implications for teaching reading. First, vocabulary should be taught both directly-apart from a larger narrative or text-and indirectly-as words are encountered in a larger text. Repetition and multiple exposure to vocabulary words will also assist vocabulary development, as will the use of computer technology. The panel emphasized that instructors should not rely on a single method for teaching vocabulary, but on a combination of methods.

Likewise, the panel also found that reading com-

prehension of text is best facilitated by teaching students a variety of techniques and systematic strategies to assist in recall of information, question generation, and summarizing of information. The panel also found that teachers must be provided with appropriate and intensive training to ensure that they know when and how to teach specific strategies.

*[V]ocabulary should be taught both directly-apart from a larger narrative or text-and indirectly-as words are encountered in a larger text.*

With respect to the overall preparation of teachers, the panel noted that existing studies showed that training both new and established teachers generally produced higher student achievement, but the research in this area is woefully inadequate to draw clear conclusions about what makes training most effective. More quality research on teacher training is one of the major research needs identified by the panel.

*More quality research on teacher training is one of the major research needs identified by the panel.*

Finally, the panel examined the use of computer technology to teach reading. The panel noted that there are too few definitive studies to draw firm conclusions, but that the available information suggests that it is possible to use computer technology for reading instruction. Although not directly applicable to reading instruction, the use of hypertext-highlighted text that links to definitions or related text-may be a useful learning aid in the classroom. Moreover, the use of computers as word processors may also help students learn to read, as reading instruction is most effective when combined with writing instruction.

The NICHD is one of the Institutes comprising the National Institutes of Health, the Federal government's premier biomedical research agency. NICHD supports and conducts research on the reproductive, neurobiological, developmental, and behavioral processes that determine and maintain the health of children, adults, families, and populations. ◆

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# Research Alert: Focus on Direct Instruction

Division for Learning Disabilities (DLD)
and Division for Research(DR) of the Council for Exceptional Children (CEC)
and
Sara G. Tarver
University of Wisconsin-Madison

## What is it?

Direct Instruction (usually abbreviated as DI) is one specific model of teacher-directed explicit instruction. It is distinguished from other approaches to explicit instruction, or direct instruction (di), by its emphasis on both the importance of instruction (how a student is taught) and the importance of curriculum design (what the student is taught, in what order). The central elements of the DI philosophy are:

> Teachers are responsible for student learning.
>
> Curriculum design is a critical variable in student achievement.

The goal of DI is to accelerate student learning by maximizing *efficiency* in the design and delivery of instruction. Efficiency is achieved when students generalize beyond the specific material in the lesson. In DI, curriculum design is the key to assuring generalizations. DI curriculum design principles are based on Engelmann's theory of learning and generalization, which posits that:

> The student does not first learn something in a concrete singular sense and then generalize to some larger set. Even the initial learning is a generalization.
>
> Generalizations can be taught explicitly and systematically by using examples and nonexamples to communicate critical samenesses among sets of exemplars.
>
> Generalizations represent efficiency.

## For whom is it intended?

DI is intended for all students from whom we can expect reasonably high levels of academic achievement. DI has been used successfully with a broad range of students, including those with learning disabilities. Specific DI programs have been developed in a number of subject areas and at various grade-levels.

## How does it work?

Over 50 specific DI programs have been published for teaching language, reading, writing, spelling, mathematics and science. These programs range from a basal series for regular classroom instruction and for remedial settings, to a videodisk series for teaching core concepts in mathematics and science. Each program contains detailed descriptions of both the content to be presented and the procedures to be used to teach that content effectively.

## Curriculum Features

Scripted lessons provide carefully worded explanations, carefully selected and sequenced examples, and carefully structured demonstrations. The lessons are designed to ensure clear communication of preselected generalizations that have many applications and that provide foundations for increasingly complex learning.

The DI reading curricula are representative of other DI programs. The reading curricula provide many examples of generalizations that students learn en route to becoming independent readers. Phonemic awareness and phonics generalizations are emphasized in the beginning stages of reading instruction. General strategies for isolating, blending and identifying phonemes in spoken words are taught before letter-sound correspondences. Gradually, letter-sound correspondences are introduced (in a logical sequence) and integrated with the phonemic awareness skills. Letter-sounds are taught in conjunction with blending and sounding-out strategies and high-utility sight words so that students can start to read stories before all letter-sound correspondences are mastered.

Automatic decoding is achieved by daily practice of reading words in isolation. Fluency is achieved by repeated readings of decodable passages to speci-

fied levels of accuracy and rate. As passage reading becomes fluent, the emphasis shifts from decoding to comprehension instruction. Included among the comprehension strategies taught are : distinguishing between relevant and irrelevant evidence; identifying contradictions; using analogies (comparisons) to communicate relationships; distinguishing between literal and inferential questions; and identifying cause and effect.

High-application generalizations emphasized in other DI curricula are : morphographic spelling patterns; connections among the elements of number families; sameness in the applications of ratios and proportions to solve a variety of problems; and how convection plays a central role in various earth science phenomena.

## Delivery Features

Delivery techniques and classroom management procedures are described in teacher materials that accompany each DI program. DI delivery features include: rapid pacing, choral group responding mixed with individual turns, corrective feedback and re-teaching, reinforcement, review and practice, and progression from teacher-directed instruction to independent application. Students are generally taught in homogenous skill groups. Ongoing mastery testing is used to monitor student progress, and student groupings change as students progress at different rates.

## How adequate is the research knowledge base?

Direct instruction has been the focus of considerable validation and validity research. A high level of effectiveness has been demonstrated by individual research studies, research reviews, and technical reports of informal studies.

Data from Project Follow Through (with disadvantages students in grades K-3) showed superior results for DI when compared to other models of instruction on measures of basic skills. Follow-up studies with Follow Through students revealed lasting advantages through hgh school for students taught with DI in grades K-3 (see references 2 & 5).

A recent review of 34 research studies comparing DI interventions to a variety of other instructional programs showed that (a) 87% of the post-treatment means favored DI, compared to only 12% tjat favored non-DI approaches, and (b) 64% of statistically significant outcomes favored DI, compared to only 1% that favored non-DI approaches and 35% that favored neither (see reference 1).

Statistical integration of the data from the 34 studies referred to above showed large DI gains for (a) both regular education and special education students, and (b) both elementary and secondary students. Large DI gains were found (c) in a variety of academic subjects, (d) whether gains were measured using norm-referenced or criterion-referenced measures, and (e) whether the studies lasted up to 1 year or over 1 year.

Six of the 34 studies discussed above were targeted at improving the reading and/or math skills of students with learning disabilities. The average post-treatment performance of these students was more than one standard deviation above that of the comparison groups. Similar large positive effects were reported in three other sources: an earlier integrative analysis of the effects of DI in special education (see reference 7), a recent integrative analysis of the most effective intervention programs in special education (see reference 4), and an integrative analysis of the effects of DI videodiscs for teaching math and science (see reference 3).

Over 50 studies validate various specific features of DI programs, including the selection and sequencing of instructional examples, the specific wordings that facilitate learning and prevent mislearning, feedback on oral reading errrors during repeated readings, pacing, the size of instructional groups, and teacher attention and other forms of reinforcement.

## How adequate is the research knowledge base?

Each DI program is described thoroughly in a set of teacher materials tailored specifically to the target content/skill domain. The materials include scripted lessons as well as procedures for measuring and monitoring individual and group progress. These materials greatly shorten the time and effort required for teachers to learn to use DI effectively. Although assuring ease of use and reliability of implementation, the DI instructional materials are seen by some teachers as highly constraining and incompatible with their established instructional practices. A second practical limitation of the DI approach is that, although it is intended as a general instructional approach, the approach cannot be used readily to teach skills or content in areas for which detailed instructional materials and scripts have not yet been developed. The effectiveness of on-site teacher adaptations of DI materials has not been established.

## How effective is it?

In sum, our review of the work on DI indicates that it is an effective and reliably implementable

instructional approach for students with LD in those skill and content domains studied to date. Thus, practitioners should Go For It as a viable instructional option where warranted. Our only qualifications are that practitioners and administrators will need to ascertain the fit of DI with their own educational philosophy and teaching practices. They should also be aware that on-site modifications to the DI approach are not advisable until further research clarifies which components of the complete instructional 'package' are essential for effective learning.

## What questions remain?

Questions have been raised about the efficacy of the DI for students of different ages with different skills and/or different learning problems. Many people assume that DI (a) may be used successfully to teach disadvantaged students, but students with LD, (b) may be used successfully to teach a variety of low-performing students, but not average- and high-performing students, (c) may be used successfully with elementary students, but not with middle or high school students and adults, (d) may be used effectively to teach decoding but not reading comprehension, (e) may be used effectively to teach rudimentary academic skills, but not higher-order cognitive skills, and (f) may be used successfully to increase academic achievement, but not to increase motivation or self concept. Not one of these assumptions is supported by research on DI (see reference 6).

However, two important questions do remain. The first question has to do with the efficacy of DI practices at the middle and high school levels, since published DI curricula are not available for many of the subjects taught at those levels. Until recently, published DI programs for students beyond the elementary grades were designed to be used primarily for remedial or corrective instruction in reading, math and spelling, and efficacy studies have shown them to be effective with that group. Within the last decade, a series of DI videodisc programs for teaching math and science and a two-volume US History textbook have been developed and used with diverse groups of students. Early research on those programs indicates positive effects equal to, if not greater than, those for some of the earlier DI programs.

The second question has to do with how students who have been taught with DI in the elementary grades fare in middle and high schools where DI is not used. The answer is, we don't know. We *do* know, however, that middle and high school special education students with academic learning problems make tremendous gains in reading, spelling and math when taught with existing DI curricula. We also know that disadvantaged students taught with DI in grades K-3 in Project Follow Through continued to show the benefits of that DI approach in high school, though the benefits diminished the longer the students spent in traditional curricula. We still need to explore how to provide effective DI at these higher grade levels.

## How do I learn more?

Information about Direct Instruction programs: Association for Direct Instruction (ADI), PO Box 10252, Eugene, Oregon 97440

*Effective School Practices*. Bonnie Grossen, Editor, PO Box 10252, Eugene, Oregon 97440.

Engelmann, S. & Carnine, D. (1991) *Theory of instruction: Principles and practices*. ADI Press.

## References to effectiveness studies:


(1) Adams, G. L. & Engelmann, S. (1996). Research of Direct Instruction: Twenty-five years beyond DISTAR. Seattle, WA: Educational Achievement Systems.

(2) Bereiter, C. & Kurland, M. (1981-1982). A constructive look at Follow Through results. *Interchange, 12*, 1-22.

(3) Fischer, T. A. & Tarver, S. G. (1997). Meta-analysis of studies of mathematics curricula designed around big ideas. *Effective School Practices, 16*, 71-79.

(4) Forness, S. R., Kavale, K. A., Blum, I. M. & Lloyd, J. W. (1997). Mega-analysis of meta-analyses: What works in special education. *Teaching Exceptional Children, 29*, (6), 4-9.

(5) Meyer, L. A. (1984) Long-term effects of the Direct Instruction Project Follow Through. *Elementary School Journal, 84*, 380-394.

(6) Tarver, S. G. (1998). Myths and truths about Direct Instruction. *Effective School Practices, 17*, 18-22.

(7) White, W. A. T. (1988). Meta-analysis of the effects of Direct Instruction in special education. *Education and the Treatment of Children, 11*, 364-374.

# Bush vs. Gore: The Record

Douglas Carnine

Political campaigns are times of promises. But what of the promises of the candidates? In the areas of achievement and education initiatives, it seems that results speak louder than promises. Granted that what a governor can accomplish differs from what a Vice President can accomplish. Even so, what a candidate chooses to tout about his accomplishments implies what he might do about education as President. What follows are quotes from each candidate's website that describe his accomplishments in education. I added the underlined headings and changed the order of the content. The content itself was not edited; all headings for accomplishments related to k-12 education were included. Let the record speak.

## GORE

**Achievement Initiatives**

Working for Smaller Class Sizes.
Fighting to Rebuild and Modernize 6,000 Schools Nationwide.
Leading the Effort to Connect Every Classroom to the Internet.
Increasing Access to Educational Technology.
Supporting Goals 2000.
Providing Safe, High Quality After-School Care Initiatives.
Fighting for Early Childhood Education.
Reducing Guns and Drugs in Schools.

## BUSH

**Achievement**

The number of students who passed all parts of the TAAS test has increased 47 percent while Governor Bush has been in office, from 53 percent in 1995 to 78 percent in 1999.

The number of minorities passing the TAAS increased from 38 percent in 1994 to 69 percent in 1999.

Reading performance has improved: 87 percent of all students in grades 3-8 and 10 passed the reading TAAS in 1998, up from 77 percent four years ago.

Texas schools continue to improve. From 1994 to 1998, the number of schools rated "exemplary" rose from just 67 to 1,048. During the same time, the number of "recognized" schools more than doubled from 516 to 1,166.

On the 1996 National Assessment of Educational Progress (NAEP) in Mathematics, African-American fourth graders in Texas ranked first in the nation among African-American fourth graders, with Hispanic students close behind.

On the 1998 NAEP Writing Exam, Texas eighth graders ranked fourth in the nation, with African-American and Hispanic eighth-graders scoring first and second in the nation respectively.

Texas recently earned the distinction of being one of two states that has made the greatest progress in education in recent years, according to the National Education Goals Panel.

**Initiatives**

Educators given new tools to improve reading performance including:

1. A rigorous core reading curriculum that is knowledge-based, back-to-basics, and phonics-driven (i.e., a curriculum based on the science of reading).
2. A new diagnostic tool, the Texas Primary Reading Inventory, to help kindergarten through second-grade teachers detect and correct reading problems early.
3. Eighty-two million dollars over a four-year period to fund Reading Academies' intensive schools-within-schools to teach reading programs that work.

Toughened the accountability system.
Insisted on local control.
Reduced federal education oversight.
Returned to basics.
Ended social promotion.
Implemented the Governor's reading initiative.
Created a zero-tolerance policy for bad behavior.
Offered choice in public education.
Increased funding for education.
Helped build more schools.
Increased teacher pay.
Expanded the Advanced Placement program.
Focused on reading preparation.
Promoting Choice in Education:
Charter Schools
Public Education Grant Program

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# CONTRIBUTOR'S GUIDELINES

*Effective School Practices* provides practitioners and decision-makers with the latest research and development news on effective teaching tools and practices. The journal emphasizes practical knowledge and products that have proven superior through scientific testing. Readers are invited to contribute to several different columns and departments that will appear regularly:

**FROM THE FIELD:** Submit letters describing your thrills and frustrations, problems and successes, and so on. A number of experts are available who may be able to offer helpful solutions and recommendations to persons seeking advice.

**NEWS:** Report news of interest to ADI's membership

**SUCCESS STORIES:** Send your stories about successful instruction. These can be short, anecdotal pieces.

**PERSPECTIVE:** Submit critiques and perspective essays about a theme of current interest, such as: school restructuring, the ungraded classroom, cooperative learning, site-based management, learning styles, heterogeneous grouping, Regular Ed Initiative and the law, and so on.

**RESEARCH STUDIES:** Present data from your classroom or the results of scientific research. The data should guide other practitioners and decision-makers in evaluating alternative options for school reform.

**TRANSLATING RESEARCH INTO PRACTICE** Integrate a larger body of empirical research into a defined practice that can be implemented in schools.

**BOOK NOTES:** Review a book of interest to members.

**NEW PRODUCTS:** Descriptions of new products that are available will be featured. Send the description with a sample of the product or a research report validating its effectiveness. Space will be given only to products that have been field-tested and empirically validated.

**LIST OF DEMONSTRATION SITES:** We wish to maintain an on-going list of school sites with exemplary implementations and impressive student outcomes. Submit the name of the exemplary school or classrooms, the names of the programs being implemented, and contact information so that visitations may be arranged.

**TIPS FOR TEACHERS:** Practical, short products that a teacher can copy and use immediately. This might be advice for solving a specific but pervasive problem, a data-keeping form, a single format that would successfully teach something meaningful and impress teachers with the effectiveness and cleverness of Direct Instruction.

## MANUSCRIPT PREPARATION

Authors should prepare manuscripts according to the third revised edition of the *Publication Manual of the American Psychological Association*, published in 1983. Copies may be ordered from: Order Department

American Psychological Association
1200 Seventh St., N.W.
Washington, DC 20036

Send an electronic copy with a hardcopy of the manuscript. Indicate the name of the word-processing program you use. Save drawings and figures in separate files. Electronic copy should replace text that is underlined according to the APA format, with italic text.

**Illustrations and Figures:** Please send drawings or figures electronic form, though you may also include them in camera-ready form.

Completed manuscripts should be sent to:

Bonnie Grossen, Ph.D.
Editor, *Effective School Practices*
PO Box 10252
Eugene, OR 97440

Acknowledgement of receipt of the manuscript will be sent by mail. Articles are initially screened by the editor for content appropriateness. Then sent out for review by peers in the field. These reviewers may recommend acceptance as is, revision without further review, revision with a subsequent review, or rejection. The author is usually notified about the status of the article within a 6- to 8-week period. If the article is published, the author will receive five complimentary copies of the issue in which his or her article appears.

# Videotapes on the Direct Instruction Model

ADI has an extensive collection of videos on Direct Instruction. These videos are categorized as informational, training or motivational in nature. The informational tapes are either of historical interest or were produced to describe Direct Instruction. The training tapes have been designed to be eaither stand-alone training or used to supplement and reinforce live training. The motivational tapes are keynote presentations from past years of the National Direct Instruction Conference.

## Informational Tapes

***Where It All Started***—45 minutes. Zig teaching kindergarten children for the Engelmann-Bereiter pre-school in the 60's. These minority children demonstrate mathematical understanding far beyond normal developmental expectations. This acceleration came through expert teaching from the man who is now regarded as the "Father of Direct Instruction," Zig Engelmann. Price: $10.00 (includes copying costs only).

***Challenge of the 90's: Higher-Order thinking***—45 minutes, 1990. Overview and rationale for Direct Instruction strategies. Includes home-video footage and Follow Through. Price: $10.00 (includes copying costs only).

***Follow Through: A Bridge to the Future***—22 minutes, 1992. Direct Instruction Dissemination Center, Wesley Elementary School in Houston, Texas, demonstrates approach. Principal, Thaddeus Lott, and teachers are interviewed and classroom footage is shown. Created by Houston Independent School District in collaborative partnership with Project Follow Through. Price: $10.00 (includes copying costs only).

***Direct Instruction***—black and white, 1 hour, 1978. Overview and rationale for Direct Instruction compiled by Haddox for University of Oregon College of Education from footage of Project Follow Through and Eugene Classrooms. Price: $10.00 (includes copying costs only).

## Training Tapes

***The Elements of Effective Coaching***—3 hours, 1998. Content in *The Elements of Effective Coaching* was developed by Ed Schaefer and Molly Blakely. The video includes scenarios showing 27 common teaching problems, with demonstrations of coaching interventions for each problem. A common intervention format is utilized in all scenarios. Print material that details each teaching problem and the rationale for correcting the problem is provided. This product should to used to supplement live DI coaching training and is ideal for Coaches, Teachers, Trainers. Price...$395.00 Member Price...$316.00

***DITV—Reading Mastery 1, 2, 3 and Fast-Cycle Pre-and Inservice Training***

The first tapes of the Level I and Level II series present intensive pre-service training on basic Direct Instruction teaching techniques and classroom management strategies used in Reading Mastery and the equivalent lesson in Fast-Cycle. Rationale is explained. Critical techniques are presented and demonstrated. Participants are led through practical exercises. Classroom teaching demonstrations with students are shown. The remaining tapes are designed to be used during the school year as inservice training. The tapes are divided into segments, which present teaching techniques for a set of of upcoming lessons. Level III training is presented on a videotape with the same features as described above. Each level of video training includes a print manual.

Reading Mastery I–10 Videotapes...$150.00
Reading Mastery II–5 Videotapes...$75.00
Reading Mastery III–1 Videotape...$25.00
Combined package...$229.00

***Corrective Reading: Decoding B1, B2, C***—4 hours, 38 minutes + practice time. Pilot video training tape that includes an overview of the Corrective Series, placement procedures, training and practice on each part of a decoding lesson, information on classroom management / reinforcement and demonstrations of lessons (off-camera responses). Price: $25.00 per tape (includes copying costs only).

## Conference Keynotes

These videos are keynotes from the National Direct Instruction Conference in Eugene. These videos are professional quality, 2 camera productions suitable for use in meetings and trainings.

### *Conference 2000 Keynotes!!*

***Commitment to Children—Commitment to Excellence*** and ***How Did We Get Here... Where are We Going?*** 95 minutes. These keynotes bring two of the biggest names in Direct Instruction together. The first presentation is by Thaddeus Lott, Senior. Dr. Lott was principal at Wesley Elementary in Houston, Texas from 1974 until 1995. During that time he turned the school into one of the best in the nation, despite demographics that would predict failure. He is an inspiration to thousands across the country. The second presentation by Siegfried Engelmann continues on the theme that we know all we need to know about how to teach–we just need to get out there and do it. This tape also includes Engelmann's closing remarks. Price: $30.00.

***State of the Art & Science of Teaching*** and ***Higher Profile, Greater Risks***—50 minutes. This tape is the opening addresses from the 1999 National Direct Instruction Conference at Eugene. In the first talk Steve Kukic, former DIrector of Special Education for the state of Utah, refelcts of the trend towards using research based educational methods and research validated materials. In the second presentation, ***Higher Profile, Greater Risks,*** Siegfreid Engelmannrefelts of the pastof Direct Instruction and what has to be done to ensure successful implementation of DI. Price: $30.00

***Successful Schools... How We Do It***—35 minutes. Eric Mahmoud, Co-founder and CEO of Seed Academy/Harvest Preparatory School in Minneapolis, Minnesota presented the lead keynote for the 1998 National Direct Instruction Conference. His talk was rated as one of the best features of the conference. Eric focused on the challenges of educating our inner-city youth and the high expectations we must communicate to our children and teachers if we are to succeed in raising student performance in our schools. Also included on this video is a welcome by Siegfried Engelmann, Senior Author and Developer of Direct Instruction Programs. Price: $15.00

***Fads, Fashions & Follies—Linking Research to Practice***—25 minutes. Dr. Kevin Feldman, Director of Reading and Early Intervention for the Sonoma County Office of Education in Santa Rosa California presents on the need to apply research findings to educational practices. He supplies a definition of what research is and is not, with examples of each. His style is very entertaining and holds interest quite well. Price: $15.00

***Moving from Better to the Best***—20 minutes. Closing keynote from the National DI Conference. Classic Zig Engelmann doing one of the many things he does well... motivating teaching professionals to go out into the field and work with kids in a sensible and sensitive manner, paying attention to the details of instruction, making sure that excellence instead of "pretty good" is the standard we strive for and other topics that have been the constant theme of his work over the years. Price $15.00

***Aren't You Special***—25 minutes. Motivational talk by Linda Gibson, Principal at a school in Columbus, Ohio. Successful with DI, in spite of minimal support. Keynote from 1997 National DI Conference. Price: $15.00

***Effective Teaching: It's in the Nature of the Task***—25 minutes. Bob Stevens, expert in cooperative learning from Penn State University, describes how the type of task to be taught impacts the instructional delivery method. Keynote from 1997 National DI Conference. Price: $15.00

***One More Time***—20 minutes. Closing from 1997 National DI Conference One of Engelmann's best motivational talks. Good for those already using DI, this is sure to make them know what they are doing is the right choice, for teachers, students and our future. Price: $15.00

***Keynotes from 22nd National DI Conference***—2 hours. Ed Schaefer speaks on "DI–What it is and Why It Works," an excellent introductory talk on the efficiency of DI and the sensibility of research based programs. Doug Carnine's talk "Get it Straight, Do it Right, and Keep it Straight" is a call for people to do what they already know works, and not to abandon sensible approaches in favor of "innovations" that are recycled fads. Siegfried Engelmann delivers the closing "Words vs. Deeds" in his usual inspirational manner, with a plea to teachers not to get worn down by the weight of a system that at times does not reward excellence as it should. Price: $25.00

***Keynotes from the 1995 Conference***—2 hours. Titles and speakers include: Anita Archer, Professor Emeritus, San Diego State University, speaking on "The Time Is Now" (An overview of key features of DI); Rob Horner, Professor, University of Oregon, speaking on "Effective Instruction for All Learners;" Zig Engelmann, Professor, University of Oregon, speaking on "Truth or Consequences." Price: $25.00

***Keynote Presentations from the 1994 20th Anniversary Conference***—2 hours. Titles and speakers include: Jean Osborn, Associate Director for the Center for the Study of Reading, University of Illinois, speaking on "Direct Instruction: Past, Present & Future;" Sara Tarver, professor, University of Wisconsin-Madison, speaking on "I have a Dream That Someday We Will Teach All Children;" Zig Engelmann, Professor, University of Oregon, speaking on "So Who Needs Standards?" Price: $25.00

***An Evening of Tribute to Siegfried Engelmann***—2.5 hours. On July 26, 1995, 400 of Zig Engelmann's friends, admirers, colleagues, and protégés assembled to pay tribute to the "Father of Direct Instruction." The Tribute tape features Carl Bereiter, Wes Becker, Barbara Bateman, Cookie Bruner, Doug Carnine, and Jean Osborn–the pioneers of Direct Instruction–and many other program authors, paying tribute to Zig. Price: $25.00

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# ADI Association for Direct Instruction

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## What is ADI, the Association for Direct Instruction?

ADI in a non-profit organization dedicated primarily to providing support for teachers and other educators who use Direct Instruction programs. That support includes conferences on how to use Direct Instruction programs, publication of a professional quarterly magazine entitled *Effective School Practices*, and the sale of various products of interest to our members.

## Who Should Belong to ADI?

Most of our members use Direct Instruction programs, or have a strong interest in using those programs. Many people who do not use Direct Instruction programs have joined ADI due to their interest in receiving our quarterly magazine, *Effective School Practices* (ESP). In addition to articles on Direct Instruction programs, it contains articles on broader topics as well. The criterion for the inclusion of articles in ESP is that they focus on scientific research on effective instructional and teaching practices.

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☐ $25.00 ***Subscription*** 4 issues (1 year) of *Effective School Practices.*

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