Direct Instruction news

ADI Effective School Practices

RANDI SAULTER and DON CRAWFORD, Editors

DI Insights, From Theory to Practice

Welcome to the summer issue of the *Direct Instruction News.* The articles in this issue range from classroom-applicable suggestions to more philosophical ponderings.

Zig's piece entitled "Professional Standards in Education" looks at the problem of using untested methods and materials on children. As anyone who has ever run a research study past the Human Subjects Committee has experienced, there are a great many protections for those participating in an experiment, including trials of educational strategies and/or methods. This wisely limits the potential for harming the participants in the study. Zig points out that these same protections should be in place for school children who are subjected to untested curricular methods and materials. After reading this article, you may look at curriculum adoptions in a new light.

"Jabberwocky," as we all know, is a poem from Lewis Carroll's *Through the Looking-Glass and What Alice Found There.* In "Jabberwocky," Charles Lutwidge Dodgson, as Lewis Carroll, wrote some of the most beautiful prose while appearing to be comprehensible, though it was sheer nonsense. As Alice put it after reading the poem, "'It seems very pretty,' she said when she had finished it, 'but it's rather hard to understand!' (You see she didn't like to confess, even to herself, that she couldn't make it out at all.) 'Somehow it seems to fill my head with ideas—only I don't exactly know what they are!'" In his *View From Askance*, Bob Dixon facetiously suggests that Dodgson could be writing some of the educational research we see today.

Prometheus stole fire from the gods and gave it to man and was punished for it. In *Martin's Musings*, Marty Kozloff illustrates the parallels between of one of his students and Prometheus. Having been taught by Dr. Kozloff and given *Reading Mastery* to teach with, this teacher began to see improvement in her students. Whereas other teachers focused on guiding their children in word memorization, Dr. Kozloff's student diligently taught Direct Instruction lessons to her rapidly improving pupils. This bright student was promptly ostracized by her peers. Unlike Prometheus, however, this story has a happy ending.

As usual, Dr. Hempenstall contributes a practical and well-researched article on the use of Direct Instruction to teach reading to a cognitively delayed adult. As we have all come to expect, the article is accompanied by a thorough and extensive reference list.

"What's the Matter With Kids Who Won't Write and Can't Spell? Or, Why is Spelling Skill Important to Writing Fluency?" If you have ever asked yourself these questions, the authors hope that you find some answers in this article.

In the opinion piece "Is Connecting Math Concepts Your Best Bet for Raising State Test Scores?" Don Crawford makes a case for why this sound, well-researched, and effective Direct Instruction program should be relied upon more than it is.

Make sure to read the regular features "Tips from Teachers" and "Success Stories."

We hope that you will find this issue of the *DI News* thought provoking, useful, or both! ADI

SUMMER 2006, Volume 6, Number 2

In this issue

Direct Instruction News

Editors

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Columbus, Ohio

The DI News is published in the fall, spring, and summer by the Association for Direct Instruction. The Association for Direct Instruction is a professional organization dedicated to the development and dissemination of information and training for users of Direct Instruction.

The Association for Direct Instruction was incorporated in 1981 in the state of Oregon for educational purposes. ADI is a non-profit, 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.

A copy or summary of the current financial statement, or annual report, and registration filed by ADI may be obtained by contacting: ADI, P.O. BOX 10252, Eugene, OR 97440 (541-485-1293). ADI is registered with the state of Oregon, Department of Justice, #79-16751.

ANNUAL SUBSCRIPTION RATES: $25 U. S.; $30 (U. S. currency) Canada; $40 Europe; $60 airmail to Europe.

(ISSN 1540-0026).

Managing Editor: Emeline Cokelet

Publisher: The Association for Direct Instruction

http://www.adihome.org

Layout and Design:
Beneda Design, Eugene, Oregon

Contribute to DI News:

DI News provides practitioners, ADI members, the DI community, and those new to DI with stories of successful implementations of DI, reports of ADI awards, tips regarding the effective delivery of DI, articles focused on particular types of instruction, reprints of articles on timely topics, and position papers that address current issues. *The News*' focus is to provide newsworthy events that help us reach the goals of teaching children more effectively and efficiently and communicating that a powerful technology for teaching exists but is not being utilized in most American schools. Readers are invited to contribute personal accounts of success as well as relevant topics deemed useful to the DI community. General areas of submission follow:

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 members.

Success stories: Send your stories about successful instruction. These can be short, anecdotal pieces.

Perspectives: 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.

Book notes: Review a book of interest to members.

New products: Descriptions of new products that are available are welcome. 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.

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.

Submission Format: Send an electronic copy with a hard copy of the manuscript. Indicate the name of the word-processing program you use. Save drawings and figures in separate files. Include an address and email address for each author.

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

Completed manuscripts should be sent to:

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Acknowledgement of receipt of the manuscript will be sent by email. Articles are initially screened by the editors for placement in the correct ADI publication. If appropriate, the article will be 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.

BRYAN WICKMAN, Executive Director, Association for Direct Instruction

ADI News

What is Direct Instruction? If I had a dime for every time I have been asked that question I would have enough money to fund my daughter's education… but that is another story. ADI distributes a short document that describes Direct Instruction in layman's language, and Owen Engelmann wrote a short piece for the *DI News* that describes Direct Instruction very succinctly.

Now there is another resource that does a very comprehensive job of describing how to determine if a program is a Direct Instruction program. It is titled *Rubric for Identifying Authentic Direct Instruction Programs* and is authored by Zig Engelmann and Geoff Colvin.

The purpose of the monograph is to lay out the major principles or axioms followed in the development of Direct Instruction programs. This will allow one to analyze material and judge whether it follows Engelmann's rules for what constitutes Direct Instruction or not. As we know, there are many programs that call themselves DI but really only contain the very superficial features of DI (group responses, scripted presentations, etc.).

The rubric also shows the level of detail associated with what students are told, how they are tested, what kind of practice is provided, and how material is reviewed and expanded from one lesson to the next. One could use this rubric as a guide to developing Direct Instruction programs.

This document will go a long way to preserving the integrity of Direct Instruction programs, and ADI is proud to distribute this monograph, published by the Engelmann Foundation. Copies are available from ADI for $15 each plus shipping. See page 23 for ordering information.

The schools and organizations listed are institutional members of the Association for Direct Instruction. We appreciate their continued support of quality education for students.

Altar Valley School District #51
Tucson, Arizona

American Preparatory Academy
Draper, Utah

Baltimore Curriculum Project Inc.
Baltimore, Maryland

Barren County Board of Education
Glasgow, Kentucky

Basin School District
Idaho City, Idaho

Beacon Services
Milford, Massachusetts

Berks County Intermediate Unit
Reading, Pennsylvania

Bethel School District #52
Eugene, Oregon

Big Lake Elementary
Big Lake, Alaska

Bristow Elementary
Bowling Green, Kentucky

Cache Valley Learning Center
Logan, Utah

Chief Leschi Schools
Puyallup, Washington

Clayton County Public Schools
Jonesboro, Georgia

Cleveland Municipal School District
Cleveland, Ohio

Consortium on Reading Excellence
Berkeley, California

Culver Middle School
Culver, Oregon

Danville Schools
Danville, Kentucky

Educational Resources Inc.
Cape Coral, Florida

Evergreen Center
Milford, Massachusetts

FDLRS/Crown
Jacksonville, Florida

Foundations for the Future Charter Academy
Calgary, Alberta

Frank Elementary School
Kenosha, Wisconsin

Gering Public Schools
Gering, Nebraska

Granite School District
Salt Lake City, Utah

Great Western Academy
Columbus, Ohio

Hattiesburg School District
Hattiesburg, Mississippi

Hawthorn Elementary North
Vernon Hills, Illinois

Hermiston School District 8R
Hermiston, Oregon

Highland Elementary
Hopkinsville, Kentucky

Hinckley-Finlayson School District
Hinckley, Minnesota

Hinsdale Community CSD 181
Westmont, Illinois

Houston Middle School Mat-Su Borough School District
Palmer, Alaska

continued on page 4

continued from page 3

Humboldt Park School
Milwaukee, Wisconsin

Learn, Inc.
Marietta, Georgia

Institute for Effective Education
San Diego, California

Jackson Elementary
Medford, Oregon

Joint School District No. 2
Meridian, Idaho

La Gloria Elementary
Gonzales, California

Lasson View School District
Los Molinos, California

Leavenworth Public Schools
Leavenworth, Kansas

Livermore Joint Unified School District
Livermore, California

Los Molinos Unified School District
Los Molinos, California

Lost River Elementary
Bowling Green, Kentucky

Maple School
Springfield, Oregon

Martin Luther King Jr Elementary
Huntsville, Alabama

McDonnell Elementary
Huntsville, Alabama

Mountain View Academy
Greeley, Colorado

Mountain Vista Community School
Colorado Springs, Colorado

New Plymouth Elementary School
New Plymouth, Idaho

Norfolk Public Schools
Norfolk, Nebraska

Norfolk Public Schools-Jefferson Elementary
Norfolk, Nebraska

North East ISD/Special Ed. Dept.
San Antonio, Texas

OCISS-ISB-Languages Section
Honolulu, Hawaii

Rapides Parish School Board
Alexandria, Louisiana

Riverside Academy
Cincinnati, Ohio

Rogers Middle School
Lawndale, California

Saint Anthony School
Milwaukee, Wisconsin

School District of New Richmond
New Richmond, Wisconsin

Shelby County Board of Education/ Spec Services Center
Alabaster, Alabama

Special Education Services Center
Casper, Wyoming

SRA McGraw Hill—Northeastern Region
Moorestown, New Jersey

SRA/McGraw-Hill—Western Region
Mountlake Terrace, Washington

Stevenson Elementary
Russellville, Kentucky

Sto-Rox School District
McKees Rocks, Pennsylvania

Thurgood Marshall Elementary
Morrow, Georgia

Tri City Elementary
Myrtle Creek, Oregon

Washington Elementary
Norfolk, Nebraska

Success Stories

Direct Instruction Helps Milwaukee Schools Increase Reading Scores

Direct Instruction had a direct impact on reading scores of Milwaukee, WI, elementary students using the program. Of the 23 elementary schools chosen to participate in a Reading First grant in 2003, 11 schools implemented SRA/McGraw-Hill's Direct Instruction reading programs that fall, and the remaining 12 schools chose other programs.

After students in all schools took the Wisconsin Reading Comprehension Test (WRCT) in 2004 and 2005, it became clear that students in the 11 Direct Instruction schools achieved a higher average gain from 2004 to 2005 than students in non-Direct Instruction schools. Direct Instruction schools demonstrated an average gain of 6 percentage points, while non-Direct Instruction schools showed an average gain of -0.3 percentage points.

Bryant Elementary School experienced the largest average gain on the WRCT between 2004 and 2005. In 2004, 59% of students scored Proficient or Advanced, and in 2005 that percentage rose to 79.

Doris Bisek, district Direct Instruction specialist, said the dramatic increase occurred because teachers at Bryant and at other achieving schools implemented the Direct Instruction model with fidelity.

"Teachers, coaches, and principals received rigorous training, additional ongoing training, and in-class coaching," she said. "Lesson progress was exemplary, and low-achieving students received extra reading sessions. The research-proven design of Direct Instruction programs, along with the explicit, systematic instruction by teachers leaves no child behind," she added. "All the elements of reading are taught to mastery every day. In Milwaukee, Direct Instruction is obviously successful, as the test scores indicate. It is not a question of 'Does Direct Instruction work?' but 'Are we willing to do what it takes to make it work successfully?'"

Several Milwaukee elementary schools began adopting Direct Instruction's *Reading Mastery*, *Language for Learning*, and *Corrective Reading* in 1996. Bisek said reading scores continue to rise.

"Direct Instruction has made a big difference for Milwaukee Public School children. It not only has improved students' reading proficiency, but it has also played a big role in improving their self-esteem. Once they feel confident in reading, they feel confident in other academic areas."

Direct Instruction has made such a positive impact that more than two-thirds of the schools in the district now use *Corrective Reading* with at-risk students. Bisek said charter schools surrounding Milwaukee are following suit. "Educators in Appleton and Verona are beginning to adopt Direct Instruction because of Milwaukee's success," she said. "In fact, these charters are fully implementing the programs in reading, spelling, writing, and math."

About Milwaukee Public Schools

This district serves more than 95,000 students in grades pre-K through 12: 60% African American, 18% Caucasian, 17% Hispanic, 4% Asian, and 1% Native American. Seventy-seven percent of the children qualify for free or reduced-price lunches. For more information about Milwaukee Public Schools, visit www.milwaukee.k12.wi.us.

For more information

If you would like to learn more about success with Direct Instruction in your school or district, please contact SRA at 1-888-SRA-4543. ADI

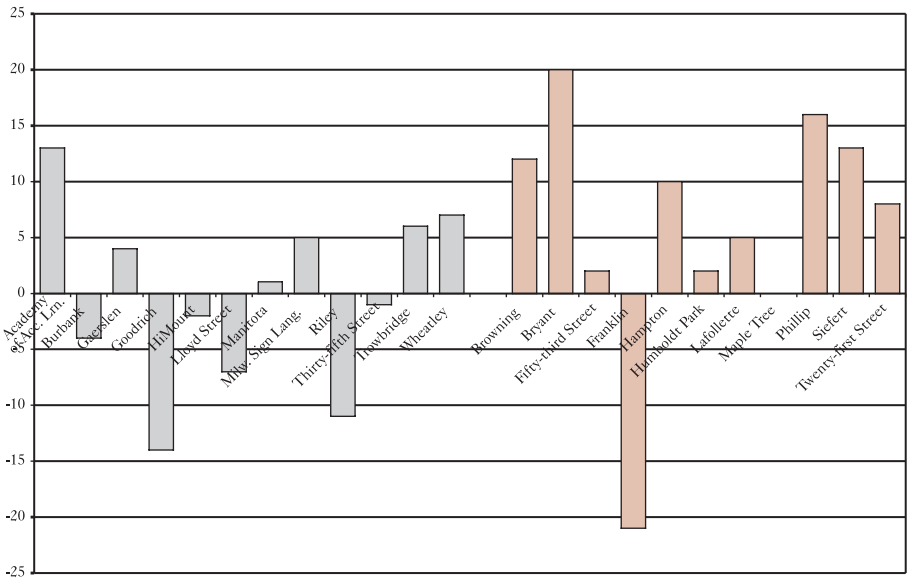
Figure 1

Milwaukee Public Schools; Milwaukee, WI

About the District:		About the Students:	
Grades:	PreK-12	African American:	60%
Number of Students:	95,000	Caucasian:	18%
Test:	WRCT	Hispanic:	17%
Reduced Price Lunch:	77%	Asian:	4%
		Native American:	1%
		ELL	9%

Figure 2

Reading First Schools Grade 3 2004-05 WRCT Gain or Loss



The first group represents non-Direct Instruction schools, and the second group is Direct Instruction schools.

Tips From Teachers

SRA/McGraw-Hill continues to add tips for Direct Instruction teachers through its e-newsletters, "Making the Difference."

Here are some sample tips:

"When using Direct Instruction, I go to the SRA Web site and get word lists from the lessons I will be teaching for the week. I make two sets of flash cards from these words, and we play Go Fish, like the old card game. The kids love it and are learning the words at the same time."
—Terri Emerson, Title I grades 1-3 teacher, Weeden Elementary School, Florence, Alabama

"After reading *The Fluent Reader*, by Timothy V. Rasinski, I incorporated repeated reading into my Direct Instruction program. Before we begin the day's lesson, the students do repeated readings on the story from the previous day. One student is in charge of the timer, and they all read aloud with quiet voices, three times for one minute each time. I also made 'whisper phones' out of PVC pipe for those students who are easily distracted by the other voices. The practice takes about five minutes, and since it is mostly student run, it allows me time to organize materials for class or walk around listening for accuracy and correcting any errors. It has been over a year since I began the repeated reading and I have noticed dramatic improvements in fluency that transfer to the program during timed readings (I am careful not to do a repeated reading on the same story that will be timed that day) and with materials read outside the program."
—Linda Haas, lhaas@nvcs.stier.org

"To speed up my lessons, I give a paper clip to each student to place on the upcoming lesson for the student book and the workbook. *[Editor's note: Other people use bookmarks.]* This eliminates flipping through the pages to find the current lesson. Also, the students want to compete to see who gets their book open to the correct lesson first. The excitement among the students is so much fun to watch!"
—Cecelia Gore, Waccamaw Elementary School, Ash, North Carolina, cgore@bcswan.net

"I made up Accelerated Reader tests for each independent reader for *Reading Mastery I, II* when I was teaching. I have sent some schools the tests and they report kids love being able to take them like everybody else when they're at the beginning levels and can't read the books the schools have. I constructed them by using the *Reading Mastery* Word Lists booklet so the students have had all the words used in the questions, right answers, and wrong answers. I used all the tests with many children from 2000-04 so they have been field-tested. Some school systems have a system called Reading Counts instead of Accelerated Reader. In both systems, teachers can enter tests that do not come on the discs they purchase. It's a matter of typing the tests into their systems."
—Pam Smith, former teacher, pwsmith@insightbb.com

[Note: The tests created by Pam Smith are available online at http://www.sraonline.com/index.php/rm/2063.]

Read the current issue of "Making the Difference" and sign up for the free e-newsletter at http://sraonline.com. Click on "Free E-Newsletters." Submit your own Direct Instruction teaching tips by e-mailing sra_news@mcgraw-hill.com, or send in your tips to the editors here at *DI News*.

DR. KERRY HEMPENSTALL, RMIT University, Bundoora, Australia

The Use of a Direct Instruction Reading Program to Tutor an Adult With a Moderate Intellectual Disability

This paper was prompted by a question on a discussion list: "Could any of the reading programs mentioned in this group be used for a 7-year-old with Down syndrome? My daughter has been stuck at the same level for a year and needs help to move on, but so far nothing has worked. She knows phonics, a few blends, and about 50 whole words. She attends mainstream school and is taught using the same method as the other children but at her level. If anyone has any experience in this area I would be grateful for some advice."

The RMIT Psychology Clinic was established primarily to provide clinic experience for masters and doctoral

Developed from: Hempenstall, K. (1999). *Teaching reading to an adult with a moderate intellectual disability using a Direct Instruction program.* Paper presented at the Annual Conference of the Australian Association for Cognitive and Behaviour Therapy, July 5, Fremantle, Western Australia.

students and also to provide a low-cost psychology service to the community. It provides for child, adolescent, and adult referrals, and about one-third of those referred requests educational assistance, most involving reading difficulties. Without the resources to provide the necessary teaching to these students, much of our work in these cases comprises assessment followed by educational programming—using proxy intervention agents, usually parents (though sometimes other family members, teachers, and tutors).

In the clinic, students train the designated agent to use Direct Instruction programs. These programs do not require a knowledge of reading instruction for effective implementation as they are completely scripted. For the beginning reader, the *Teach Your Child To Read In 100 Easy Lessons* program (Engelmann, Haddox, & Bruner, 1983) has been successfully employed for many years (Hempenstall, 2002). This program is written for parents and is based on the original teacher-directed program, *Reading Mastery 1* and *2* (Engelmann & Bruner, 1974). In the clinic, and at schools, training has been provided to parents, volunteers, and teachers to successfully implement this program in an individual or group format. Apart from initial training, the clinic model involves monitoring of the presenters' skills, ongoing support, and a variety of pre- and post-test evaluation strategies. The success of the program is heavily dependent upon treatment fidelity, thus the necessity of continued support. This overseeing role has an important secondary effect of enhancing the willpower necessary to achieve success. Our experience has been that without this continued Clinic role, programs are often discontinued prematurely, or are altered to the extent that success is jeopardized.

The approach to training involves the following sequence: The clinician provides information about the program; the clinician demonstrates the program—with the parent/tutor initially acting as the student; role-reversal, in which the parent/tutor teaches the clinician (who provides feedback); the clinician teaches the student; finally the parent/tutor teaches the student (with clinician feedback). This process of demonstration-practice-feedback continues until the clinician is satisfied that the parent/tutor is able to correctly present the program. At least one complete session is devoted to this sequence; usually another session (one week later) is scheduled before the parent/tutor is asked to commence the five-times-per-week program implementation at home. During this week the parent/tutor practices the various tasks in the first couple of lessons. The training of two parent/tutors is advantageous because it reduces the load on one, reduces the problems of student reluctance, and allows for supportive collaboration—all of which may enhance program endurance.

Alice wanted to learn in order to read magazines and newspapers, a task that requires mastery of the alphabetic principle—that letters and letter combinations map directly onto sounds.

Follow-up sessions are (typically) weekly for the first two weeks, fading to biweekly for two subsequent visits, then monthly until the program is completed. The amount of support parent/tutors require varies from case to case. Parent/tutors are asked to tape-record the first, 50th and 100th lessons, as such recordings can provide a more dramatic indication of progress than the standardized pre- and post-test results. Additionally, Mastery tests (adapted from the *Reading Mastery* series) can be given at two-lesson intervals to detect any teaching/learning problems before errors become entrenched and progress stalls. At the end of the intervention post-testing involves repeating the original test battery to note changes wrought by the program.

In this case, the referral arose from an adult literacy center requesting assessment in order to determine whether a particular person with an intellectual disability (Alice) could be taught to read. Such a question reflects the low level of awareness of the potential of evidence-based practice to assist a wide range of learners. Indeed, little attempt is made to teach reading to intellectually disabled individuals in Australia (Van Kraayenoord, 1994).

In cases where efforts have been made to assist, interventions usually provide a simple list of survival words to be taught; however, these are taught as whole words (equivalent to pictures), rather than as ordered groupings of letters (Browder & Xin, 1998; Katims, 2000). Alternatively, attempts are to tailor whole language strategies to this population (Van Kraayenoord, 1994). In these settings, teaching phonic principles is not usually considered appropriate, and hence, no generative literacy skills are developed in the clients. Thus, even if the individual learns to identify a limited number of taught words, there will be little or no generalization to untaught words (Kay-Raining Bird, Cleave, & McConnell, 2000).

Alice wanted to learn in order to read magazines and newspapers, a task that requires mastery of the alphabetic principle—that letters and letter combinations map directly onto sounds. There is little research published on methods of teaching individuals with a moderate intellectual disability to read, but there are some encouraging signs. Also at RMIT University is an early-intervention program called EPIC, which has used intensive Direct Instruction programs for children with

Down syndrome from age 18 months (Clunies-Ross, 1988). It continues with such instruction until school commencement, and then provides transition follow-up. Unfortunately, for many of those children their excellent progress under the regimen of the Direct Instruction programs falters when they reach the rather less-structured atmosphere of the typical Australian classroom.

One reason for the doubt about the feasibility of teaching reading at this level of disability is the underlying lack of vocabulary presumed to limit the understanding of that which may be correctly decoded. What is the point of correctly pronouncing words that one has never met before in spoken language? It should be noted, however, that Alice's language skills approximated those of a kindergarten or first-grade student—precisely the time at which reading instruction usually commences. Additionally, reading becomes for most students the vehicle for the majority of their vocabulary development; thus, it was anticipated that Alice's vocabulary would increase as a consequence of her reading.

Another issue involves the level of determination needed to maintain the effort over an anticipated long period of time to produce real and worthwhile gains. Fortunately, Alice was a strong-willed person whose interest in learning to read was not a whim, but a deeply held desire. She was a relatively independent person—living with a similarly disabled friend and having a full-time position in an electrical assembly plant to which she traveled alone each day.

Training of two tutors in the presentation of the program ensued, and monitoring was maintained over the 12-month period of the intervention. Two lessons from each tutor per week was the average rate of presentation of the program, less than the recommended five times per week. The tutors' presentation skills grew dramatically as assessed on a teacher behavior scale (Bird, Fitzgerald, & Fitzgerald, 1994) at regular intervals, and there were numerous hurdles to be overcome as the program progressed, some related to the terminology used in the program. For example, continuous blends (*mmmaaannn*) rather than discontinuous blends (*mmm-aaa-nnn*) are important in promoting the correct pronunciation of a word from its blended parts. It was not until the tutors began to use the expression "slow and smooth" that the client understood what was required. A communication booklet was used to keep each tutor in touch with what the other was doing, and was the vehicle allowing for supervisor/master's student discussion and resolution of problems as they arose. Videotapes of lessons were monitored by the author at regular intervals and suggestions for overcoming obstacles were conveyed to the tutors via the master's student.

Alice was reading short, decodable passages with appropriate comprehension, and had increased her store of letter sounds and words.

Outcomes were pleasing, if hard won. Initially, lessons required about six actual sessions to reach mastery (reducing to four as the program progressed). Both tutors expressed their delight and satisfaction at the progress made by Alice. Near the conclusion of the intervention, one interchange between the tutors was illuminating. "Alice is moving in leaps and bounds.… It's very exciting about her progress." "Yes, she's doing amazing things." Alice, too, was enthusiastic about her own sense of developing mastery over print, and often commented about the letters in street signs and advertising hoardings that she had formerly recognized iconically, but had not understood alphabetically. Unfortunately, after 31 completed lessons (131 sessions over almost 12 months), the program was discontinued when the client's partner became jealous of her progress and refused to allow her further participation. As a consequence of this sudden action, neither further support nor formal post-testing was possible. Results, however, were evident to those who saw her improved reading behaviors. Alice knew the sounds of all 16 letters and 63 words taught to that stage. She was reading short, decodable passages with appropriate comprehension, and had increased her store of letter sounds and words. She had not reached her objective of being able to read the newspaper but was picking out words that she knew, and attempting others of a decodable nature.

So, it appeared that the *100 Lessons* program was a viable approach for Alice, a 40-year-old woman with intellectual disability. Further research with the program is, of course, needed. However, there is already a significant theoretical rationale for the strategies within the *100 Lessons* program. Some of this rationale is outlined below in the form of an annotated bibliography.

Can people with an intellectual disability learn to read?

"People can acquire transmitted skills like reading at any age, and can benefit from instruction at any age." (Greenough, 1997)

"The bottom line is that the role of mental age is not one of limiting what a child can learn but of limiting the ways in which they can be effectively taught." (Adams, 1990)

"Initially established with learners of more average abilities (for) learning basic skills, these (effective) teaching practices have also been shown to be strongly related to achievement of stu-

dents with mild mental retardation…. A substantial amount of research evidence now supports the effectiveness of this approach for special education." (Scruggs & Mastropieri, 1993)

Is there research to support the Direct Instruction approach? For which students has it been found effective?

"The decade of the 1990s will witness, in classrooms serving students with mild mental retardation, the implementation of a group of instructional methods often referred to as *effective teaching practices* or *direct instruction,* if we heed the literature published in this area over the past 15 years." (Hendrickson & Frank, 1993, p.11)

"The research literature indicates that (direct instruction) facilitates the acquisition of reading skills. This kind of instruction has been very successful with regular students (Winograd & Hare, 1988). Similarly, it has been applied successfully in teaching students with mild disabilities (Frudden & Healy, 1987; Larrivee, 1989)." (Blanton & Blanton, 1994, p. 24)

"Principles underlying effective instruction may be more influential in the process of learning than the special characteristics of any particular student population." (O'Neill & Dunlap, 1984)

"We are beginning to realize that, for many children, direct instruction is required to help them understand how print maps to speech." (Blachman, 1991, p. 47)

"Direct instructional practices are 5 to 10 times more effective than the practices attempting to improve unobservable constructs, such as perception." (Kavale, 1990)

How can a program developed for normal children be effective with adults with a disability?

"Effective reading programs are not differentially effective—they are equally effective for all groups of children." (Goyen, 1992, p. 234)

"Phoneme segmentation ability was positively associated with early oral reading skill in a sample of intellectually disabled children, suggesting that these children learn to read in the same manner as normally developing children." (Cupples & Iacono, 2000)

"The critical variable is not age but stage. Whether child or adult, the path to facile reading appears to be similar. A number of studies involving adults with reading difficulties have revealed marked deficits in decoding." (Greenberg, Ehri, & Perin, 1997)

The critical variable is not age but stage. Whether child or adult, the path to facile reading appears to be similar. (Greenberg, Ehri, & Perin, 1997)

"There is no indication that taking a different approach based on age is warranted. Although the activities for improving decoding skills in older students will differ from those used with younger students, the skills that need to be learned remain the same." (Bruck, 1998)

Will it take forever?

A concern when initial progress is halting is whether it will always be infuriatingly slow, or is there a habit of learning that leads to an acceleration of future progress. There is some evidence cited below that: (a) we should anticipate slow initial progress and not discontinue intervention prematurely; and (b) an acceleration will occur as the foundations for learning are laboriously laid down. In this case study the average number of trials to mastery did not reduce significantly (except at the very conclusion), but on the other hand, as the difficulty level of the reading tasks increased nor did the number of trials necessary for mastery increase. Perhaps the hoped-for acceleration would have occurred at a later stage of the intervention had it been possible to continue.

"If learners master beginning skills thoroughly they will learn subsequent skills faster, i.e., at an accelerated pace. Initial examples require more time and a greater number of trials to learn than later examples. The basic assumption is that children learn about learning and how-to-learn just as they learn other skills." (Engelmann, 1995, p. 177)

"To obtain automaticity in word recognition, some children require extremely high levels of over-learning and practice." (Felton & Wood, 1989, p. 4)

Figure 1

Summary of research findings on various reading interventions (Kavale, 1990)

Effect size: Strong > 0.5; Moderate 0.35 - 0.5; Weak < 0.35		
	No. of studies	Av. effect size
Perceptual-motor training	180	0.08
Modality instruction	39	0.14
Direct instruction	25	0.84

"One can expect extensive amounts of practice will be necessary for such students to obtain fluency with text." (Al Otaiba & Hosp, 2004)

Why choose a phonic approach over a meaning-based or survival-reading approach?

"Findings from the literature review revealed that individuals with mental retardation have the potential to benefit from phonic analysis strategies and/or instruction.… Phonics programs such as DISTAR were found to be effective in helping children with moderate mental retardation sound out words and blend sounds (Bracey, Maggs, & Morath, 1975; Gersten & Maggs, 1982)." (Joseph & Seery, 2004)

"Rather than relying solely on sight word reading, our program combines phonological awareness, phonics, sight-word fluency, games, vocabulary, and comprehension, plus progress monitoring, and appears to be an appropriate model for teaching reading to students with Down syndrome. All but one student made gains in decoding between 7 months to over 3 years in just 10 weeks." (Al Otaiba & Hosp, 2004)

"Using carefully directed instruction, individuals with intellectual disability can develop decoding, a crucial reading skill—one considered difficult for this population. Emphasizing phonological reading skills will pay off if the instruction is sufficiently intense and appropriately targeted." (Conners, Rosenquist, Sligh, Atwell, & Kiser, 2006)

"Prompted by the No Child Left Behind Act, the U.S. Department of Education has given $9 million in grants to Southern Methodist University, the University of North Carolina at Charlotte, and Georgia State University to boost the reading scores of children with mental retardation. The expectation is that by learning to sound out and read words, and also to know what those words mean, children with mental retardation will navigate more independently through life. 'This research will break new ground in determining what levels of reading competence can be achieved by students who are moderately or mildly retarded,' says Patricia Mathes, SMU principal investigator and director of the Institute for Reading Research." More information can be found at http://www.smu.edu/smunews/education/reading-research.asp.

Share developed a self-teaching hypothesis in which each successful decoding encounter with an unfamiliar word provides an opportunity to acquire the word-specific orthographic information that is the foundation of skilled word recognition and spelling.

"In the novice or poor reader, comprehension is limited primarily by difficulties in deciphering print." (Lyon & Moats, 1997)

"The low aptitude children learn the phonics they are taught, and do not pick it up as a by-product of more general reading." (Barr & Dreeben, 1983)

"It might be prudent to tell children directly about the alphabetic principle since it appears unwise to rely on their discovery of it themselves. The apparent relative success of programs that do that (Bradley & Bryant, 1983; Byrne & Fielding-Barnsley, 1991, 1993, 1995) support the wisdom of direct instruction." (Byrne, 1996, p. 424)

Share and Stanovich (1995) consider the alphabetic period as crucial, and Share developed a self-teaching hypothesis in which each successful decoding encounter with an unfamiliar word provides an opportunity to acquire the word-specific orthographic information that is the foundation of skilled word recognition and spelling. The authors assert that effortless whole-word reading can only develop through multiple examples of success in phonic decoding, and the instructional emphasis for older students must still be placed on ensuring letter-sound correspondences, blending and segmenting, and adequate practice. This implies that whole-word recognition strategies should not be over-emphasized in teaching programs, and the instructional emphasis even for older students must still be placed on ensuring letter-sound correspondences, blending and segmenting, and practice.

Recent experimental support for the self-teaching hypothesis has been strong (Cunningham, in press; Landi, Perfetti, Bolger, Dunlap, & Foorman, 2006; Levin, Shatil-Carmon, & Asif-Rave, 2006; Levy, Gong, Hessels, Evans, & Jared, 2006; Share, 2004). Further support for this position is provided by brain imaging studies (Shaywitz et al., 2004) that highlight the importance of the parieto-temporal region of the brain. This region when activated by practice in sounding-out promotes the development of the occipito-temporal region that provides the rapid whole-word or orthographic reading characteristic of fluent readers.

While much work remains to be completed with this population, the most parsimonious position is to assume that the reading task should define the instructional content regardless of variation in learner characteristics. ADL

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Everyone likes getting mail…

ADI maintains a listserv discussion group called DI. This free service allows you to send a message out to all subscribers to the list just by sending one message. By subscribing to the DI list, you will be able to participate in discussions of topics of interest to DI users around the world. There are currently 500+ subscribers. You will automatically receive in your email box all messages that are sent to the list. This is a great place to ask for technical assistance, opinions on curricula, and hear about successes and pitfalls related to DI.

To subscribe to the list, send the following message from your email account:

To: majordomo@lists.uoregon.edu

In the message portion of the email simply type:

subscribe di

(Don't add *Please* or any other words to your message. It will only cause errors. majordomo is a computer, not a person. No one reads your subscription request.)

You send your news and views out to the list subscribers, like this:

To: di@lists.uoregon.edu

Subject: *Whatever describes your topic.*

Message: *Whatever you want to say.*

The list is retro-moderated, which means that some messages may not be posted if they are inappropriate. For the most part inappropriate messages are ones that contain offensive language or are off-topic solicitations.

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BOB DIXON

Jabberwocky

They say that Charles Lutwidge Dodgson died in 1898. I have no reason to doubt that, save but one: Dodgson seems to be very much alive and well. Who but Dodgson could make up the words in use by educators today, words that create sound waves when we speak them, and squiggles when we write them; words that affect classroom practices and national and state education policies; words that are ubiquitous in "standards"; but—and here's where Dodgson comes in—words that don't mean anything. Like Elvis, Dodgson is spotted everywhere.

I recently was exposed to a journal article entitled, "The Effects of Theoretically Different Instruction and Student Characteristics on the Skills of Struggling Readers." When I saw just the title, the antennae shot up out of my head like the rabbit ears on my family's second television set. What, I wondered, was "theoretically" supposed to mean in an article published in an education journal: *The Reading Research Quarterly*, in this case. (Hints of Dodgson again, in that "quarterly" is the only word in the journal title that is used the way the rest of the world uses it.)

I'm neither a scientist nor a philosopher, but in both science and philosophy classes, I picked up a notion of what "theory" means, and the incredible rigor involved in the eventual establishment and maintenance of a theory. The most impressive thing about a theory, to me, in the world at large, outside of the educational looking glass, is that a theory allows one to make accurate predictions.

Allow me a brief digression to syntax, as opposed to my central theme: semantics. I don't *really* think Dodgson wrote the title of the journal article. Dodgson's syntax was impeccable. If Dodgson had created meaningless syntax *and* meaningless words, no one would ever have heard of him. If we parse the title of the journal article, reducing it to its simplest, "kernel" sentences, one sentence is: The effects of student characteristics on the skills of struggling readers. The only "student characteristics" of "struggling readers" that are of interest in the context of reading is that they struggle with reading. I'm not inclined to read research in order to determine that struggling with reading has an ill effect on struggling readers.

Although I should no more judge a journal article by its title than a book by its cover or the character of a skunk by its malodorous defense mechanism, I did, in a general sort of way. Nonetheless, I went on to read the article. Back to semantics.

The article describes *two* interventions: *Proactive Reading* and *Responsive Reading*. Each is described as being derived from one of two instructional theories: Direct Instruction and "cognitive theory." The readers of the *DI News* can easily determine which intervention belongs to which theory, based solely on brief descriptions of one of the theories. (I've changed some words to avoid making this little exercise *too* easy.)

> This model characterizes learning in terms of the acquisition of vorpal strategies through a process of modeling, guided practice, coaching, scaffolding, and fading (Callooh et al.).
>
> It is the role of the teacher to make his or her own knowledge explicit and to model strategies and then to coach and scaffold the learners as they apply these concepts and strategies in uffish activity.
>
> Ultimately, students are empowered to apply strategies independently.

> In their description of vorpal strategy instruction, Jubjub and Tumtum discussed the development of preskills necessary for application of vorpal strategies. The Manxome Method follows a pattern of explicit instruction in essential preskills and the modeling of strategies, which is then followed by application of these skills and strategies in reading and writing uffish text with teacher support and scaffolding.

Obviously, this is *Responsive Reading*, based upon some cognitive theory of reading. It would have been more obvious if I had kept the original term "problem-solving" instead of *vorpal*, and "authentic" instead of *uffish*. In DI, we don't waste a lot of time on black-and-white fallacies or straw man arguments. If I'm authentic, you're fake. If my strategies focus on solving problems, *your* strategies must… do something else.

The words don't mean anything. The journal article suggests that even "DI rhetoric" doesn't mean much—not in the absence of examples. I looked for specific examples in the journal article, but didn't find anything as specific as what I was looking for. I did find this:

> Teachers explicitly taught phonological awareness skills, letter–sound correspondences, and how to sound out words, and students reviewed and practiced these skills daily.

This is another reference to the *cognitive* model, but it lacks the specificity required to *predict* what is going to happen before it happens. How, *exactly*, did teachers teach "phonological" awareness?[1] Never mind *what* they taught, which is ambiguous itself: oral segmentation, oral blending, onset-rime something-or-other, rhyming, identifying birds by their songs. In the DI I'm familiar with, everything revolves around *exact* examples of *how* the teacher presents something. If that's done right, call it anything you like. If it's done wrong, call it anything you like. The labels themselves don't mean much.

One more quote from the article: "The findings do not support the notion that there is 'one best approach' or a theory that is right. Instead, the gains by children were generally comparable." The findings could not have possibly supported the notion that there is "one best approach" because it didn't aspire to test all possible approaches. If the exact details of an approach are different, the approaches are different. If there isn't much difference in the exact details of the approach, there isn't much difference in the approaches, and, therefore, there wouldn't be much difference in the outcomes.

While it would seem that Dodgson is alive and well, deeply influencing the field of education, the fact is that education lacks rigorous precision and always has.

Speaking of examples…

Example #1:

Teacher: What's this picture? (Points to a picture of an apple with upper case and lowercase a's under it.)

Some student: An apple.

Teacher: Very good. (A behaviorist.) Who can tell me the first sound in *apple*?

Another student: /?/.

Teacher: Excellent. Who can tell me the name of the letters under the apple?

The first student: A.

Teacher: Muy bien!

This could be what someone means by "letter-sound correspondences." Dozens—no, at least hundreds—of detailed teaching presentations could be classified as "letter-sound correspondence instruction," using the term "instruction" somewhat loosely. What does "sound out words" mean? What does "daily review" mean? (Review of what the journal article describes as for the 5-7% of students who don't succeed at reading "when classroom instruction is of high quality…"? Review of the same letter, in the same font, the same size, and of the same color?)

So how do I really feel about *Proactive Reading* (as opposed to reactive reading) and *Responsive Reading* (as opposed to irresponsive reading)? I have no idea, which gets to my point. The article doesn't (and probably couldn't) illustrate for me the types of detailed examples that I myself would want to see in order to make a judgment, whether positive or negative. While it would seem that Dodgson is alive and well, deeply influencing the field of education, the fact is that education lacks rigorous precision and always has. Judging from *Meno*, even Socrates couldn't have taught beginning reading to anyone other than students who could already read—and ancient Greek was very phonemic. In my mind, the question isn't who is responsible for vacuous rhetoric in education, but who is working to end it.

> 'Twas brillig, and the slithy toves
> Did gyre and gimble in the wabe;
> All mimsy were the borogoves,
> And the mome raths outgrabe. ADI

[1] In education, "phonological" and "phonemic" are used interchangeably, although there are huge differences in the meanings of these words in linguistics.

Is Connecting Math Concepts *Your Best Bet for Raising State Test Scores?*

The question of whether or not the DI math program, *Connecting Math Concepts* (CMC), will produce the scores on state tests we want in math is frequently asked. I have heard even people in the DI community say that they don't want to use CMC in their school because it simply doesn't teach the right math skills necessary for children to be able to do well on state math tests. While we are waiting for a good CMC implementation to provide the state test scores to disprove this assertion, everyone is entitled to their opinion. It is my opinion that the decision to look beyond CMC is premature, and I'd like to explain why I think so.

There are a number of considerations that one should look at before deciding to move away from this excellent DI math curriculum. The considerations are: a) how well the program teaches and connects the fundamental skills needed in math so that children can be successful at the higher levels because of what they learned in the lower levels; b) how well the activities and problems match up with the way the problems are presented in the state tests; and c) the skill level of the teachers compared to the level required to successfully teach the curriculum.

How well does the program teach important skills?

Students are well prepared for pre-algebra and algebra after finishing CMC F successfully. Of course children must be mastering the content in CMC as they go along for them to be well prepared for algebra. But because success in algebra is the gold standard in math, students who finish a math series well prepared for algebra have been well served. That is arguably a more important evaluation of a math program than how children do on state tests.

CMC does a superb job of teaching in the lower grades exactly what is needed to be successful in the upper grades. When teachers have been successful in the task of teaching CMC to mastery, the upper-level skills are smooth as silk to present and teach to mastery. This is a unique feature of CMC that is extremely important, and that schools and teachers cannot appreciate for several years. In most math programs, children perceive math as becoming harder and harder over the years—because they have not been well prepared by a consistent presentation of important math concepts from the lower levels. If, and only if, the lower levels of CMC are taught well and students achieve mastery as they progress, learning math at the upper levels of CMC is *not* perceived as "harder" than it is at the lower levels. Conversely, when CMC is not taught to mastery, math does get harder and harder, just as traditional math programs do.

In addition to teaching to mastery, children must become automatic with math facts for math to remain easy to learn. Every math program, including CMC, must be supplemented with as much additional practice on math facts as is necessary for students to memorize all the facts. Students need to be automatic (no hesitation, no stopping to think) in their recall of math facts for CMC lessons to flow smoothly and for students to understand. There is not enough practice provided in any math program to bring children to automaticity. Without enough supplemental practice to develop automaticity in math facts, CMC lessons will become increasing difficult for children to do and for teachers to teach.

CMC A is viable with kindergarten students, even in inner-city neighborhoods. One has to pre-teach number recognition, number writing, and counting and one-to-one correspondence to 20 before you start CMC A. As long as they have those skills down pat, they can start in CMC A and finish it by the end of kindergarten. If students complete Level A in kindergarten, the designation of "on grade level" moves up a level just as with *Reading Mastery*. Therefore students are only "on grade level" if they complete Level B in first grade, C in second, D in third, E in fourth, and F in fifth. That level of skills, provided they are learned to mastery, covers I believe almost all the fundamental skills needed for success on most state math achievement tests. A level below that and students have not learned the skills that are required on the state tests.

Here is an example. The coordinate system is introduced toward the end of CMC-C. The coordinate system is part of third-grade state tests, at least here in Ohio. If children are learning from CMC-C in second grade, they will be ready for coordinate systems on the state tests. On the other hand, if they are in CMC-C in third grade, chances are that they will not have learned about the coordinate system in time for the state tests. So it is important for children to be on the higher levels so they have the skills they need to do well on the state tests. *Personal aside: I didn't see the coordinate system until high school geometry and it didn't hurt my math learning—I can't see why it is so critical for third-graders to have mastered this skill, but they can, and will in CMC.*

How well do the skills and the problem presentations align with state tests?

It may be that some question types on some state tests are more similar to the way questions are posed in some other curriculum. I don't know that to

be true, but even if it is, that is not a sufficient reason to abandon CMC. Currently almost all state tests in math have two challenges built into them. One challenge lies in the math skills needed to answer the question. But the other challenge is in the varied and unfamiliar format of the questions—purposefully designed to force children to "think" and deal with a less-structured presentation, which, presumably, is more like real life. I have my doubts about the value of these kinds of questions, but they are a fact of life. The issue at hand is about how to best prepare children to deal with these questions.

Because of the purposefully challenging format of questions on state tests, any curriculum one uses will still require some additional test preparation so that students can become familiar with the format of questions for your state. No curriculum will have a perfect match to a state test, because state tests are unique. The questions asked on the tests are designed to require additional generalizations from the skills and ways of presenting tasks students have learned.

The nature of the way questions are presented on state tests requires test prep in addition to math skill teaching. Teachers must be efficient enough to do the regular math lessons, some math facts practice, and math test prep—and do them all daily. That's a must with any curriculum. So every school has to design or purchase some supplemental curriculum specifically for test prep, in addition to whatever curriculum is used to teach the skills. And every school must require teachers to do math test prep regularly or it won't get test scores that represent the underlying skill level of the students.

There is a very real possibility that one could improve state test scores by eliminating teaching any math except test prep. In other words, don't bother with any skills other than what is on the test and present it only the way it appears on the test. Sad to say, but the typical state testing objectives do not include much if any weight to a lot of the more important parts of math, such as computation—especially difficult-to-learn algorithms like long division or addition and subtraction of unlike fractions. However, skipping these skills would not prepare our students for algebra and higher math functions in high school and college. CMC is first and foremost interested in teaching the skills needed to be successful in algebra and higher math—at which CMC does an excellent job. So we need to teach the skills students need, and teach those skills well—and as a supplement, prepare students to show what they know with some supplemental test preparation.

We need to teach the skills students need, and teach those skills well—and as a supplement, prepare students to show what they know with some supplemental test preparation.

What level of teaching skills is required of teachers to successfully teach the math program?

Every other math program I have seen requires more teacher skill to present than CMC, although CMC requires more teacher skill than *Reading Mastery* or *Spelling Mastery*. According to Dr. Bernie Kelly, successful implementation of CMC requires that teachers supplement with additional examples and get beyond the script in providing extra guided practice when students' lack of mastery requires it.

Implementing Dr. Kelly's suggestion appears to tax the level of skill of many teachers, especially in the area of math. It is not easy for all teachers to do a good job of the necessary supplementing in CMC. It is not easy for all teachers to carefully monitor all the written work of all the students during the lesson, so that the teacher knows when to give additional examples and more practice on a section. It is not easy for all teachers to realize when students have already mastered a concept and don't need the guided practice in the lesson and can move that topic to independent work.

I have talked with teachers who have taught the lessons up to the tests and then are surprised when the students do not show mastery. If this is happening with CMC it suggests to me that teachers need to receive *more* coaching and in-service help on teaching skills and understanding math. Keep in mind that if this is happening in a program with a script that shows how to explain things initially, a script that models how to provide guided practice, and lots of gradually faded practice, as well as scripted checking for mastery in every lesson—you could not expect better results from a program with *less* support for how to teach math effectively.

CMC provides the most teacher direction for teaching math of any program out there. The teacher guides are a goldmine of important advice on how to teach math effectively, especially CMC. Most programs provide effectively no help. Even the best of the other programs provide (at most) one explanation/script for introducing a concept or algorithm on the first day. After that first day, even when review is provided there is no assistance for how to do any guided practice; instead any review is simply part of independent work. And most programs don't even provide any review. So whether to provide any further guided practice and how to do so is left up to the teacher.

In CMC when and how to provide additional guided practice is scripted, but teachers are having difficulty

expanding or contracting that practice. How could one improve math instruction by eliminating any teacher support for the component of guided practice? Precisely the skills many teachers lack in math are the ones that all the other math programs rely on the teachers to provide.

Unfortunately, I think that in most coaching and observing situations no one would realize during a math presentation of other programs that there was a problem of insufficient guided practice. Few people would realize that an inadequate amount of guided teaching was being done. Traditional teacher assistance focuses on the initial presentation and doesn't evaluate the quantity or quality of guided practice.

Instead, in a school with low-performing students, there would simply be a number of children with their hands in the air asking for help and failing math. The children might be blamed and more time would be spent in discovery with manipulatives. But math scores would not necessarily be improving and math skills definitely would not be improving.

Imagine if a school's coaches or administrators were good enough to see how the children were not getting enough guided practice (none is scripted in any other math program). How would they be able to fix it? I know it would be a much harder job to try to coach skills in how to provide effective, scaffolded instruction from scratch when there is no script or model provided of how to do it. All of that would have to be written, given to teachers and taught to them, and then coached.

In summary, I think CMC is your best bet for math instruction. Especially if your students don't find math easy to learn, and your teachers don't find math easy to teach, CMC is easier to teach to mastery and to teach successfully than any other math program would be. You will still have to provide some test preparation to acquaint your students with the idiosyncrasies of your state tests, but they will have the underlying math skills to do well after you have done that. ADI

MARTIN KOZLOFF

Martin's Musings

Prometheus Was a Woman

It's easy to blame teachers when kids don't learn much, but teachers are trapped in the same nightmare of progressive flapdoodle, edupolitics, and bureaucratic incompetence as their students. That's why so many burn out so soon, and leave the field—20% the first year. Here's an example.

I'm blessed with two or three heroes in my graduate classes every semester. They don't know they're heroes, and if I told them so they'd blush from top knot to shoe sole. If southern, they'd say, "Aw, shuuucks. Ah ayum nawt." Missy (not her real name, but she looks like she could be a Missy) is a southern girl from the sticks. Thin. Purty. Intense. A smile so wide you can see ALL her teeth. About 27 years old with a boy almost four. She's seen rural poverty up close and doesn't fool easily. She's teaching second grade in the school *she* went to. Those kids are her kids. Let's watch as the crows eat her liver.

Missy doesn't buy treacly slogans and goofy progressive "practices." She knows you must teach kids every one of the five reading skills (phonemic awareness, alphabetic principles, fluency, vocabulary, comprehension) and you must do it in a systematic (carefully planned) and focused way. She says, "Hey, kids ain't gonna jist pick uuup theyum skills. Whah thayet's curaazy." (She's taking my course on teaching reading according to science, not according to the strange ideas that educationists call "philosophy.")

The third week Missy comes to class (6:30 to 9:15 p.m. after a one-hour drive) flushed and shaky.

"What's up?"

"The materials I have to use are really pathetic. I'm wore out. I'm up half the night preparing lessons. And I work all weekend to get ready."

"You shouldn't have to prepare lessons. Materials to teach skills as routine as beginning reading and math should be scripted so you can spend your time teaching."

"Yeah, you'd think so, but they're not. An' I'm all confused. Look at this!! What am I supposed to do?"

The whole class (around the table) looks at the materials. I've already taught what a good curriculum looks like and which ones are the best designed. Every page of this one is so full of colors and boxes and arrows and borders and pictures that when you open the teacher's book demented clowns leap out and start screaming. If you had a seizure disorder, this curriculum would set you off, Boy Howdy!

There are a dozen activities on every page for the teacher to do with the kids, but no instructions on how many to do, and with whom, the order to do them, or exactly what the teacher is supposed to say. You'd expect that for 50,000 bucks for the whole school, the curriculum developers could at least tell you how to use their materials.

So we tell Missy to stash those materials and find something else. I go to my office and get a *Reading Mastery Level I* kit. (Published by SRA McGraw-Hill, *Reading Mastery* is about the best there is. It will teach almost any kid to read regardless of social class, culture, or any other "variable" the education establishment likes to use to excuse its failure.)

"Here, use this kit. Give all the kids the placement test and put them in groups of about eight. Lessons take maybe 30 minutes. You and your assistant do the groups. You take the lowest."

We spend the next two weeks learning to use *Reading Mastery*. Every week, Missy reports progress—her own progress as a teacher and her kids' progress as readers.

"You should jist see theyum a readin'! And they luuuve it. They're sooo proud of theyemmselves." (Yes, she talks that way. I think it's lovely.)

A month later Missy comes in near tears.

"They're all atalkin' mean to me. They say I'm not really teaching my kids to read."

"Who's saying that?"

"The kindergarten, first-, and second-grade teachers. They're still using whole language. . ."

"Well, that's why the kids couldn't read when they came to you!"

"I know that now! I tested all my kids again and they *are* reading. They know the sounds. They sound out words. And they're getting' fluent with their little story books. But the other teachers gang up on me and try to get me to do it their way."

"Like how?"

"I'm supposed to have the kids memorize 100 words by Christmas. They call *that* reading. That's not reading! They say my kids are going to fail the K-3 literacy test."

Despite the evidence of their own ears (the sound of Missy's kids reading), her colleagues refuse to question themselves or to learn from her, and instead single her out for destruction.

"How can they possibly fail it? Your kids can *read*!"

"Because it's a whole language assessment. They don't have to sound out words. You point to words from the list that they're supposed to have memorized."

Years ago, whole languagists took over the state Department of Public Instruction (DPI) and created an assessment instrument that made it look as if kids taught with whole language could read—because the state defined memorizing, guessing at words, and turning pages as reading. (In this way, whole language taught in ed schools was supported by the state education elites.) Missy, who *is* teaching her kids to read, will seem incompetent even though her kids *can* read but haven't memorized the word list. Missy is in a nightmare written by Kafka, directed by Orwell, and co-starring the Three Stooges.

But Missy is a tough little squirt. She refuses to use whole language and insists on continuing systematic and explicit instruction with *Reading Mastery*. The other teachers talk behind her back. They pass her in the halls and don't say "Hey!"—a common greeting in the Southland—which, by the way, will rise again. Some of them—in fits of histrionics—cry to her that *she* is ruining her students. And the principal, instead of supporting Missy (whose skills and good heart in the long run will make him look good when her kids pass the serious state reading test at the end of grade three), threatens her with insubordination if she doesn't stop using *Reading Mastery*.

Could it get *more* perverse? Missy is the only one teaching reading properly and effectively. Yet, her conception of reading (there are five skills, you must teach each one to mastery in a systematic way) and her teaching methods (the teacher models the skill and then has students practice until they have it down pat) is completely at odds with what her colleagues have learned in ed school and have been doing for years. Despite the evidence of their own ears (the sound of Missy's kids reading), they refuse to question themselves or to learn from her, and instead single her out for destruction. And her principal knows so little about instruction that he does nothing to support her. This is not unusual. It's business *as* usual. So, the sane teachers leave and the ones who live in a dream world remain their whole careers.

The last time Missy was in class she was feeling better. The old smile was back.

"I'm on Paxil now. I was having anxiety spells over the fall break. I thought I was going crazy. I thought I was going to die. I was afraid to go out."

> These are the Voices Three,
> That speak of endless endeavor,
> Speak of endurance and strength,
> Triumph and fullness of fame,
> Sounding about the world,
> An inspiration forever,

Stirring the hearts of men,
Shaping their end and their aim.

(Longfellow. The Masque of Pandora. VI. In the Garden)

In the same poem, Prometheus says, "Whom the Gods would destroy they first make mad."

But it's not the Gods making Missy crazy. It's the hollow men.

We are the hollow men

We are the stuffed men
Leaning together
Headpiece filled with straw.
Alas!
Our dried voices, when
We whisper together
Are quiet and meaningless
As wind in dry grass
Or rats' feet over broken glass
In our dry cellar. . .
Shape without form, shade without colour,
Paralysed force, gesture without motion…

(T.S. Eliot, 1925)

Prometheus was a woman.

Afterword

Revenge, as they say, is a dish best eaten cold. A year later, Missy had become a state Reading First trainer. Guess whom she trains? ADL

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What's the Matter With Kids Who Won't Write and Can't Spell? Or, Why is Spelling Skill Important to Writing Fluency?

For years we teachers have been told that spelling isn't so important in writing. We've been told to tell our students "not to worry" about spelling—that it can be fixed as part of the revision. We've been told to simply let children invent the spelling and move on to the more important aspect of writing—getting the message out. At the same time, many of us have experienced children who won't write. No matter what the topic is, they never produce more than a few sentences. We have all had the experience of asking students to tell us a story and these students recant a tale that is very complex, complete with blood, guts, danger, and tears.

However, when you ask these same students to then go back and write that same story for us, we receive two three-word sentences on the paper. Not to mention that these students can't spell when you ask them to do the writing. Not that they make an embarrassing mistake every once in a while—their work is riddled with so many spelling errors of even common words that it is difficult to read.

The only way to get a complete writing assignment out of these students is to have them dictate it to you, and for you to simply be their secretary. Then you can get a pretty good composition, but of course, you've done more than half the work.

So what is wrong with these students? The key problem for most of them is that their lack of spelling skills is interfering with their ability to write. To understand how this works we need to go back and understand automaticity and the fact of limited human attention. Then we need to work forward to understanding the writing process to see how lack of spelling skills impacts writing.

What is automaticity? When you have learned a skill well enough, you can do it accurately, swiftly, and without conscious attention. We laugh when we say someone "can't walk and chew gum at the same time" because both of those actions are automatic for all of us over the age of two. At first a skill is learned to the level of accurate performance—without errors, but it requires one to concentrate and to go slowly. We all have had the experience of having just learned a skill. In order to carry out the task with few errors at this point, we remind ourselves not to hurry or we will mess it up. But after more practice the skill is learned to a fluent level where we can then perform the skill swiftly without errors. However, even more practice is required to learn a skill to the point of automaticity. At the point of automaticity, the skill no longer requires conscious direction or focus, even if it has to be done quickly. One can actually perform the skill at the same time as doing something else because of the very fact that it requires no cognitive focus.

Developing automaticity is important because humans have limited mental capacity for attention. We can only concentrate and focus our conscious attention on one thing at a time. If we have to do two things at the same time, one of those skills must be automatic.

Developing automaticity is important in school because some basic school skills have to be done while the stu-

dent is thinking about something else. In reading, the process of decoding has to become automatic so that readers can devote their attention to comprehending. Beginning readers, who are not yet fluent, often miss "the point" of what they are reading because all of their conscious attention is taken up with the decoding task of getting the word off the page. This is why the National Reading Panel has insisted on the importance of readers developing accuracy and fluency—because automaticity has to be achieved before full comprehension is possible. The same issue applies in math, where answering math facts, such as 7 x 6, must become automatic so students can focus their attention on the algorithm or the steps of a given problem.

So our hypothesis is that automaticity is needed in the area of writing as well. First, let's look at the process of writing. It has been called a juggling act because of the many things one has to do at the same time (Flower & Hayes, 1980). The two main functions are that of the author, who has to think of what to say, and the secretary, who has to get it down on paper (Isaacson, 1989). (See Figure 1.)

Research by Berninger and colleagues (1999) supports what we have suspected for some time, that lack of automaticity in spelling and handwriting (the secretarial functions) will distract a writer from the authoring function. As Isaacson put it clearly, we must "bring the secretary functions to automaticity, which is necessary to free students' working memory to concentrate on higher order composition concerns. Direct instruction with ample practice is the most efficient way to bring mechanical skills to a fluency level." (p. 216)

This view of the writing problem illustrates that students who lack automaticity with handwriting or spelling (or both) have to concentrate on how to spell words or how to form letters when they are writing. The problem is, they have to do that when they *should* be performing the authoring function—thinking about what they want to say, formulating it, and then keeping that sentence in mind as they write. Stopping to think about how to spell a word distracts students from the function of authoring and they forget what it is they wanted to say. Students who stop to remember how to write a "k" in cursive will lose track of what they are writing. A writer who is disrupted three or four times in the process of getting a sentence down on paper will not be able to put together much of a sentence. The writing of such students does not demonstrate their imagination, vocabulary, or creativity.

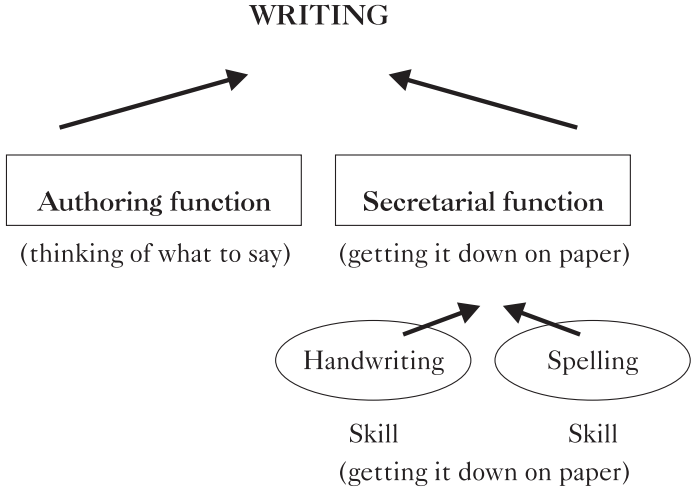
The constant interruptions in thinking and the constant distraction from authoring make the process of writing painful. When teachers understand this, several aspects of students' writing problems become clear all at once. It explains why our students' sentences are short (they lose track of anything longer). It explains why they are so slow at writing (the frequent disruptions and the time spent finding out how to spell words). It explains why their word choice is repetitious rather than creative (once they figure out how to write and spell a word they want to keep using it). It explains why they hate to write (the process is painfully slow).

One solution to this problem is to provide structured writing exercises that separately develop the secretarial skills until students develop fluency with the basic skills of handwriting and spelling. Only after developing the secretarial aspect of writing to fluency will students have enough mental resources left over to concentrate on the creativity of their authoring.

Giving students specific directions and pictures to write about will reduce the authoring demands. Reducing the authoring demands enables students to successfully concentrate on secretarial functions. Tell them the message they are to impart and allow the students to focus on the mechanics. Structured writing assignments can also limit the secretarial demands to a more manageable level. This additional structure ensures that the students can be successful, feel more confident, and enjoy writing more. *Expressive Writing*, a Direct Instruction program for writing, uses pictures and

Figure 1

The two main functions of the writing process.



specific directions to structure most writing assignments. *Reasoning and Writing*, another Direct Instruction program, also uses pictures and specific directions to reduce the authoring demands on students and allow them to focus on the job of getting things down on paper.

Another way to scaffold writing for students so that they may free up "cognitive space" for focus on mechanics is to do the "pre-writing" step for students. If students are knowledgeable about the content about which they are being asked to write, you can do the pre-writing semantic webs, graphic organizers, outlines, notes, etc., and students can write from these tools. These tools successfully reduce the demands of the writing process for students.

Many teachers assume that the opportunity to author and get one's own ideas down on paper is the primary way to motivate students to write. But for students who struggle and lack fluency in the secretarial skills of spelling and handwriting, the additional requirement to be a creative author is just too much to ask. These students are relieved and encouraged to be given a lot of structure in what to write, so they can attend to the spelling and handwriting that is so difficult for them. That's why the above-mentioned Direct Instruction programs are so successful for these students. Of course, in the meantime, they need to be working through a good handwriting program and a good spelling program such as *Spelling Mastery* to help them develop those skills as well. ADI

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Professional Standards in Education

Prologue: The article "Professional Standards in Education" makes the case that the field of education is not accountable, although there are professional standards in areas that have a lot in common with education, like psychology. There are professional standards for psychologists—sensible rules for what psychologists do and don't do. Why aren't there any for education? Why does the field persist in brain-dead procedures for adopting programs and for evaluating published educational products? No DI program has ever been adopted in any of California's adoption cycles. Why is that?

Part of the problem is that textbook adoptions are high-ticket items, with billions of dollars changing hands. In other fields there is controlled obsolescence. I have cookware that is over 20 years old with Teflon finishes that show almost no sign of wear. I have other cookware that is less than two years old and has no no-stick finish left. Education goes a step farther, however. It has uncontrolled obsolescence. Imagine having to update reading programs every seven years. Why? Have kids changed so much that we must fine-tune the programs to their current unique sensitivities? Baloney. Sure, for books that deal with "current events" current revisions are necessary. But face it: The driving force behind all the seven-year adoptions is expressed with dollar signs. It is enormously profitable for those publishers who hit the big time.

The field of education will continue to do things that are cruel and demonstrably damaging to kids until it establishes some form of true accountability for the performance of teachers and kids. A huge part of that accountability has to do with controlling how much experimentation is permitted with human subjects. The field has already raped millions of kids through whole language. Now the field is slowly getting its act together in reading but espouses math programs that are little more than cruel and unusual punishment. The field needs more than information. It needs meticulous control over the manner in which it permits instructional programs to be developed, disseminated, and adopted. It needs sensible standards.

A graduate student who does a research study involving high-risk subjects who go through non-traditional untried methods for teaching beginning reading has to justify the proposal and follow established protocol for research on human subjects. The student is to provide a rationale that

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describes why he thinks the method will work. He also has to describe possible benefits for the subjects, a backup plan to be used if the subjects are experiencing stress or failure that may affect their later learning, and indicators that are to be used to determine if children are not progressing as anticipated. The student must make thorough disclosures to the parents of the subjects, explaining risks, and possible compensation, and indicating who will respond to questions or problems. Finally, the student must obtain parental permission.

Ironically, a state or a school district that adopts the same untested program the graduate student uses is not required to follow any of the protocol and rules of conduct that govern the graduate student's procedures. Yet, both are experimenting with children.

No, you say. The state adoption is not research. Yes it is.

If both the graduate student and the state experiment with children and both derive the same knowledge from the outcomes of the experiment, both are doing research. The state is simply doing it in a clandestine manner, calls it something other than research, and charges for it.

One Webster's definition of an experiment is "any action or process undertaken to discover something not yet known or to demonstrate something known." According to this definition, the state adopts programs and teaching methods on the assumption that they will work well with children; however, at the time of the adoption, the state has no data that programs or practices will work well. If the state later receives data on the effectiveness of the approach, and if these data are generated by the students who went through the program or practice, the children were experimental subjects whose data generates knowledge of the approach's effectiveness. If the results are positive, confirming the decision-makers' expectations, the research was "a process undertaken to demonstrate something known." If the results are negative or null (which is nearly always the case) the research functioned as "a process undertaken to discover something not yet known." In either case, it was an experiment, even though it was labeled an advancement, a breakthrough, or a reform. Functionally, the name means little. If the "reform" was the basis for the field obtaining convincing documentation that the intervention was ineffective, the intervention served a research function. In fact, if it failed, the research function would be one of the few positive results of the intervention.

Within months after the implementation of whole language, even teachers who believed the hype and were trying to use whole language as it is specified observed that a large percentage of children were not learning to read.

The problem of experimentation by states and districts is documented by an uninterrupted sequence of failed reforms, starting with the busing of inner-city blacks and the new math in the 1960s, continuing through the open-school concept, the down-with-science humanism, the back-to-basics resolution, the teaching of reading through literature and whole language, and back to phonics. Whole language is a good example of failed reforms. The central argument that supports the approach holds that language is a whole. Reading is part of language. So reading should be governed by other facts we know about language. We see that language is effectively learned through situations in which language is used, not explicitly taught. Therefore, reading should be learned by actually reading, not being taught how to read. To many educators, this argument, although guilty of part-whole confusion, apparently seemed sound.

To support this argument, promoters of whole language presented what they assume is evidence. The evidence was often not of an experimental nature but consisted of analytical "research," possibly showing something about the structure of language, the structure of words, and obliquely relevant information, such as the fact that New Zealand is the most literate country in the world. The argument:

> New Zealand is the most literate country in the world.
>
> New Zealand uses whole language.
>
> Therefore, our country will become as literate as New Zealand if we use whole language.

Of course, the conclusion doesn't follow from the evidence. We don't know whether whole language caused this remarkable performance, which means that there is no data about how students in New Zealand perform with a program known to produce superior results in the United States.

Following the lead of Honig in California, states and districts installed whole language wholesale. In California, schools were monitored to make sure they complied with the whole language mandates and discarded whatever reading programs were in use, without regard to the performance data of children. At least three districts in California that had exceptional results using Direct Instruction were forced to drop the DI and install whole language.

Within months after the implementation of whole language, even teachers who believed the hype and were trying to use whole language as it is specified observed that a large percentage of children were not learning

to read. At the end of the first grade year, achievement test scores were significantly down.

In response to the performance of children, the states and districts issued caveats that had not been disclosed as part of the initial projections. The main assertion was that although children may be far behind at the end of kindergarten and first grade, they will catch up by the fourth grade. Exactly where the proponents of the reform got this information is not obvious. What is obvious is that many teachers told many parents, "Oh, don't worry. He'll catch up by the fourth grade."

In the end, enough performance data was accumulated to discredit whole language completely. The data came in various forms, but mainly from achievement test performance of children in the early grades, and in grade 4 (which revealed that the whole-language promise was a fabrication). Data also came from the rising number of referrals to special classes and from the number of retentions.

Perhaps as curious as the irresponsibility of state and district decision makers in installing and maintaining failed practices is what happens to them after the failed reform.

Following the disclosure of the reform's performance, decision makers did not say anything to the effect of, "We screwed up. We are ashamed of ourselves for launching into a reform without sufficient data. We will never do it again." Instead, they presented a new reform based on their new insights about how children learn or about the structure of reading—as if science has just uncovered relevant data about the brain, learning, or human development; however, the new reform may have no more basis in data than the one it superseded. (After whole language, Honig became a phonics advocate, but without great contrition over the harm whole language did.) Furthermore, the administrators who engineer egregious failure do not have diminished status, but may actually go to a new district at a higher salary.

Ethical Standards

Most states and districts abandoned whole language and placed serious restrictions on using "literature" as the primary vehicle for teaching reading in the early grades. However, the system has not been reformed so that it is consistent with our commitments both to science and children. Obviously, the research data could have been obtained far less painfully through smaller-scale studies conducted in accordance with the protocol the graduate student must follow.

The state or district does not need to subject the entire school population to an experimental treatment for seven years (which is the period of adopting instructional programs in many states).

This protocol is spelled out in detail in the American Psychological Association (APA) standards for "Ethical Principles of Psychologists and Code of Conduct." The ethical standards articulate proper precautions and requirements that are implied by the power that psychologists may use or misuse. Some standards are applicable to states and districts that conduct educational experiments that are billed as reforms. The standards are not only easily adapted to the kind of experiments that states and districts perform; they seem to be more necessary here than they are with small-scale experiments if we consider the "greater good."

Possibly, the key standard in the APA code is 3.04, which expresses the goal of "avoiding harm."

> 3.04 Avoiding Harm: Psychologists take reasonable steps to avoid harming their clients/patients, students, supervisees, research participants, organizational clients, and others with whom they work, and to minimize harm where it is foreseeable and unavoidable (2002).

In the case of reforms, the harm is foreseeable and possibly unavoidable. To conduct research that provides evidence that whole language is not effective, some human subjects are required, and their failure must be documented. But the harm would be minimized by limiting the number of subjects and by terminating the treatment as soon as it became apparent that children were progressing below projections (which would mean long before the fourth grade or even the end of the first grade). The experiment would produce limited harm. Following clear signals of failure, the failing children could be placed in compensatory programs known to be effective. The state or district does not need to subject the entire school population to an experimental treatment for seven years (which is the period of adopting instructional programs in many states). The state or district does not need documentation of students who begin in K and go through the sixth grade before terminating the experiment. A much smaller sample of students and shorter experimental treatment would be able to generate data that is adequate.

A related issue is that if causing harm is unavoidable, is the "compensatory instruction" adequate compensation even for the minimized harm? A strong argument could be made that injured subjects should receive additional compensation. In any case there should be some form of disclosure to the subjects (or their parents) before the experiment. Section 8 of the APA Ethic's Code provides guidelines that address this issue and others.

Standard 8.01 is institutional approval. According to the standard, psycholo-

gists are to "conduct the research in accordance with the approved research protocol." Once states and districts acknowledge that their reforms function as research for some populations, the need for protocol logically follows.

Standard 8.02 presents guidelines for situations in which consent is required and outlines the features of the disclosers as well as the provisions for subjects to decline or withdraw from the research. The participants or their parents are to be informed of the purpose of the research and possible factors that may affect willingness to participate—potential risks, possible adverse effects, and possible positive benefits. Participants or parents also receive information about who will answer questions about details of the research or outcomes. Participants are to receive information about possible treatment alternatives and about compensation or costs.

Standard 8.05 describes conditions that do not require informed consent for research. One condition is "the study of normal educational practices, curricula or classroom management methods conducted in educational settings." This condition is prefaced by qualification that the "research would not reasonably be assumed to create distress or harm." That condition is not met by adoptions of significant reform measures or the adoption of new instructional material or practices that have no evidence of effectiveness. These are high-risk enterprises for at least the lower half of the school population.

Standard 8.07, Deception in Research, indicates that "psychologists do not deceive prospective participants about research that is reasonably expected to cause…severe emotional distress." For a small-scale educational experiment involving a discovery math program, the researcher may not know the extent to which distress is anticipated. For a larger population, however, the fact that there is no hard data on emotional distress presents a serious problem. In absence of data, we can assume that adverse consequences are probable if the failure rate is high. Failure in learning to read or do math causes strong emotional reactions in most students. So if a district were to install a new math program that featured discovery, the district would have to disclose that (a) it doesn't know the extent to which students will fail but (b) some who fail will have strong emotional reactions to the failure.

Standard 8.09 refers to humane care and use of animals in research. One provision is that "psychologists trained in research methods and experienced in the care of laboratory animals supervise all procedures involving animals and are responsible for ensuring appropriate consideration of their comfort, health, and humane treatment." Also, "psychologists make reasonable efforts to minimize the discomfort…of animal subjects…Psychologists use a procedure subjecting animals to pain,

stress…only when an alternative procedure is unavailable."

Obviously, children are different from laboratory animals. For research purposes, however, it would seem reasonable to assume that the subjects' pain and stress would be monitored by an experienced person who supervises all procedures involving the experimental children, and who is responsible for ensuring appropriate consideration of their treatment.

Standard 10.09 refers to therapy; however, it is relevant to the kind of experimentation that school districts and states conduct:

> Psychologists terminate therapy when it becomes reasonably clear that the client. . . is not likely to benefit, or is being harmed by continued service.

Because districts and states do not have counterparts for any of these requirements, they have no form of advocacy for the children who serve as subjects of their experimentation. The state or district does not provide disclosure of possible risks. It does not carefully monitor the installations of the approaches. It does not have anybody assigned to observe in the field and play devil's advocate. Nor does it terminate obviously poor approaches when it becomes reasonably clear that the children are being harmed.

Textbook Adoptions

Textbook adoptions are prime exemplars of experimenting with children. Instructional products, particularly those for the primary grades, are extremely important because they account for a large part of the variance in student performance. A well-designed instructional program with demonstrated effectiveness may produce an effect size that is more than a standard deviation above that of a poorly designed instructional sequence (Adams & Engelmann, 1996).

Textbooks for beginning reading, math, and all other subjects in the elementary grades are virtually never evaluated on the basis of effectiveness with students before they are adopted. Furthermore, there are no standards of effectiveness, and worse, no requirements for publishers to first try out the material with children, secure data on effectiveness, and disclose the results, which means that publishers create programs for use in schools

Textbooks for beginning reading, math, and all other subjects in the elementary grades are virtually never evaluated on the basis of effectiveness with students before they are adopted.

without any data on how they work. This would be like mass-producing an automobile without ever testing the design before launching a sales campaign. The first time any children see the program for a new approach is after it has been adopted. And the first time any performance data is generated by the program is usually a year or more after it has been in use in classrooms.

The publishers' attitude about creating instructional material may seem cavalier, but they are not the villains. Their procedures are a consequence of the way adoptions are configured. The publishers' products are referenced to the adoption criteria formulated by the district or state. The agency sets up criteria for instructional programs; the publishers attempt to design the material so that it meets the criteria. The agency evaluates the program not by trying it out on a small scale, but by assembling committees to inspect the material and judge from inspection how well it seems to meet the criteria. Historically, nowhere in this procedure is the question of research data on effectiveness addressed.

At least one state—California—had statutes that called for publishers to field-test material, but during the whole-language era the California State Board openly rejected these statutes. The 1976 statutes (section 60226) specified that the publishers are to "develop plans to improve the quality and reliability of instructional materials through learner verification." The 1988 California adoption criteria even included a requirement that publishers were to provide a description of the field-testing process and an explanation of how the materials are to be improved "on the basis of the field-testing data collected."

Although this sounds as if the adoption process was aligned with the legislation, the following sentence in the 1988 Language Arts Framework declared, "This additional information is not to be considered as part of the criteria for recommending materials to the state board. . ."

A 1989 suit against the Board argued that the state had to comply with the legislation on learner verification. The state board argued that it had a self-executing authority to do as it chose in adopting textbooks and that the Board's actions were not subject to review by the legislature. The Board lost the lawsuit, and was ordered to require publishers to provide learner verification, but that ruling made little difference because the laws were repealed within a year, and the adoption process has gone on ever since without concern with learner verification. So California, like other states and districts, declared that it is not interested in assuring that programs that reach the classroom have a high probability of working.

Another practical reason for the publishers' inattention to data on effectiveness is that usually there is not sufficient time to conduct the kind of field-test research needed to shape effective instructional material. The timeline that the state presents allows

the publisher possibly only two years to create a K-5 sequence that meets the state's new requirements; however, it would probably take 2-3 years to try out the material for one grade level, revise it to avoid the specific performance problems identified in the first tryout, and try out the material again. To test all the levels, at least some "continuing students" would start in K and go through at least the third-grade level. To do a responsible job on a K-5 sequence, therefore, would require four or five years with the most efficient design that had various groups on each grade level starting two to four months apart (so the group receiving the final revised version in the first grade would start possibly ten months after the group that received the first tryout version of the program).

Another problem is that states and districts have primitive rules for adopting programs. Every seven years many of the statewide adoptions are referenced to a new framework with new criteria; therefore, the accepted standard has become for publishers to revise or redesign their products every seven years. Many districts will not adopt any program for beginning reading that has a copyright older than 7 years. This practice assumes either that first graders change so much every seven years that they need new instructional approaches, or that the revised program will always produce better results than the earlier version. Given that the results of student performance are not used in any practical way by the state or district, the adoption practices for subjects in the primary grades are enigmatic.

Instructional materials, like the overall reforms, are experimental. If the only basis that the publisher, state, and district has about the effectiveness of the product comes from field information obtained after the product had been adopted, the adoption process is functionally research. The principle of avoiding harm applies here.

Just as there is a Food and Drug Administration, there should be an Educational Protection Administration that tests products to be used in schools with the same rigor that drugs, prosthetics, machines, and other health-care products are tested by the Food and Drug Administration.

Carnine points out that education is probably like the Food and Drug

Just as there is a Food and Drug Administration, there should be an Educational Protection Administration that tests products to be used in schools with the same rigor that drugs, prosthetics, machines, and other health-care products are tested by the Food and Drug Administration.

Administration from its formation in 1938 until the Thalidomide disaster in 1962 (2000). During this period, the administration relied partly on opinion from clinical experts. The Kefauver Bill of 1962 required research evidence that documented that products were effective before they could be marketed.

Education relies not partly, but almost exclusively on expert opinion. The committee that "reviews" a particular instructional program form opinions about how relatively effective the program will be. The committee's opinions are consistently wrong. Education needs a Kefauver Bill. The damage created by faulty instructional programs does not produce outcomes that parallel the physical deformities created by thalidomide, but a wealth of data shows that school failure is the most highly correlated factor with all of the teen problems—drugs, felonies, pregnancy, dropping out of school, emotional problems (NICHD, 1998).

If even some of this harm is corrected by using products and practices that lead to school success, there should be no reason for not testing and validating them in the same way drugs and related products are tested and validated. A bottle of aspirin has qualifications for its use with younger children. Some instructional programs that produce reasonable results with higher performers fail seriously with lower performers; however, there are no cautions for the use of these programs. The cost of an administration that provided such cautions should not be a barrier when the health of millions of children is at stake.

One of the most outrageous examples of states not avoiding harm occurred in California. In 1985 the Curriculum Commission of California had established criteria for evaluating programs submitted for teaching mathematics. A small publisher in California designed a program meeting all these criteria. It received a score of 96, 16 points higher than any other submission. The only field-testing that occurred before the program was published involved 18 students. Data on 7 of them were excluded from the final data analysis. Of the remaining 11 students, 61% made gains or had no change in score, while 39% experienced a loss. The average gain of the group was 19 percentile points. The average loss was 22 percentile points. This program captured 60 percent of sales in the state the first year. When questioned about these results, G. Thomas of the California Department of Education explained that the State Board of Education "has never asserted that any specific score correlates with the quality of potential success of a particular program."

Research in Education

Researchers are providing additions to our knowledge of effective teaching practices, but research does not name specific products and rarely identifies

them as exemplars. The research shuns specifics and attempts to derive general principles and general schemes. The aversion to specifics seems to be based on the assumption that if teachers are provided with general information about the various types of phonemic-awareness activities, or successful phonics techniques, they will be able to transduce this general information into effective, specific applications. (See National Reading Panel, April 2000.) There is no data that teachers have the ability (or the necessary training) to do this.

The irony of the research not identifying specific programs that are effective is circular. The only basis that the researchers have for knowing that phonological awareness and phonics are effective is through an analysis of superior programs. The consumer of educational material wants information about which programs work, just as the purchaser of an automobile wants information about which cars in a class are more "effective." Instead of providing the consumer with specific information, the researchers present general principles and often discussions that go far beyond the data. The logic they use is flawed. It is parallel to this:

> All Dalmatians have spots.
>
> Therefore, all dogs with spots are Dalmatians.

Here's the educational parallel:

> All highly successful programs present explicit phonics.
>
> Therefore, all programs that present explicit phonics are highly successful.

The logic is as flawed for the explicit phonics as it is for Dalmatians. There is no data that teachers are able to create highly successfully instruction from the kind of recommendations about phonological awareness or phonics provided by the 2000 Reading Panel. Furthermore, this excursion into general principles isn't needed. Just as the patient with serious heart problems requires a specific surgical procedure that has been demonstrated to be effective, the teacher needs specific products that have been demonstrated to be effective for teaching reading, math, and language. Just as the surgeon must be trained in specific procedures, teachers need training in how to use specific products so they are effective. If the researchers know which specific products work, the first responsibility of at least some of them should be to identify these products. Then the researchers have some kind of known base for developing what they believe to be the underlying principles that account for the success of these programs.

Conclusions

For a real educational reform to occur, the system must first recognize that it has done harm and continues to do harm. It must be institutionalized so that it follows standards for professional conduct that avoids unnecessary harm. Research should be conducted before the fact—before reform agen-

das are installed, before textbooks are adopted, before teachers enter the classroom or use a new procedure.

Next, educational agencies must identify all their practices that use teachers and children as the experimental subjects, from in-service formats to their textbook adoption practices and copyright requirements. Finally, the agencies need to apply a code of ethics to provide protocol for these experimental areas. States and districts need to find out information about effectiveness of proposed programs or practices through well-designed research that is governed by a strict code of conduct and strict guidelines of accountability. Concurrent with a sensible search for information about what works, adoption criteria and practices need to be scrapped. They have not worked in identifying programs that produce superior results. At best, they have generated indifferent practices in the publishing business and many products that range from mediocre to ineffective.

States need to work with major publishers to set up a new way to evaluate programs, a new way to adopt them, and a timeline that is appropriate for proper development of material that uses field tryouts and obtains data that the material works well with children.

Finally, researchers need to recognize that the basic-research model of deriving general "scientific principles" does not apply to education because education is an applied science. The procedures for reporting is parallel to medicine or automobile design, which recognizes that teachers need specific products and practices, not anything general or something they are supposed to invent. A start would be for researchers to evaluate how well teachers are actually able to apply general principles generated by research and use them to create highly successful applications.

The sum of the above would be a system that would be both scientific and would have the ethical code implied by the potential power of effective instruction. ADI

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DI-ANNOUNCE Electronic List

An electronic list is now available: DI-ANNOUNCE. As its name indicates, DI-ANNOUNCE is an electronic list for announcements on resources for those studying or implementing Direct Instruction. List topics include the following:

- research articles, news articles, and other publications on DI;
- updates on DI implementations;
- meetings, conferences, and workshops on DI;
- authors' remedies for specific exercises in the DI programs that have been identified as being difficult for children;
- new DI products and resources;
- grant opportunities or awards for DI research or implementation;
- job opportunities for DI researchers or practitioners;
- sources of data on student performance for analysis or distribution.

Note that DI-ANNOUNCE postings are limited to ANNOUNCEMENTS. The list is NOT a discussion list, and it is moderated. Any replies, jokes, or other off-task messages will be rejected. There is an on-line, web-based archive of postings for later reference and retrieval. In this way, the list is designed to be a streamlined tool for communicating information on the most critical developments in the field of Direct Instruction.

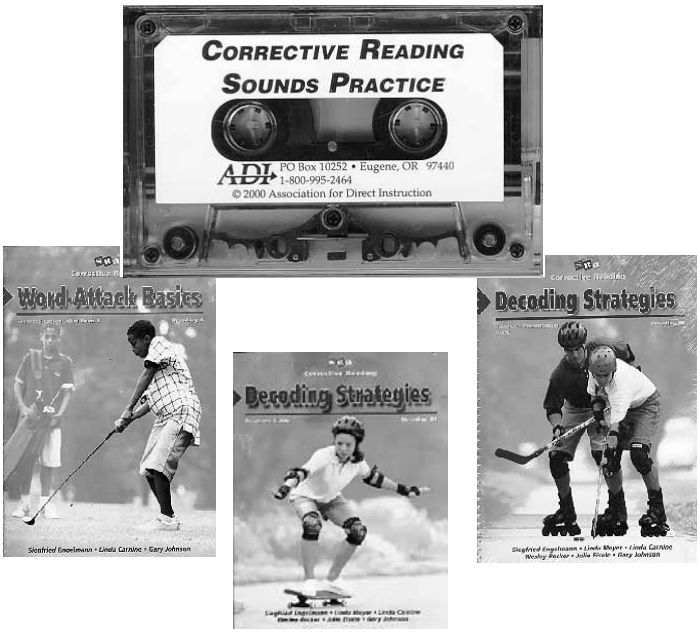
To subscribe, send a message to join-DI-ANNOUNCE@lyris.nifdi.org.

You will then receive a "welcome" message with additional information about the list. You can also go to http://lyris.nifdi.org/ to see an archive of past announcements sent to the list, including the "welcome" message.

The list launched last October. You are invited to join the list and send announcements as appropriate. Feel free to call Kurt Engelmann at the National Institute for Direct Instruction (NIFDI) via 877.485.1973 toll-free or email kurt@nifdi.org if you have any questions about the list.

New from the Association for Direct Instruction
A tool for you…

Corrective Reading Sounds Practice Tape



Dear *Corrective Reading* User,

A critical element in presenting *Corrective Reading* lessons is how accurately and consistently you say the sounds. Of course, when teachers are trained on the programs they spend time practicing the sounds, but once they get back into the classrooms they sometimes have difficulty with some of the sounds, especially some of the stop sounds.

I have assisted ADI in developing an audio tape that helps you practice the sounds. This tape is short (12 minutes). The narrator says each sound the program introduces, gives an example, then gives you time to say the sound. The tape also provides rationale and relevant tips on how to pronounce the sounds effectively.

Thanks for your interest in continuing to improve your presentation skills.

Siegfried Engelmann
Direct Instruction Program Senior Author

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		Total	

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Now Available from ADI…

COACHES TOOL KIT

These useful pre-printed Post-It® notes are used to help convey important teaching skills to users of the Direct Instruction Reading programs. Instead of having to write out the proper presentation of the correction or procedure, one simply peels a sheet off the pad and puts it in the next lesson or two where the correction/procedure would be used.

The primary set, for use primarily with *Reading Mastery I* and *II* and *Decoding A* contains correction procedures for

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- Individual Turns
- Comprehension Questions
- Reading Vocabulary (Sound Identification Errors)
- Looping for Sound-It-Out Words
- Word Identification Errors (Group Reading)

The upper level set, for use primarily with *Reading Mastery III–VI* and *Corrective Reading* contains correction procedures for

- Individual Turns
- Comprehension Questions
- Word Identification Errors (Word Attack)
- Word Identification Errors (Group Reading)

The two come together as a kit and are priced at $30.00 per kit ($24.00 for ADI members). Contact ADI for quantity pricing.

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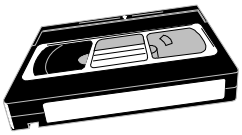

Videotapes on the Direct Instruction Model

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 either 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 60s. 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 90s: 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 be 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 Preservice and Inservice Training—The first tapes of the Level I and Level II series present intensive preservice 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 one 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 *(Reading Mastery I–III)* $229.00

Corrective Reading: Decoding B1, B2, C—(2-tape set) 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 demonstration of lessons (off-camera responses). Price $25.00

Conference Keynotes

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

Keynotes From the 2005 National DI Conference, July 2005, Eugene, Oregon

Carefully Designed Curriculum: A Key to Success. For the past 31 years Zig Engelmann has delivered the opening keynote of the National DI Conference, and this year was no exception. Zig focuses on the careful design of the Direct Instruction programs that make them effective in the classroom versus other programs that have some of the component design elements, but not all and are therefore less effective than DI. Pioneering author Doug Carnine describes some of the challenges we face in educating our children to compete on a world class level. Doug also goes into detail of how to create a school improvement plan and how to implement it. As a bonus, the conference closing is included. Price: Videotape $30.00, DVD $40.00

Keynotes From the 2004 National DI Conference, July 2004, Eugene, Oregon—Conference attendees rated the keynotes from the 30th National Direct Instruction Conference and Institutes as one of the best features of the 2004 conference. Chris Doherty, Director of Reading First from the U.S. Office of Elementary and Secondary Education in Washington, DC, delivered a humorous, informative, and motivating presentation. Chris has been an advocate of Direct Instruction for many years. In his capacity with the federal government he has pushed for rules that insist on states following through with the mandate to use programs with a proven track record. The way he relates his role as a spouse and parent to his professional life would make this an ideal video for those both new to DI as well as veteran users. In the second opening keynote, Zig Engelmann outlines common misconceptions that teachers have about teaching and learning. Once made aware of common pitfalls, it is easier to avoid them, thereby increasing teacher effectiveness and student performance. Price: $30.00

To the Top of the Mountain—Giving Kids the Education They Deserve—75 minutes. Milt Thompson, Principal of 21st Century Preparatory School in Racine, Wisconsin gives a very motivational presentation of his quest to dramatically change the lives of all children and give them the education they deserve. Starting with a clear vision of his goal, Thompson describes his journey that turned the lowest performing school in Kenosha, Wisconsin into a model of excellence. In his keynote, Senior Direct Instruction developer Zig Engelmann focuses on the four things you have to do to have an effective Direct Instruction implementation. These are: work hard, pay attention to detail, treat problems as information, and recognize that it takes time. He provides concrete examples of the ingredients that go into Direct Instruction implementations as well as an interesting historical perspective. Price: $30.00

No Excuses in Portland Elementary, The Right Choice Isn't Always the Easiest, and Where Does the Buck Stop? 2 tapes, 1 hour, 30 minutes total. Ernest Smith is Principal of Portland Elementary in Portland, Arkansas. The February 2002 issue of *Reader's Digest* featured Portland Elementary in an article about schools that outperformed expectations. Smith gives huge credit to the implementation of DI as the key to his student's and teacher's success. In his opening remarks, Zig Engelmann gives a summary of the Project Follow Through results and how these results translate into current educational practices. Also included are Zig's closing remarks. Price: $30.00

Lesson Learned...The Story of City Springs, Reaching for Effective Teaching, and Which Path to Success? 2 tapes, 2 hours total. In the fall of 2000 a documentary was aired on PBS showing the journey of City Springs Elementary in Baltimore from a place of hopelessness to a place of hope. The principal of City Springs, Bernice Whelchel, addressed the 2001 National DI Conference with an update on her school and delivered a truly inspiring keynote. She describes the determination of her staff and students to reach the excellence she knew they were capable of. Through this hard work City Springs went from being one of the 20 lowest schools in the Baltimore City Schools system to one of the top 20 schools. This keynote also includes a 10-minute video updating viewers on the progress at City Springs in the 2000–2001 school year. In the second keynote Zig Engelmann elaborates on the features of successful implementations such as City Springs. Also included are Zig's closing remarks. 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

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, reflects on the trend towards using research based educational methods and research validated materials. In the second presentation, ***Higher Profile, Greater Risks,*** Siegfried Engelmann reflects on the past of Direct Instruction and what has to be done to ensure successful implementation of DI. Price: $30.00

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

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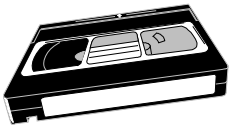

Videotapes on the Direct Instruction Model...continued

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

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

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

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

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

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ADI Books Price List

The Association for Direct Instruction distributes the following Direct Instruction materials. Members of ADI receive a 20% discount on these materials. To join ADI and take advantage of this discount, simply fill out the form and include your annual dues with your order.

Title & Author	Member Price	List Price	Quantity	Total
Preventing Failure in the Primary Grades (1969 & 1997) Siegfried Engelmann	$19.95	$24.95		
Theory of Instruction (1991) Siegfried Engelmann & Douglas Carnine	$32.00	$40.00		
Teach Your Child to Read in 100 Easy Lessons (1983) Siegfried Engelmann, Phyllis Haddox, & Elaine Bruner	$17.50	$22.00		
Structuring Classrooms for Academic Success (1983) S. Paine, J. Radicchi, L. Rosellini, L. Deutchman, & C. Darch	$11.00	$14.00		
War Against the Schools' Academic Child Abuse (1992) Siegfried Engelmann	$14.95	$17.95		
Research on Direct Instruction (1996) Gary Adams & Siegfried Engelmann	$24.95	$29.95		
Introduction to Direct Instruction N. E. Marchand-Martella, T. A. Slocum, & R. C. Martella	$44.00	$55.00		
Managing the Cycle of Acting-Out Behavior in the Classroom Geoff Colvin	$24.00	$28.00		
Rubric for Identifying Authentic Direct Instruction Programs Siegfried Engelmann & Geoff Colvin	$12.00	$15.00		
Corrective Reading Sounds Tape		$10.00		

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What is ADI, the Association for Direct Instruction?

ADI is a nonprofit 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 *The Journal of Direct Instruction (JODI)*, *Direct Instruction News (DI News)*, 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 semiannual publications, *The Journal of Direct Instruction* and *Direct Instruction News*. *JODI* is a peer-reviewed professional publication containing new and reprinted research related to effective instruction. *Direct Instruction News* focuses on success stories, news and reviews of new programs and materials and information on using DI more effectively.

Membership Options

☐ $40.00 ***Regular Membership*** (includes one year subscription to ADI publications, a 20% discount on ADI sponsored events and on materials sold by ADI).

☐ $30.00 ***Student Membership*** (includes one year subscription to ADI publications, and a 40% discount on ADI sponsored events and a 20% discount on materials sold by ADI).

☐ $75.00 ***Sustaining Membership*** (includes Regular membership privileges and recognition of your support in *Direct Instruction News*).

☐ $150.00 ***Institutional Membership*** (includes 5 subscriptions to ADI publications and regular membership privileges for 5 staff people).

✔ Canadian addresses add $10.00 US to above prices.

✔ Outside of North America add $20.00 for standard delivery or $30.00 for airmail delivery.

✔ Contributions and dues to ADI are tax deductible to the fullest extent of the law.

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