

# Direct Instruction NEWS

Volume 2, Number 2

P.O. Box 10252, Eugene, Oregon 97440

Winter, 1982-83

## Committed Teaching on the Plains

Agriculture, Energy, and  
Educational Excellence

Kathryn Plowman  
Center (ND) Public Schools

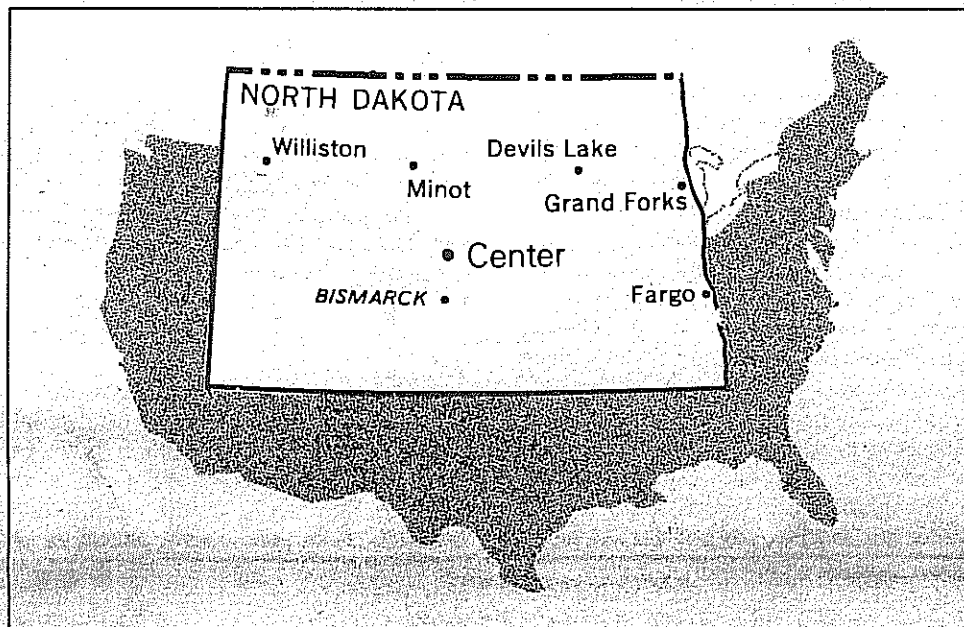
*Editor's Note. On occasion, the News will profile Direct Instruction implementations in diverse locations. In this issue, we are pleased to showcase the DI efforts underway in Center, N.D. If you would like to see the people in your area get some recognition for their commitment to educational quality through Direct Instruction, please let us know. Your project could be one of the next ones profiled.*

If asked to state what North Dakota is best known for, most Americans would probably say agriculture. Those aware of recent resource discoveries would quickly add energy as a state asset. But only a select few would be able to tell you the new wave of North Dakota's notoriety: educational excellence. That's right, educational excellence. It might not have pervaded the entire State yet, but if you go to Center, the heart of North Dakota, that's exactly what you'd find. Many people in Center would tell you that educational quality is their most recent claim to fame. So would the folks in Bismark, the State capitol. State legislators, government officials, members of the media—they've all been to Center; they've seen what's going on. And they don't mind telling you it's mighty impressive. Neither do local school officials mind telling you that what's going on is Direct Instruction.

Center is a small community in central North Dakota. It has one school system with 440 students in grades 1-12. Most of the population is of German or Norwegian descent. About 4 percent are Native American. Most families in the area make their livings from energy (coal) or from farming. They work hard, pay good money to support the local schools, and like effective educational programs. And that's just what they're getting, thanks to the school's commitment to Direct Instruction.

### DI: Center of Attention

Direct Instruction (DI) programs have been used in Center Elementary School since 1976. They were introduced by Title I and Learning Disability personnel. The following year, the 5th and 6th grade teachers began looking for a more effective language program than the



traditional one they had been using. They settled on Corrective Reading Program: Comprehension B, were more than satisfied, and continued its use the following year. That same year Corrective Reading: Decoding B was initiated with students who were not experiencing success in the School's basal reading series.

As teachers used these programs, their use of DI techniques spilled over into their teaching of other subject areas in the classrooms. They also began analysing the non-direct instruction materials they were using and restructuring the tasks they were presenting to the students.

At the beginning of the 1980-81 school year, the administration introduced Distar Reading and Language into the first grade curriculum. The next year, Distar Math was initiated in the first grade. The programs were continued the following years as the class was promoted.

At this time, the first and second grades use Distar Reading, Arithmetic, and Language. The second grade also uses Spelling Mastery. In the third grade, Spelling Mastery, Distar Language, and Distar Reading are taught. The fourth grade uses Spelling Mastery and Distar Language for all students and the Corrective Reading Program: Decoding B and C for those students who place into it. The fifth and sixth grades use Spelling Mastery and the Corrective Reading Programs (Decoding B, Skills Applications C, Comprehension B, and Comprehension C). The Corrective Math Modules are

used with some of the students to supplement the regular math program. Comprehension C is carried through into part of the seventh grade.

### Teachers: From Concern to Commitment

This widespread use of DI in Center School has not come about without some questioning on the part of some teachers. Teachers who initially were not in favor of using DI continued to question various aspects of the programs through the first year they used them. However, after about a year of teaching DI, they generally felt increasingly comfortable with the approach and began to look at their other materials more carefully and critically. DI techniques slowly began to appear in their teaching of other subjects.

Teachers' problems are still present, but they are more positive problems. For example, teachers are having difficulty finding enough quality seatwork for their students to complete during the time they are with another group. Now the teachers want work for their children that really teaches them something worthwhile, rather than simply keeps them busy. Correct placement of children in groups is also a major concern at this time; however, in earlier years, this problem wouldn't have been addressed. Most students would have been placed in the basal book for that room and the children would have had to sink or swim. Teachers are requesting more information on DI and classroom

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## Breaking The Code

### A Comparison of Eight Beginning Reading Programs

Linda A. Meyer  
University of Illinois

In 1978, two researchers (Beck & McCaslin, 1978) from the University of Pittsburg Learning Research and Development Center (LRDC) published a monograph, "An analysis of Dimensions that Affect the Development of Code-Breaking Ability in Eight Beginning Reading Programs." The purpose of this study was to examine eight beginning reading programs to determine: (a) general program characteristics, such as how reading was defined, and the flow of instruction in the lessons, (b) letter/sound correspondences, such as how many letters and sounds are taught, and (c) how the teacher is to teach the program.

Beck and McCaslin (1978) performed this analysis, in part, because of the



LINDA MEYER

unresolved debate between code-emphasis (phonetic) and meaning-emphasis (sight-word) reading programs and the question of how beginning reading skills are presented in published programs. They were particularly concerned about reading programs used with compensatory education students, those students who have trouble learning to read.

Beck and McCaslin's analysis builds on Chall's (1967) landmark book, *Learning to Read, the Great Debate*, in which

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# Quality

by Stan C. Paine, Editor  
DIRECT INSTRUCTION NEWS

Quality. It is a critical concept in business and industry, but it is little known in education. We hear the word mentioned during school budget election times when a letter to the editor of the newspaper asks us to vote for the budget and support the "quality of education" in our schools. Or we hear it referred to at an occasional school board or Parent-Teacher Association meeting or at an education convention. But this casual and occasional lip service we pay to "Quality" in education is not the treatment it receives in the commercial sector.

The concept of quality is assigned a front-and-center-stage location in any production-oriented enterprise. (If it is not, the enterprise is soon out of business.) It is the star of the show. Its name is on the marquee — and everywhere else. I take my dry cleaning to *Quality Cleaners*. I buy *Quality Checked* dairy products. The companies sponsoring ads on my television set tell me that quality is their middle name, that quality is their way of doing business, and that the quality goes in before the name goes on (I had always wondered when it was added). Why all this fuss about quality? Well, would you buy anything that you knew was *not* of good quality — aside from junk foods, that is?

What is quality, anyhow? Clearly, it is different things to different people. To some, it is whatever is popular, such as Calvin Klein jeans. To others, it is durability, such as Tootsie Rolls, perhaps, which are said to last a long time, or Maytag, which is so dependable that the repair man gets bored to tears just waiting for a service call. To others, it is finding things made or getting things done the way they are supposed to be made or done.

What is quality in education? At a general level, it is the practice of educating children in the manner in

which they *should* be educated. Obviously, this notion gets mixed up with people's values about *what* should be taught. But if we can agree about a few basic things that *all* students should be taught — such as reading, speaking, writing, mathematics, science, social studies, and perhaps something about music and the arts — we can focus instead on *how* they are taught — and to what criteria.

For the most part, quality in education must be concerned, above all else, with *outcomes*. Too often, we argue about the process — about whether children should be taught to read using a phonetic or a sight word approach, about whether they should or should not be taught with manipulative objects in learning mathematics, about whether they should be taught science through an experiential or a language-mediated approach. The process can be *anything*, as long as it produces the desired outcome — time after time, with child after child.

The plain truth is that most educational approaches are not very dependable, and dependability is the one feature which, in education, as well as in business and industry, defines quality. If we are ever to break free from our legacy of succeeding only with the good students and failing with poor ones, we must adopt practices which are dependable — which are good enough to succeed with *any* student. That should be our striving.

There is at least one such approach available — the Direct Instruction approach to education. It is good enough to succeed with any student. It is dependable. It exemplifies quality education — but only when used correctly. It is only through *correct* use — using the programs in the manner intended by the developers — that Direct Instruction is most likely to produce its potential effects. While Direct Instruction programs have the potential — like no other programs — to provide a quality education for all students, we must still focus on the outcomes which are actually a-

chieved with our students.

In business, workers and managers *could* simply go about their daily routines, then hope that everything turns out okay. But they don't. They practice something called *quality control*, which simply means controlling the quality of what they do or of what they produce. In human services, like education, some people object to the concept of "control." Hence, the term, "quality assurance" is offered in its place. Quality assurance, as you might suspect, refers to the practice of assuring the quality of what one does. It is hard to argue with that.

In business, the quality of products and services is assured largely through two means — inspections and consumer satisfaction inquiries. These are carried out frequently; at least some of the products or services the business produces or provides are inspected every day.

When an inspection reveals a product which does not meet the company's standards, it is sent back for fixing, and the problem is traced to its source. In education, "inspection" is called testing, which is carried out with varying degrees of frequency in various classrooms or schools. When the test reveals a student who does not meet the school's or teacher's standards, s/he is usually sent on, and the problem is attributed to the student. Consumer satisfaction inquiries, the other part of the quality assurance process in business, are almost unknown in education.

Although education's success is measured by achievement (and consumer satisfaction), rather than by profit and customer satisfaction, as it is in business, education could learn much from the commercial sector about assuring the quality of what it does. By adopting a frequent inspection system (such as the Continuous Progress Test System developed for DISTAR), and by developing a consumer (parent-student & community) satisfaction feedback system, schools could begin achieving a level of dependability with all students — a level of quality — that would make us all proud to be educators.<sup>1</sup>

<sup>1</sup>The DISTAR Continuous Progress Test System and the concept of consumer satisfaction measures will be described more fully in future issues of the *News*.

## Employment Exchange

POSITION WANTED

Highly successful preschool and elementary teacher with 15 years experience seeks position in the Pacific Northwest (prefer Portland, Oregon, area). Extensive experience with DISTAR programs, intervention for low-performing students, and parent training. B.S., early childhood education; M.S., guidance and counseling. Certified in preschool and K-6 teaching and in guidance. Will be in Portland area March 26-April 5, 1983; available for interviews at that time. Available for employment in July, 1983.

Please contact Janet Lottman, 115 Ronni Dr., East Meadow, N.Y., 11554. Phone: (516) 731-3596.

## DI at ABA - '83

Convention Preview to Appear  
in Spring Issue

The 1983 Convention of ABA will be held May 26-29 at the Hyatt Regency Hotel in Milwaukee, Wisconsin. Those who have attended the convention the past two years, when it was also held in Milwaukee, have been pleased with Convention facilities and enthused with the Hotel's location with respect to restaurants, entertainment, strolling or jogging, shopping, sight-seeing, and brewery-touring.

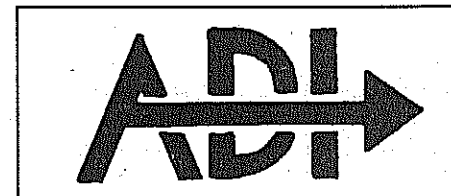
The Convention will feature a full two days of DI events, including invited speakers (Siegfried Engelmann and Lynne Anderson-Inman), several symposia, a research showcase (poster board session), an ADI information and display booth, and other events. The program has been put together by Stan Paine of ADI and the University of Oregon and Marilyn Monteiro, of the Irving, Texas, Public Schools. The poster board session is being coordinated by Gerry Gaydos of the Richmond, Texas, State School.

Watch for a detailed schedule of the DI at ABA events in the Spring issue of the *Direct Instruction News*. And start now to make your plans for a pleasant and informative spring mini-trip to Milwaukee.

## Logo Winner

We are pleased to announce, at last the winning entry (and the winner) in the ADI Logo Contest. The winning entry, shown here, was submitted by Ed Sims of the University of Alabama. Ed will receive his Ph.D. in Psychology at Alabama this spring. His program adviser is a long-time DI proponent and supporter, Paul Weisberg.

Ed's research is on instructional design for academic skills and early childhood intervention. He has presented the results of his work at the annual conventions of the Association for Behavior Analysis and the Southeastern



Psychological Association and at the recent Convention on Behavior Analysis in Education. We look forward to the work of educational significance in Direct Instruction from Ed in the year ahead, and we thank him for his interest in ADI. For his winning entry, Ed will receive a paid membership in the Association—and, of course, fame wherever he goes—both as an educator and as a graphic designer.

The logo is now being professionally drafted into ADI letterhead and a convention banner. You will also begin to see it regularly on the masthead of the *DI News*, beginning with the Spring 1983 issue. Thanks to all of the entrants who took the time and showed the interest to contribute a design. And thank you, Ed. You have given us an identity at last.

The *Direct Instruction News* is published Fall, Winter, Spring and Summer, and is distributed by mail to members of the Association for Direct Instruction. Readers are invited to submit articles for publication relating to DI. Send contributions to: The Association for Direct Instruction, P.O. Box 10252, Eugene, Oregon 97440.

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## Teaching Students to Detect Invalid Arguments

By William Patching, Ed Kameenui,  
Douglas Carnine, Russell Gersten,  
and Geoff Colvin

Various critical reading skills have successfully been taught to students at the high school and college level (Brownell, 1953; Livingston, 1965; Kemp, 1963; O'Brien & Shapiro, 1973). Yet, to date, only one study (Wright, 1977) has compared different approaches to teaching critical reading skills to elementary school students using a valid experimental design. Critical reading was defined as the set of processes or operations that occur when readers correctly identify valid and invalid arguments.

This definition of critical reading was applied to three categories of invalid arguments. Figure 1 presents the categories, the rules that students were taught to identify, and examples of the invalid arguments.

The experimental design compared the performance of students in two treatment groups with those in a no treatment comparison group.

Procedures for the *Systematic Instruction* group were developed according to the principles of instructional design articulated by Engelmann and Carnine (1982) in their text, *Theory of Instruction: Principles and Applications*. (special attention should be paid to Chapter 9 and Chapter 12.)

*Systematic Instruction* used the principles of subskill analyses, mastery learning, and the cognitive-routine model to develop a three-day teaching sequence. Students were taught on an individual basis by a teacher who was trained to follow scripted lessons that specified how teachers were to explain and model the application of the critical reading skills.

The second procedure, *Workbook with Corrective Feedback*, utilized the same instructional design principles, the same explicit statement of rules, and the same examples of the three categories of invalid arguments. However, in this case, rules and examples were presented in the workbooks, rather than by the teacher. The workbooks were corrected

daily by the teacher and returned to the students, so that they received feedback about the correctness of their responses. This procedure was selected since it represented what Durkin found to be the dominant instructional practice in current reading programs (Durkin, 1978-79, 1981).

Students in the *No Intervention (Control)* group were given worksheets from a commonly used reading comprehension workbook program, that, like most commonly used workbooks, did not explicitly teach critical reading skills.

All students were evaluated on a battery of measures that assessed critical reading skills on three subskills. The hypothesis was that students from the *Systematic Instruction* group would perform at a significantly higher level on these tests than students not given this instruction and that students in the *Workbook* group would score higher than the *Control* group.

### Subjects and Sampling Procedures

The subjects were selected from 4 fifth-grade classes in two public schools in a community of 125,000 in the Northwest. Two criteria were used for subject selection. First, subjects had to demonstrate reading skills that would enable them to read all of the tests and workbooks that they were required to complete without excessive word recognition difficulty. In addition, subjects were given an 11-item screening test covering the three categories of invalid argument. Only students with scores of 67 or below were included. The 39 subjects who met the screening criteria were randomly assigned to one of three groups; each group was then randomly assigned to one of the three treatment conditions.

### Instructional Procedures and Materials

The 13 subjects in the *Systematic Instruction* group were taught individually. Subjects in the other two groups (*Workbook with Feedback* and *No Intervention*) completed their workbooks or worksheets at their regular desks; they were then checked on an individual

Figure 2  
Lesson Script for Teaching Detection  
of False Causality

Prior to introducing the false causality rule, review the faulty generalization rule. Use correction procedures where necessary.

1. Teacher: Listen. Here's another rule. Just because two things happen together, it doesn't always mean that one causes the other.
2. Teacher: When two things happen together, does that always mean that one causes the other?
3. Child: No.
4. Teacher: No, just because two things happen together, it doesn't always mean that one causes the other.
5. Teacher: Listen. I'm going to tell you two things that happened together. "Mary wins every race she runs in. She wears her lucky ring during every race."
6. Teacher: Tell me one thing that happened.
7. Child: Mary wins every race she runs in.
8. Teacher: Tell me another thing that happened.
9. Child: Mary wears a lucky ring during every race.

Correction procedure for steps 6-9. If child is incorrect, have child read each sentence. After reading first sentence, ask, "Is that one thing that happened?" Read second sentence. Then ask, "So, what's the other thing that happened?"

10. Teacher: What do we know about these two things?
11. Child: They happen together.
12. Teacher: Yes, we know that Mary wins every race she runs in and she wears her lucky ring during every race. Listen, Here's another sentence. "Mary won the race today because she wore her lucky ring."
13. Teacher: Do you know that Mary won the race because she wore her lucky ring?
14. Child: No.
15. Teacher: Why not?
16. Child: Just because two things happen together, it doesn't always mean that one causes the other.
17. Teacher: Yes, just because two things happen together, it doesn't mean that one causes the other.
18. Continue with more examples for steps 5-17 of same type as one given.

### Another Example for Steps 5-11

Teacher: OK, here are two other things that happened together.

Lenny started getting bad grades in school last term. He and Jim became the best of friends last term.

Steps 12-17: Did Lenny start getting bad grades because of his best friend Jim?

Figure 1  
Category, Rule, and Example for  
Three Invalid Arguments

Category 1: The ability to detect faulty generalization

Rule 1: Just because you know about the part, it doesn't mean you know about the whole thing.

Example: Sue has long legs. She must be a very good runner.

Category 2: The ability to detect false causality

Rule 2: Just because two things happen together, it doesn't always mean that one causes the other.

Example: John's mother told him not to open the windows in the house at night. "If you open that window, someone we know will get sick." A week later, John opened the window in the house and that night his sister, Susie, became very sick. Opening the window must have done it.

Category 3: The ability to detect invalid testimonial

Rule 3: Just because an important person in one area says something is good or bad in another area, you can't be sure it's true.

Example: Dr. Smith is a very good doctor and everyone likes him. He tells people why they are sick and helps them get better quickly. When I wanted to buy a lawnmower, Dr. Smith told me that I should.

basis by the experimenter. In each case, intervention consisted of three 30-minute instructional sessions. Total intervention time for the study was approximately seven weeks. During that time, the interventions were implemented continually for all three groups.

Details of each instructional procedure follow:

*Systematic Instruction.* The teacher utilized semi-programmed, scripted lessons and materials, a research procedure advocated by Gall (1977) to ensure fidelity of treatment.

Figure 2 presents an excerpt of the teaching script for one segment of a lesson. The sequence for the introduction of the three categories of invalid arguments was: (a) the ability to detect faulty generalization; (b) the ability to detect false causality; and (c) the ability to detect invalid testimonial.

The actual teaching sessions were conducted according to the principles of direct instruction or active teaching articulated by Stevens and Rosenshine (1981), and Good and Grouws (1979).

These included brisk pacing of lessons (i.e., 8 to 10 learning tasks per minute), immediate correction of errors using procedures specified in the script, a high degree of immediate reinforcement for correct student responses, and teaching to a mastery criterion (i.e., each student was required to complete at least one practice example correctly without help from the teacher before going on to the next skill).

In the initial examples in each lesson, teacher prompting was maximized to make the suggested cognitive routine overt. For instance, when attempting the item in Figure 1 on detecting faulty causality, the subject would be required to read the passage aloud and the experimenter would ask, "Tell me one thing that happened in the passage." After the student responded correctly, the experimenter would ask again, "Tell me another thing that happened." After identifying the two things that happened, the experimenter asked, "What do we know about these two things?" The student was required to respond with, "They happen-

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# Strategies for Teaching Natural Science Content in Jr. High School

by Craig Darch and Douglas Carnine  
University of Oregon

Upon entering the intermediate grades, students are expected to spend considerable time working independently, reading textbooks to learn important factual information. Research has shown that although some high performing students possess efficient study skill strategies, many average and lower performing students do not. These strategies can be taught, but much work remains to be done to determine how to teach them most effectively.

Research on content area instruction has proceeded in recent years along several lines, including investigations of learner strategies (i.e., techniques for studying with the goal of retention), task structures (e.g., independent study, cooperative or competitive group work), and text organization (e.g., visual displays—mapping and network- ing).

The present study examined a combination of variables taken from research on strategy teaching, task structure, and text organization. Sixth graders were randomly assigned to one of four instructional treatments: (1) visual displays with strategy rehearsed in a group task-structure, (2) visual displays with strategy in an individualized task-structure, (3) text with strategy rehearsal in an individualized task-structure, and (4) traditional instruction. Measures included a posttest on content from the passage, a transfer test of performance on a commercial social studies selection which contained graphics, and a consumer satisfaction questionnaire.

## Subjects

The 84 subjects were all of the sixth graders in a middle class region, Oregon junior high school. Subjects were randomly assigned to one of four classes by the school administrator at the beginning of the school term. Consequently, there was a wide range of student ability levels within each class. The class size ranged from 19 to 24 students.

## Setting and Teacher

The teacher in the study was the school's regular social studies teacher, who had 5 years of teaching experience. This teacher taught each of the four groups in the experiment.

Instruction took place within the social studies classroom, and occurred at the regularly scheduled time for each of the four groups. The treatments were presented in the following order: visual display with group rehearsal, visual display with individual rehearsal, traditional instruction, and text with individual rehearsal.

## Materials and Procedures

Students in each group were presented the same academic content, although the teaching procedures used for each group were quite different. All students received 15 lessons, which spanned 5 separate units. Each unit consisted of 3 lessons. Lessons were presented daily and were generally 45 minutes long.

The topics for the 5 units of instruction represented areas covered in many middle school and junior high textbooks: temperature, winds and moisture, climate regions, western forest regions, and prairie regions.

*Visual Display, Strategy, and Group Rehearsal.* This group was taught the 5 instructional units with a program called *Your World of Facts* (Engelmann, Davis, and Davis, 1982), consisting of a teacher presentation, a strategy for comprehending visual displays of academic content, and instructional games which allowed students to study and rehearse the content in a small group format (see Engelmann & Carnine, 1982). The main goal of the visual displays was to teach a system of facts that was specifically related to a topic.

The teacher presented the visual display on the first day of each 3-lesson unit. Group rehearsal occurred in a game-like format on days 2 and 3 of each instructional unit. For this portion of the class, the students were divided into 4 to 6 teams, each with about 5 students. After playing the game for 15 minutes, monitors counted the points for their teams. The teams compared points and the team with the most points was declared the winner. Thus, cooperation occurred within groups to earn as many points as possible, but groups competed with each other to be the winning team.

*Visual Display, Strategy, and Self Study.* This group received the same instructional treatment as the first group except that a 5-step self study procedure replaced the game. After the teacher completed the script for the visual display, the teacher would pass out to each student: (a) a copy of the visual display that was presented by the teacher during the unit, (b) another display that did not have the labels for the individual cells within the display, and (c) cards that contained each of the labels for the display. Students were asked to: (1) read and rehearse the content, using the labeled display; (2) rehearse the content using the non-labeled display, with an immediate check on accuracy; (3) same as (2), but with a delayed check; (4) use the non-labeled display with random trials and an immediate check; and (5) same as (4), but with a delayed accuracy check.

*Text, Strategy, and Self Study.* The textual material for this condition was adopted from the scripts and visual displays that were used in treatments 1 and 2. Expository passages were developed that contained all of the factual information presented in the scripts and visual displays in the previously discussed treatments. The 7-step self study method used for this treatment included: (1) previewing (reading all headings and subheadings); (2) reciting each subheading; (3) asking questions about potentially important information; (4) reading to find important details; (5) rereading subheadings and reciting important details; (6) rehearsing; and (7) reading again.

*Traditional Instruction.* The development of this treatment was based on an analysis of several commercial social studies texts and discussions with 4

Table 1							
Means (M) and Standard Deviations (SD) for Posttest and Transfer Test							
Treatment	N	Posttest			Transfer Test		
		M*	SD	% Correct	M**	SD	% Correct
1. Display with Group Rehrsl.	19	12.71	1.94	85	5.33	1.96	67
2. Display with Indiv. Rehrsl.	24	10.58	3.06	71	4.63	1.95	58
3. Text with Indiv. Rehrsl.	20	10.05	3.23	67	5.32	1.68	66
4. Traditional	21	9.30	2.41	62	3.87	1.61	48
*Maximum possible was 15							
**Maximum possible was 8							

public school social studies teachers as to what a good unit of study should contain.

Although there were 5 separate units taught, each unit was designed similarly and contained the same essential components. The first lesson in each of the 5 units contained a 20-minute introductory lecture, a group discussion on the lecture topic, a brief written assignment, and feedback on assignment performance. The second day of each unit consisted of an experiment and/or teacher demonstration of film/filmstrip highlighting the unit content, a question-and-answer discussion, and small group experiments, projects, or discussion. On the final day of the unit, students worked together in small groups on various projects related to the topic (e.g., a collage of weather-related pictures). During the actual work on the projects, the teacher would systematically rotate among the groups to discuss each group project and to help the students relate their work to the unit topic. The teacher also served as a guide to ensure that discussion revolved around the major points of the unit. Near the end of the class period, the groups shared their project with the rest of the class.

## Measures

Four experimenter-made tests were developed for this study. Three of the measures assessed student performance on the instructional curriculum: a 10-item pretest, a 15-item posttest, and an 8-item transfer test. The other measure developed for this study involved assessing consumer satisfaction relative to the teaching procedures for each of the conditions; i.e., student attitudes toward instruction.

## Results

Table 1 presents the descriptive statistics for the posttest and transfer test. The mean, standard deviation, and percent correct are given for each group. On the posttest, Group 1 (Display/Group Rehearsal) had the highest mean correct, 12.71 (85% correct). Group 2 (Display/Self Study) and Group 3 (Text/Self Study) had similar mean scores, 10.02 (66% correct) and 10.58 (70% correct), respectively. Group 4 (Tradi-

tional) had the lowest mean score, 9.30 (62% correct).

Three planned comparisons were performed on the means of the 4 groups on the posttest. The first comparison contrasted Group 1 (Display/Group Rehearsal) with the average performance of the other 3 groups. The difference was significant ( $p = .001$ ). The second comparison looked at the effects of visual/spatial versus textual presentations of information (i.e., Group 2 vs. Group 3). The difference between Group 2 (Display/Individual Rehearsal) and Group 3 (Text/Individual Rehearsal) was not significant. The final comparison focused on the individual rehearsal strategies (i.e. Groups 2 & 3 vs. Group 4). The mean for groups 2 and 3 did not differ significantly from the mean for group 4.

On the transfer test, the Display/Group Rehearsal students again had the highest mean score (5.33, 67% correct).

The means and standard deviations for the consumer satisfactions questions appear in Table 2. Since each item tapped a different aspect of instruction, the item scores were analyzed individually. For each of the items, Display/Group Rehearsal was rated most highly.

## Discussion

Visual spatial displays, in conjunction with instruction on a rehearsal strategy and a group task-structure, seem to be viable instructional devices. This treatment group had significantly higher scores than the other treatments (except for the Text/Individual Rehearsal on the transfer measure). The Visual Display/Group Rehearsal was also the only treatment in which the posttest mean (85%) approached a mastery level.

Visual displays and cooperative within-group learning (with competition between groups) may have helped the students to identify more easily the important concepts in the unit. First, the visual display allowed the teacher to dispense with much irrelevant detail that may have distracted students from the

Continued on Page 5

Table 2							
Means and Standard Deviations for Consumer Satisfaction Questions							
Question	1. Display with Group Rehearsal		2. Display with Indiv. Rehearsal		3. Text with Indiv. Rehearsal		Traditional
	M	SD	M	SD	M	SD	M SD
Enjoyment	2.68	.58	2.50	.60	2.23	.53	2.58 .58
Usefulness	2.57	.60	2.10	.78	2.04	.49	2.54 .65
Amount of Learning	2.26	.87	2.25	.63	1.38	.80	2.12 .67

# Teacher to Teacher

by Jane M. Dougall Coté Whiteaker Community School, Eugene, Oregon



## Professional Growth an Individual Challenge

Cathy Method  
Bethel-Eugene-Springfield  
Teachers' Center  
Eugene, Oregon

*Editor's Note: Cathy Method is currently Director of the Bethel-Eugene-Springfield Teachers' (BEST) Center. Prior to becoming Director, she was Coordinator of Inservice Planning for the Center. She has extensive experience in meeting teachers' training needs and is eminently qualified to address the topic she has chosen here—helping teachers continue professional growth and development in the face of declining support for such activities. We welcome her suggestions enthusiastically and thank her for this timely contribution to the column—J.C.*

The future of inservice training programs for teachers is uncertain. Budget cuts at all levels (federal, state, local) will have an impact on the availability of professional development programs and the degrees to which these programs are able to provide quality inservice training. The individual teacher will increasingly be expected to cover her/his own expenses for conferences and training events. As inflation cuts deeper into teacher's pocketbooks, it will become more difficult for teachers to keep up with ever-changing educational trends and new teaching techniques.

Four years ago, federally funded teacher centers entered the world of education. Teacher centers provided the opportunity for teachers to have a voice in training programs that would help them gain knowledge and skills that they felt were important to teaching. This year, many of them, including the Bethel, Eugene, Springfield Teacher (BEST) Center in Eugene, Oregon, will close their doors because of lack of funding. While these centers may close physically, it is hoped that the philosophies and the influence they brought to education will continue.

BEST Center operated with the philosophy that effective training should be designed to meet teacher perceived needs, and should give teachers a voice in deciding how the training is provided. That philosophy proved successful. Over 1300 educators took advantage of the services offered by BEST Center, with teachers spending hours of their time attending training events.

Teachers gave of themselves, while BEST Center offered a support staff to provide names of resource people, make initial contacts and provide funds for instructors/consultants. What BEST Center soon discovered was that the most appropriate instructor/consultant



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was often "the teacher down the hall" and the Center came to rely more and more on classroom teachers to conduct training events or to serve as consultants for their colleagues.

The experience of BEST Center can serve as a model for teachers who wish to continue to grow professionally when many of the programs they have relied upon are no longer available. The following suggestions are offered as a means of helping teachers reach out and continue to grow professionally with a minimum of personal sacrifice and expense.

### Become An Instructional Leader

Every classroom teacher is a leader by the very nature of their role in the classroom. They have only to take that small step from being a leader in the classroom to becoming a leader among their colleagues. An instructional leader is one who keeps up on current trends in education, investigates new curricular programs and tests new teaching techniques. As a leader, you have the opportunity to promote sound instructional practices, share and develop curricula and influence your colleagues. Leadership provides a basis for continual growth and challenge.

### Promote Tradeoffs

Getting to go to an important conference may often make the difference between standing still and keeping up with current trends in education. If

funds for travel and training in your district are limited, offer to provide a training session for teachers at home in return for travel expenses. A wise administration will recognize that it is much more cost effective to fund a conference when you can train 30 teachers for the price of one. Use your free time at the conference to gather and organize material so that you will have handouts for your colleagues without having to spend additional time gathering them later. In addition, promote the idea that people who attend conferences share materials with colleagues so you can keep up on those events you are unable to attend.

### Develop Partnerships for Learning

Learning new teaching techniques involves more than just a one-shot training session. Follow-up can often be accomplished by teaming up with a fellow teacher. Find a teacher willing to attend the training session with you and be sure to get a handout or to take notes on all the key points of the new technique. Return to your classroom and begin using the technique, then ask your partner to observe you in the classroom and provide feedback on your performance. Exchange roles until both of you are feeling comfortable with the new technique. Meet periodically to discuss any problems or new ideas. Be sure to maintain contact with the original trainer so you will be able to get answers to questions as they arise. Get their address or phone number before you leave the training event.

### Involve the School Principal

Be assertive about letting your principal know when you need training to learn a new skill or to improve upon an old one. The principal can use her/his influence to bring trainers to the school, particularly if that person is someone teaching elsewhere in the district. They can also use their influence to help you receive outside training, especially if you are willing to serve as a model for other teachers in your building. Never allow yourself to feel intimidated by requesting training; lifelong learners are a gift to society.

### Join an Inservice Committee

The best way to influence the type of training offered in a school district is to involve yourself with the committees that make decisions about staff development. Know who the key people are in your district and get to know them. Volunteer your services—don't wait to be asked. You'll probably be remembered next time an opening comes up. Find out what the teachers need and want for training and share that information with the committee or council. Insist on quality and that instructors meet the needs of teachers. Don't settle for four hours of theory when what you really needed was four hours of instructional techniques. Use your influence to see that an appropriate evaluation form is developed and used for all training events. See that the information gleaned from the evaluations is used. BEST Center makes a practice of summarizing all evaluations and sending a copy to the instructor. The results are used to improve future training events. Serving on training committees can provide you with an opportunity to keep learning. They usually have information on recent research in education and the latest cur-

ricular materials, and they keep current on effective training programs.

### Expand Your Horizons

The world of education is often expanded for students by involving the community. We use guest speakers to enhance the curriculum for students and we can also use them to provide training for teachers. An example of this might be to involve a member of a public utility in designing a curriculum unit on energy. A banker might be willing to conduct a training session for teachers on investment banking. Universities and colleges often keep a list of people willing to speak to groups or to conduct training at little or no cost. The teacher who is searching for ways to continue to grow professionally should investigate all the sources available in the community. In education, we have discovered that the "expert" is often the teacher down the hall. We may also discover that the "expert" in the community is the person actually doing the job.

The above suggestions are not all-inclusive for solving the problems of inservice training during times of economic hardship. However, they provide a place to begin exploring alternatives to the more traditional programs for staff development. Education cannot afford to stand still.

## Strategies

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important aspects of a unit. On another level, the practice of relevant concepts is greatly enhanced by the peer feedback provided in the group study procedure.

Although visual displays with strategy and a group task-structure form a potent combination of instructional components, removing any of the components seems to diminish the treatment. For example, posttest scores for both the Visual Display/Individual Rehearsal and the Text/Individual Rehearsal were lower, suggesting that the group task-structure is superior to individual task structures. The group rehearsal procedures also made it quite easy for the teacher to monitor students' progress—thereby minimizing student behavior problems—which tended to be a problem in the other groups.

The present findings are complicated, not just because they combine interventions from various research areas, but also because the setting of this study differed considerably from other studies. In the present study, an entire classroom received instruction from a single teacher. This situation is very realistic, but it makes comparisons with other studies, in which students were taught individually or in small groups, difficult. Because of the predominance of entire class instruction in the content area, these questions about task structure, visual displays, and learner strategies deserve further attention.

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research for over half a century pointed to the superiority of the code-emphasis approach for reading instruction through the end of third grade. Subsequent surveys of successful programs (Guthrie, Samuels, Martuza, Seifert, Tyler, & Edwall, 1976) also pointed to the inclusion of a phonics component. Support for a code-emphasis approach has come from research and practice (Chall, 1967) and program review (Guthrie, et al., 1976), yet the Beck and McCaslin study is the first analysis in which researchers compare a number of reading programs using the same criteria to look carefully at each program's content and pedagogy.

Selecting the Programs

Beck and McCaslin focused their review on the eight programs most frequently used with compensatory education students. They also selected programs to represent a variety of early reading approaches. They wanted to analyze programs that clearly represented code-emphasis and meaning-emphasis approaches. Therefore, they included programs published by Ginn (Reading 720), Houghton Mifflin, Scott Foresman (Open Highways), Macmillan (Bank Street Readers), Merrill (Linguistic Reading Program), Harcourt Brace Jovanovitch (Palo Alto Reading Program), McGraw Hill (Sullivan Readers), and Science Research Associates (Distar® Reading I and II). These eight programs include four meaning-emphasis programs with phonics components (Ginn Reading 720, Houghton Mifflin, Bank Street, and Open Highways), and four code-emphasis programs (Distar, Sullivan, Palo Alto, and Merrill).

The meaning-emphasis programs have phonics components in that they present phonics exercises in their lesson plans while adhering to a whole-word approach. In these programs, phonics exercises are not applied as the students identify new words. These programs appear to include phonics practice while maintaining their primary focus on word recognition and comprehension. The code-emphasis programs, on the other hand, present reading as a more developmental process, a process that progresses from an initial focus on word recognition and then on recognition and comprehension. All eight of these programs state that their goals are to teach decoding and comprehension, though they go about achieving these goals in very different ways. Beck and McCaslin were, therefore, confronted with programs having very different orientations that purported to have the same goals.

The Analyses

General Characteristics

The first analysis involved determining comparable points, such as the middle or end of the first year, within each of the eight programs to assess what each of the programs had presented at those points. It was important to establish these points in order to compare skills across programs. This task was more complicated than it appears

since the programs are organized differently, with some programs consisting of stories without guidelines for how long the stories should take to teach. In addition, there are marked differences in lesson organization. All of the code-emphasis programs present skill development prior to story reading. Distar is a particularly good example of this, as the first 36 lessons (covered in approximately 7 weeks of school) are 100 percent skill development. The first story appears on lesson 37. With the introduction of the first story, word-attack practice precedes story reading. The lessons are organized to provide practice on new sounds and words before the students read those words in stories.

The basals, on the other hand, all have lessons organized for story-reading before phonics practice. In these lessons, the students use context and picture clues to figure out new vocabulary. The phonics exercises appear sporadically after story-reading and sight words, or whole word reading is practiced during story reading. One exception is in Merrill's Bank Street Readers. The Bank Street program presents some word-attack practice before and some word-attack practice after story-reading. It presents sight word, or whole word reading, during story reading. It is the only one of the eight programs in this analysis that presents word-attack practice on this schedule.

Beck and McCaslin studied lesson organization to determine: (a) what, (b) when, and (c) how reading skills are taught, and the extent to which the skills taught made the inductive process of word recognition easier for the students. They counted the number of graphemic units taught in each of the eight programs, recognizing that there is disagreement about how many phonemes are unique, and therefore necessary, to cover the different sounds.

Letter/Sound Correspondences

There is no simple way to summarize the Beck and McCaslin graphemic count. The number of graphemes taught in meaning-emphasis programs ranges from 111 in Houghton Mifflin to 65 in Open Highways. There is a similar range for the code-emphasis programs (Sullivan 135 and Distar 65). The average number of graphemes taught in the eight programs is 95. As this count revealed no consistent patterns for either the meaning-emphasis or code-emphasis programs, Beck and McCaslin delved further to determine which correspondences are taught.

Using this criterion, Beck and McCaslin found unanimous agreement for teaching short vowels. They found similar agreement for teaching single consonants, but much less agreement for teaching long vowels, digraphs, diphthongs, controlled vowels, double consonants, initial and final consonants, initial and final consonant digraphs, vowel variants or other graphemic units. This inconsistency suggests that the eight program authors disagree on which graphemes are most important. Beck and McCaslin offer two explanations for these discrepancies. First, the graphemic units differ in utility—some

are simply more useful to develop first and second reading vocabularies. Second, the programs differ in how they expect students to transfer from graphemes explicitly taught to graphemes transferred from those taught. To examine this issue further, they next studied the sequencing of the correspondences, taking into consideration letters that look alike, letters that have more than one sound, letters that combine to produce a new sound, and the ease and utility of correspondences. Table 1 illustrates a ranking from Beck and McCaslin's analyses of these variables.

Table 1. Comparison of Eight Programs for: Letter/Sound Sequencing, Multiple Sounds, Combinations, Ease and Utility of Correspondence

	Sequencing	Multiple Sounds	Letter Combos (Digraphs)	Correspondence Learning & Utility	Sum
Sullivan	1	1	5	4	11
Houghton Mifflin	1	4	5	1	11
Bank Street	4	4	3	3	14
Palo Alto	1	1	1	5	8
Merrill	1	1	3	4	9
Ginn Reading 720	1	4	3	1	9
Distar	5	5*	5	4	19
Open Highways	1	1	5	1	8

\*Extrapolated ranking because of "extreme position of a set for regularity," Beck and McCaslin, 1978 (p. 26).

Distar and Bank Street sequence letters effectively, as demonstrated most dramatically by their separation of b and d. Generally, the other programs present these letters much closer together. In determining how effectively the programs separate the short and long vowels, as an indication of how the programs separated letters that have more than one sound, Beck and McCaslin found Distar to be unique in its use of a special alphabet that includes a different symbol for each sound presented for the first year and a half. They endorse this procedure as a particularly effective way to deal with potential confusion when introducing multiple sounds for one symbol. They question either presenting multiple sounds for one symbol too close together, or too far apart. If the symbols are presented too close together, many students will be confused. Likewise, if the multiple sounds for one symbol are presented too far apart, students may have trouble because they have become so practiced in a single identification of the symbol. Houghton Mifflin, Bank Street, and Ginn 720 also separate the introduction of the second sound by a reasonable length of time.

Next, Beck and McCaslin compared digraphs, "two graphemes that combine to produce a single sound," (p. 33) to see when the first digraph was introduced. They believed that programs should introduce a digraph early in the program, lest children think that each symbol can produce only one sound. In this category of letter/sound correspondences, four of the programs introduced digraphs early, while four delayed the introduction of the first digraph until late in the first grade—or even as late as the middle of second grade. Palo Alto introduces a digraph first, followed

closely by Sullivan, Merrill, and Distar. Houghton Mifflin, Ginn 720 and Open Highways introduce digraphs much later.

The fourth and final category of letter/sound correspondences explored was what Beck and McCaslin called, "Ease of Correspondence Learning and Utility of Correspondences." They grouped these two variables together, stating that the only meaningful assessment of a letter's ease of learning is its utility of correspondence—how useful the letter is for reading words. In other words, Beck and McCaslin recognized

the need for the letters to form real words. They examined Coleman's (1970) list of easiest-to-learn grapheme/phoneme correspondences to help them assess the order of symbol introduction in the eight programs. Then they made word lists from the first fifteen letter/sound correspondences taught in each program. In this analysis, Palo Alto again scored highest by producing a word list of more than 100 words, while Sullivan produced approximately sixty words, and Bank Street, Merrill and Distar each produced about thirty-eight words.

The sum of scores from ranking the programs in each category in Table 1 shows Distar as the highest-ranking program, followed by Bank Street, with Sullivan and Houghton Mifflin tied for third place, and Merrill and Ginn 720 ranking fourth. Open Highways and Palo Alto are fifth.

But letter/sound correspondences are only one aspect of beginning reading in each of these programs. Next, Beck and McCaslin looked at how the content of the programs is taught. They compared the teaching methods in each of the eight programs.

Teaching the Programs

In this analysis, Beck and McCaslin focused on how the programs directed the teachers to teach the short vowel e or i. Most of the information for this part of the analysis came from the teacher guides, except for Distar, the only program studied that provides a script for the teacher to follow for all parts of the lesson. Beck and McCaslin evaluated whether or not they felt students would be able to master the letter/sound cor-

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respondences based upon the instruction the programs provided to the teachers. They also looked at whether the teaching is sufficient to teach blending. Thus, this analysis was limited to a review of the code-emphasis programs. Table 2 outlines the skills taught in each of these four programs.

**Table 2 Program Characteristics in Four Code-Emphasis Programs**

1. Distar
  - a. direct approach
  - b. pure auditory
  - c. symbol identification
  - d. symbol discrimination
  - e. blending practice
  - f. very frequent review
2. Sullivan
  - a. long/short vowel discrimination
  - b. whole-word teaching
  - c. children unable to synthesize
3. Palo Alto
  - a. teacher-directed
  - b. letter/picture identification
  - c. synthesizing activities (e.g., spelling)
  - d. children will synthesize
4. Merrill
  - a. teacher-directed
  - b. strict linguistic approach
  - c. word, smallest unit for pronunciation
  - d. synthesis not explicitly taught
  - e. children unable to synthesize

Table 2 shows substantial differences in the programs. Distar is the only program with blending practice, frequent review, and a direct approach. Sullivan actually uses a whole-word teaching approach. Palo Alto and Merrill are both teacher-directed, but Beck and McCaslin judge that neither of these programs is designed in such a way that the students will synthesize the exercises to learn a decoding strategy. Beck and McCaslin went on to examine the amount of direct teaching in the programs. They believed that for their target population, compensatory education students, the program with the most direct correspondence between goals and instruction would be the strongest.

**Code-Emphasis Programs.** This portion of the analysis extends the points presented in the previous sections and focuses on the explicit instructions given by the teacher. Beck and McCaslin make several points in this section, looking first at the code-emphasis and then the meaning-emphasis programs. They identified six major findings:

1. Only Distar presents direct letter/sound associations.
2. The letter-naming that is taught in Sullivan, Palo Alto, and Merrill competes for instructional time with other correspondences.
3. Training and letter-writing activities in Distar, Palo Alto, and Sullivan may help to focus the children's attention on the critical aspects of the letters.
4. Palo Alto's picture correspondence practice with letters may contribute nothing to the children's learning.

5. Only Distar provides a specific strategy for teaching blending.
6. Reading vocabularies in all of the programs are generated from the letter correspondences taught up to that point.

Beck and McCaslin summarized their findings by ranking the code-emphasis programs in this order: (1) Distar, (2) Palo Alto, (3) Sullivan, and (4) Merrill. Similar reviews follow for the four meaning-emphasis programs. *Table 3 outlines the skills taught in the meaning-emphasis programs.*

**Table 3 Program Characteristics in Four Meaning-Emphasis Programs**

1. Ginn
  - a. letter correspondences taught frequently with pictures
  - b. many pure auditory tasks
  - c. word identification through context
  - d. teaches rules for long/short vowel identification
  - e. complex instructional vocabulary
  - f. little direction for teachers
  - g. labeling word patterns
  - h. anticipate students will have problems
2. Houghton Mifflin
  - a. combined letter sound/context strategy
  - b. complicated instructional vocabulary
  - c. consistent instructions, daily reinforcement
  - d. multiple sounds introduced for a single letter
  - e. anticipate students will have problems
  - f. no word building activities
3. Bank Street
  - a. pure auditory beginning lessons
  - b. difficult short vowel discriminations
  - c. fair amount of repetition
  - d. some word-building exercises
4. Open Highways
  - a. long and short vowel words introduced simultaneously
  - b. practice directed at sorting long and short vowel words
  - c. complicated instructional vocabulary
  - d. large number of rules presented
  - e. anticipate students will not learn the correspondences

From the Table 3 analysis, Beck and McCaslin conclude that compensatory education students will have doubtful success in any of the meaning-emphasis programs. They point out that the teaching sequences in these programs are complicated, and that the programs lack the explicit instruction necessary for successful beginning reading instruction with compensatory education students. They also point to studies demonstrating the difficulty that compensatory education students often have with phoneme recognition. From their own clinical experiences and their program analyses, they fear that the strategies in the

meaning-emphasis programs will be inadequate for students who have trouble learning to read.

## Conclusions and Suggestions

The Beck and McCaslin study is a careful analysis of eight beginning reading programs. Their primary task was to examine programs most often used with compensatory education students to determine: (1) the general program characteristics, (2) how letter/sound correspondences are taught, and (3) the pedagogy of the programs—how the skills are taught. They began with the premise that programs would be more successful with students who have trouble learning to read if the programs present phonics exercises and utilize those exercises to develop reading vocabularies. They divided the eight programs into four that represent the code-emphasis approach and four that represent the meaning-emphasis approach. This division allowed a comparison of the general characteristics of the two approaches as well as an analysis of specific characteristics of each of the eight programs.

The authors' analyses focused on the way the materials were sequenced, the examples given, and the exercises provided. They also looked at how the teacher was instructed to deliver the lessons. Their examination of the pedagogy forced Beck and McCaslin to conclude that, "the pedagogy for teaching correspondences is the most important variable to be considered. If the pedagogy is so convoluted that the correspondences cannot be learned, or if it requires skills that young readers do not have, it matters little that the program contains exquisite sequencing" (p. 68). This conclusion weds the importance of programming strategies (how the materials themselves are sequenced) to teaching strategies (how the teacher delivers the program). They conclude that while most compensatory education students will perform successfully in the code-emphasis programs (Distar, Sullivan, Palo Alto, and Merrill), only in Distar and Palo Alto will students learn the frequently neglected blending skills that actually enable them to decode words. Further, Beck and McCaslin conclude that students who have trouble learning to read will be unsuccessful if taught through one of the basal programs. They also feel that basals have changed little since the appearance of Chall's *Learning to Read: The Great Debate* (1967).

In conclusion, Beck and McCaslin state, "we ourselves favor the direct teaching of letter/sound associations, not only for the increased transfer abilities, but also for the initial ease of acquisition" (p. 70). They suggest that direct teaching which does not assume that the students have sophisticated auditory skills has a greater chance of success with larger numbers of students. They go on to add, "we consider Distar to be the program most effective in teaching beginning reading skills to our target population" (p. 70-71). They draw parallels from their program analysis to Rosenshine's (1976) definition of direct instruction and go on to

present their model of direct instruction for teaching beginning reading:

1. direct letter/sound correspondence instruction,
2. a definite instructional strategy for teaching blending,
3. repeated opportunities to apply learned correspondences and blending to the words in connected text (p. 72).

This analysis has implications for teachers faced with evaluating published instructional programs. In general, teachers should:

1. identify the most important skills for the level of the program;
2. compare programs simply on these variables;
3. look carefully at how the program is sequenced and how it is to be taught; and
4. determine how much and what kind of practice appears in the program.

These relatively simple guidelines should help teachers evaluate materials in a meaningful way—and should help beginning readers master the skill without undue difficulty.

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## Correction

In the last issue of the *DI News*, the research summary reporting the early findings of the DI High School Follow-up study incorrectly listed Russell Gersten as Director and Linda Meyer as Coordinator of the research in P.S. 137 (New York City). Meyer is Director of the research project at the New York site, and Gersten serves as Research Analyst there. Gersten is Director of the study at each of the other follow-up sites. We apologize for this error. (Eds.)

# A DI SUPERVISION MO

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The authors extend their thanks to Susann Brown, Ruth Ann Cummings, Lynn McCormick, Marcia McMahon, Eva Trevino and Sally Wood. As Applied Research supervisors, their assistance in the development and implementation of the checklists and supervision model was invaluable.

The Title I Schoolwide Project was a two-year direct instruction implementation involving two early childhood elementary schools (kindergarten through third grade) in the Dallas Independent School District (DISD). Eighty percent of the students in each school met the school lunch criterion for economic deprivation. In the project, both Title I and non-Title I students received the same daily instruction. The curriculum consisted of direct instruction programs (DISTAR reading, language and arithmetic, Spelling Mastery, Corrective Reading and Corrective Math). This article will focus on the teacher supervision component of the Schoolwide Project.

Each school was staffed with eight to ten teachers per grade level. Student population in each school was between 450 and 500 students (teacher-student ratio of 1 to 15). Three project supervisors worked directly with 12 to 15 teachers each, under the supervision of the building principals and with accountability to project staff. The project coordinator worked through district administrators and building principals and monitored the supervisors. The systems analyst coordinated the instructional management process.

### Project Goals

The major goal of the Schoolwide Project was to raise the academic achievement of participating students to grade level or above. This was done by: (1) using direct instruction programs to teach reading, math, language and spelling; (2) implementing a supervision model to ensure that the programs were being utilized effectively; and (3) designing an instructional management system to monitor the critical variables continuously. These variables included teacher effectiveness, lesson progress and content mastery.

### Supervision Model

The supervision model was designed to ensure that teachers implemented the curriculum effectively. It allowed for recognition of skill strengths and remediation of skill deficits. Supervisors used multiple measures to guide their decision regarding classroom interventions. The major measures used were: (1) rate of lesson completion and student worksheet errors, as collected daily by teachers and summarized weekly by supervisors; (2) student performance as indicated on criterion-referenced tests administered throughout the year; and (3) teacher performance, as evaluated by the supervisor on teaching and management skills checklists.

### Supervisor Schedule

To efficiently schedule their time, supervisors tracked which groups they had and had not observed and/or evaluated on a Monthly Summary Sheet. Supervisors noted what type of interaction had occurred (e.g., supervisor observed, consulted, taught group, etc.). This form allowed supervisors to scan their pattern of contact with teaching groups quickly and make decisions about what groups needed to be observed.

### Teaching Skills Checklist

Direct instruction teaching skills have been outlined by Project Follow Through staff in a supervisor's manual (Skillman, Garcia and Witcher, 1977). During the first year of the Schoolwide Project, staff used the Follow Through Model's Teacher Performance Form to assess teacher skills. This form prompts the supervisor to monitor knowledge of formats, use of signals, pacing, teaching to criterion, use of reinforcement and corrections, provision of individual turns, and observation of students while responding, as well as to give the teacher an assignment to help improve any skill deficiency. However, these skill areas had not been defined to allow for effective shaping of teaching skills. Variability existed in terms of supervisor and teacher definitions of such categories as "criterion teaching" and "corrections."

Other categories were so general, e.g., "reinforcement," that explaining an assignment for a teacher became very difficult. Also difficult was the process of training new supervisors to observe and specify relevant teaching variables. As part of the Schoolwide Project, the supervisory staff specified the behavioral components which make up direct instruction teaching skill categories. During the second year of the project, a diagnostic teaching skills checklist based on these categories was piloted.

Upon first observing a group, the supervisor completed an assessment to determine strengths and weaknesses in teaching and management skills. This assessment consisted of one or more observation sessions, after which the supervisor rated the teacher's performance on all checklist categories. The supervisor then selected the skill areas on which to provide training, and provided the teacher with an assignment on the appropriate diagnostic teaching or management skills checklist.

Figure 1 depicts the checklist used to assess a teacher's skills in delivering teaching formats using appropriate pacing. In using this form, the supervisor would observe and rate the teacher in each category, making notes and comments as needed. Consistency of skill use was also rated. If the skill was not evident, the teacher was rated in that

category as "skill improvement needed." The supervisor then made relevant assignments.

As soon as possible following the observation, the supervisor and teacher met to review briefly the ratings and the recommended assignment. If an assignment was made, a follow-up visit was planned by the supervisor. Once the follow-up observation occurred, the teacher, supervisor and principal each kept a copy of the completed assignment sheet.

### Management Skills Checklist

During the first year of the Schoolwide Project, the focus was on building a teaching staff skilled in presenting direct instruction programs. Although classroom management issues were addressed, they were not emphasized until the second year. Prior to the start of the second year, the project staff planned a series of inservice sessions to provide teachers with standardized training in the area of classroom management. Nine workshop units were implemented during the fall inservice.

To monitor and shape teacher management skills effectively, supervisors rated teacher performance on a set of management skills checklists. Figure 2 depicts the checklist used to assess the use of rules and procedures. The management skills checklists were used in the same fashion as the teaching skills checklists.

Figure 1

### Title I Schoolwide Project — Diagnostic Teaching Skills Checklist

Teacher \_\_\_\_\_ Group \_\_\_\_\_ Level, Lesson \_\_\_\_\_  
Supervisor \_\_\_\_\_ Date \_\_\_\_\_ School \_\_\_\_\_

1 = Consistent use of skills    2 = Inconsistent use of skills    3 = Skill improvement needed

Initial			Follow-up			Comments
Skill Area: FORMATS						
1	2	3	1	2	3	1. Presents entire exercise without skipping tasks.
1	2	3	1	2	3	2. Presents tasks in correct sequence.
1	2	3	1	2	3	3. Uses correct wording specified for task.
1	2	3	1	2	3	4. Follows teacher directions specified for task.
1	2	3	1	2	3	5. Requires that students give the correct response throughout the task.
1	2	3	1	2	3	6. Presents all tasks so that students can hear teacher and see materials.
1	2	3	1	2	3	7. Is familiar with formats; e.g., avoids studying the book during the lesson.
Skill Area: PACING						
1	2	3	1	2	3	1. Presents task quickly (teacher begins the directions for the next question or correction immediately after students make a response).
1	2	3	1	2	3	2. Pauses for longer period of time before signaling on a difficult task; i.e., provides adequate thinking time to minimize student errors.
						3. Maintains student attention by varying the presentation.
1	2	3	1	2	3	3.1 Varies voice inflection during presentation.
1	2	3	1	2	3	3.2 Provides change-up activities on difficult tasks.
1	2	3	1	2	3	4. Requires students to respond in normal voices; i.e., teacher corrects for overly loud responding.
						5. Requires students as a group to answer:
1	2	3	1	2	3	5.1 With expression; i.e., students vary voice inflection while responding (non-mechanically).
1	2	3	1	2	3	5.2 At a normal rate; i.e., avoiding dragging, droning responses.
1	2	3	1	2	3	6. Provides transition statements; i.e., you got it, right.

Recommended Assignment:  
Date due:

Date checked out:  
Follow-up comments:



Summarizing the Checklist Data

Use of the checklists helped supervisors set their goals and priorities in working with teachers. Once a month, each supervisor met with the project coordinator to review teacher strengths, recommendations, progress and supervisor plans to remediate teacher skill deficits. The initial assessment using all checklist categories gave supervisors an overview of each teacher. Setting goals helped supervisors plan realistically in terms of working continuously with 12 to 15 teachers.

Twice a semester, supervisors summarized their subjective ratings of teacher skills on a Global Rating Form shown in Figure 3. This rating was intended to be filled out by the supervisor without making a special classroom observation. The categories listed under teaching and management procedures are the categories used on the skills checklists. Decision making skills were added to the global rating to allow supervisors to assess a teacher's use of higher order skills.

Because data were kept regarding supervisor ratings of teachers on the frequency and types of supervisor/teacher contacts, the correspondence between low teacher ratings and supervisor contacts could be monitored. The project coordinator could work with individual supervisors to redirect supervision strategies when weak teachers were being seen infrequently.

Discussion

A total of eight diagnostic checklists were developed for use in supervising direct instruction teachers. Three of them were addressed in this article. The level of detail regarding teacher skills is a strong feature of the checklists. A potential weak feature is the number of forms needed. To use the checklists effectively, a supervisor must be able to select teaching skills in need of work. An attempt was made to organize the skill areas so that each checklist contains areas that are usually worked on together, e.g., signals and maintaining student attention. Obviously, there are times when teachers need to work on skill areas which are listed on separate checklists. In this case, parts of two or more checklists can be used.

The supervision model presented here represents a first step in developing a system which clearly specifies teacher behavior and allows for objective monitoring of supervisor behavior. The development of skills checklists, observation schedules, and goals directly related to observation measures takes supervision skills one step closer to a comprehensive technology of education. The use of such a system allows for systematic training of both teachers and supervisory staff.

Reference

Skillman, L., Garcia, L., and Witcher, C. Direct Instruction implementation manual: Guidebook for supervisors. Eugene, OR: Direct Instruction Follow Through Project, University of Oregon, 1977.

Figure 2

Title I Schoolwide Project — Diagnostic Management Skills Checklist

Teacher \_\_\_\_\_ Group \_\_\_\_\_ Level, Lesson \_\_\_\_\_

Supervisor \_\_\_\_\_ Date \_\_\_\_\_ School \_\_\_\_\_

1 = Consistent use of skills    2 = Inconsistent use of skills    3 = Skill improvement needed

Initial						Follow-up						Comments
Skill Area: RULES AND PROCEDURES												
1	2	3	1	2	3	1. Posts clearly specified classroom rules where students can see them.						
1	2	3	1	2	3	2. Seats behavior problem students close to teacher and apart from each other.						
1	2	3	1	2	3	3. Oral instructions concisely specify what students are to do.						
1	2	3	1	2	3	4. Refers to rules prior to and during lesson.						
1	2	3	1	2	3	5. Reminds students of rules regarding changing groups (transition), e.g., put materials away, line up quietly, sit in assigned seats.						
						6. Plans and implements classroom procedures for:						
1	2	3	1	2	3	6.1 Reviewing and explaining content of independent group activities (seatwork).						
1	2	3	1	2	3	6.2 Distributing supplies and materials, e.g., has students share can of crayons on work tables, puts folders in front of students, has pencil box.						
1	2	3	1	2	3	6.3 Distributing seatwork, e.g., student work for period in folders or in piles on work table.						
1	2	3	1	2	3	6.4 Collecting seatwork, e.g., left in folders or in box on teacher's desk.						
1	2	3	1	2	3	6.5 providing adequate extra activities and/or materials for students to work on after assigned work is completed.						
1	2	3	1	2	3	6.6 Specifying how student questions are to be answered when teacher not available, e.g., students do not disturb teacher but leave items blank.						

Recommended Assignment: \_\_\_\_\_ Date checked out: \_\_\_\_\_

Date due: \_\_\_\_\_ Follow-up comments: \_\_\_\_\_

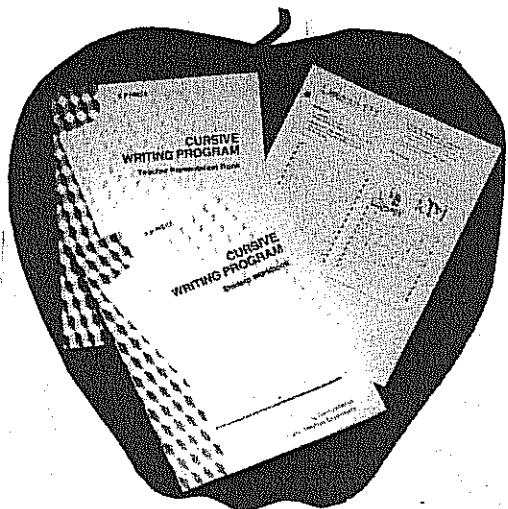
Figure 3

Title I Schoolwide Project  
Global Rating Form

Teacher \_\_\_\_\_ Supervisor \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_ Date \_\_\_\_\_ Subject \_\_\_\_\_

Effective: Consistent Use of Skills					Ineffective: Inconsistent Use of Skills					Ineffective: Skill Deficiency				
1. Outstanding					4. Improvement trend					6. Improvement trend				
2. Satisfactory					5. No improvement trend					7. No improvement trend				
3. Marginal										8. Not introduced				
										Decision Making Skills				
1	2	3	4	5	6	7	8	a. CRITERION TEACHING: Confirms all students meet lesson mastery criteria before beginning new task.						
1	2	3	4	5	6	7	8	b. CORRECTIVE TEACHING: Use basic and advanced correction procedures to insure task mastery for all students.						
1	2	3	4	5	6	7	8	c. TASK REPETITION: Avoids unnecessary repetition on individual tasks.						
1	2	3	4	5	6	7	8	d. DIAGNOSTIC PLACEMENT: Identifies possible placement problems or skipping points to maximally accelerate student progress through program.						
1	2	3	4	5	6	7	8	e. PREPARATION: Prepares sufficiently to deliver programs in a technically accurate fashion.						
1	2	3	4	5	6	7	8	f. EXPANSION AND FIRING: Plans and implements procedures for providing students with supplementary expansion and/or firing activities, as appropriate.						
										Teaching Procedures				
1	2	3	4	5	6	7	8	g. FORMATS						
1	2	3	4	5	6	7	8	h. PACING						
1	2	3	4	5	6	7	8	i. SIGNALS						
1	2	3	4	5	6	7	8	j. MAINTAINING STUDENT ATTENTION						
1	2	3	4	5	6	7	8	k. INDIVIDUAL TURNS						
1	2	3	4	5	6	7	8	l. BASIC CORRECTIONS						
1	2	3	4	5	6	7	8	m. ADVANCED CORRECTIONS						
										Management Procedures				
1	2	3	4	5	6	7	8	n. DIRECT INSTRUCTION ORGANIZATION/PLANNING						
1	2	3	4	5	6	7	8	o. RULES AND PROCEDURES						
1	2	3	4	5	6	7	8	p. BASIC PRAISE						
1	2	3	4	5	6	7	8	q. ADVANCED PRAISE						
1	2	3	4	5	6	7	8	r. TECHNIQUES FOR INAPPROPRIATE BEHAVIOR						

# APPLES FOR TEACHER



## Cursive Writing Program

**AUTHORS** Samuel Miller, Siegfried Engelmann  
**RANGE** Third and fourth grade students or older students poor in cursive skills.

**DESCRIPTION** The *Cursive Writing Program* is a 140 lesson direct instruction program that teaches how to form the various letters, create words, write sentences, and write faster and more accurately. Special features include a simplified orthography, emphasis on high-letter combinations, and design features such as the slant arrow to insure correct paper placement. Exercises require only

15-20 minutes of daily work.

**ADMINISTRATION** The program is suitable for individuals, small groups, or an entire class.

**COMPONENTS** Teacher Presentation Book includes • Detailed specifications for each lesson • Complete information and reproducible material for placement testing • Information on how to supplement the program • Student Workbook includes • Practice papers for each lesson • Point Summary Chart

440j	<i>Cursive Writing Program</i> Teacher Presentation Book	25.00
441j	<i>Cursive Writing Program</i> Student Workbook (1 ea.)	4.00
442j	<i>Cursive Writing Program</i> Student Workbook (pkg. of 5)	19.95

## I Love Library Books

**AUTHORS** Janice Jensen, Siegfried Engelmann

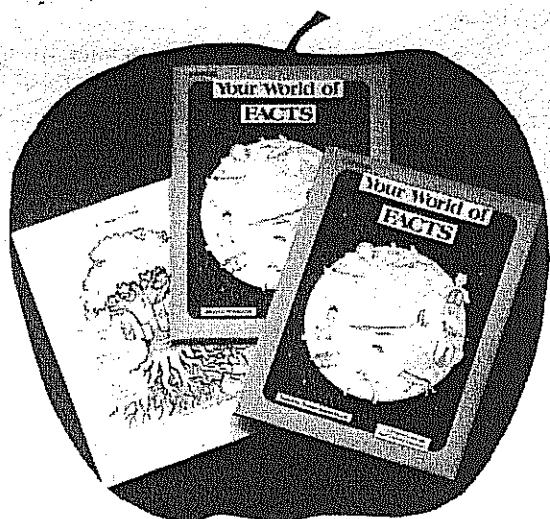
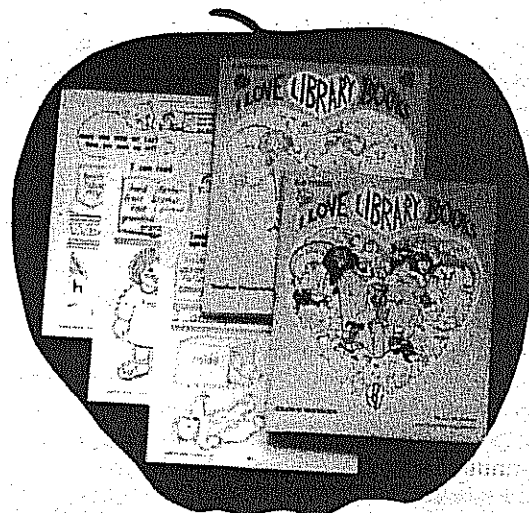
**RANGE** Students with first grade reading skills.

**DESCRIPTION** *I Love Library Books* provides details for introducing 37 popular children's books as an integral component of a first grade reading program. A computer analysis has keyed each book's vocabulary with the words presented in 8 major basal reading programs so that the selected books will match the child's skills and ensure a successful reading experience. Children using this program usually start reading library books by February.

**ADMINISTRATION** Either the librarian or teacher may administer this program.

**COMPONENTS** Teacher Presentation Book includes • Complete lesson plans for introducing 37 books • Computer analysis chart matching each book with a specific page and text of 8 basal reading programs • Procedures for record-keeping and assessment • Creative, time-efficient reinforcement activities • Student Workbook includes • Introductory sheets for each book • Student record sheet • Supplementary worksheets

444j	<i>I Love Library Books</i> Teacher Presentation Book	25.00
445j	<i>I Love Library Books</i> Student Workbook (1 ea.)	4.00
446j	<i>I Love Library Books</i> Student Workbook (pkg. of 5)	19.95



## Your World of Facts

**AUTHORS** Siegfried Engelmann, Karen Davis, Gary Davis

**RANGE** Third through fifth grade students, and remedial learners who read on at least the beginning third grade level.

**DESCRIPTION** *Your World of Facts* is designed to supplement science and social studies programs, preteaching key facts and relationships. The series was written in response to the problem that students are often so concerned with the vocabulary of science and social studies texts that they fail to understand the concepts. Simple charts and pictures present each set of facts, and

a game format provides impetus and practice. The 40 lessons require 45-50 minutes each, but only 15 minutes of teacher-directed time.

**COMPONENTS** Teacher Presentation Book contains guide information and instructions for each lesson • Student Workbooks are nonconsumable and contain 25 topics, including the solar system, the respiratory system, continents, oceans, and the internal combustion engine • Reproducible scoresheet • Reproducible certificate

448j	<i>Your World of Facts</i> Teacher Presentation Book	25.00
449j	<i>Your World of Facts</i> Student Workbook (1 ea.)	4.00
450j	<i>Your World of Facts</i> Student Workbook (pkg. of 5)	19.95

## Speed Spelling

**AUTHOR** Judy Proff-Witt

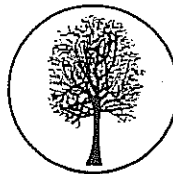
**RANGE** Learning disabled and retarded children who have not mastered grade school spelling skills.

**DESCRIPTION** *Speed Spelling* is an individualized, phonic program designed to increase spelling speed and accuracy following a systematic development of sound-to-letter correspondence. A placement test determines each student's level. Each of the 93 lessons teaches word reading, word writing, and sentence writing, and contains instructional objectives and detailed directions.

**ADMINISTRATION** Teachers, students, aides, or other paraprofessionals may act as tutors.

**COMPONENTS** Manual includes • Placement test • Cycling tests • 93 lessons with complete instructions • Adaptation procedures for classroom settings • Student Book includes a record of performance and is the only consumable part of the program • Word List Packet contains large-letter words and is reproducible

252j	<i>Speed Spelling Kit</i> , manual, 20 Student Books, plus Word List Packet	74.95
253j	<i>Speed Spelling Student</i> Books (pkg. of 20)	9.40



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## A Review of Evaluation Research (Part II)

By Russell Gersten  
University of Oregon

*Editor's Note. This article is the second of a two-part series reviewing DI research with special education students. In the first part, which appeared last issue (vol. 2, no. 1), Gersten introduced the series and reviewed studies which had employed true experimental designs. In this part, he summarizes studies which have used quasi-experimental designs and identifies future areas of research in direct instruction.*

The studies discussed in the first part of this series involved random assignment of subjects to educational treatment. Although this practice is not perfect, it offers some degree of methodological rigor to questions which are posed. Unfortunately, it is often impossible or unfeasible to assign children to educational program randomly. There are a host of ethical and logistical reasons why most school systems will not allow selection of educational programs for handicapped students to be determined by the toss of a coin or a flip through a random numbers table. Even Lloyd and Maggs (personal communication), principal authors of studies addressed last time, have been unable to achieve random assignment in subsequent research.

One alternative to an experimental design is a quasi-experimental design. Three major types of quasi-experimental designs appear to be appropriate for evaluation research with special education populations:

- Non-equivalent comparison groups (Cook & Campbell, 1979),
- Norm-referenced comparisons (Becker & Engelmann, 1976; Tallmadge, 1977),
- Time-series designs (Cook & Campbell, 1979).

Each has its limitations; yet, used with care, these can be useful designs, and they have already provided some valuable information on the effects of Direct Instruction programs on special education students.

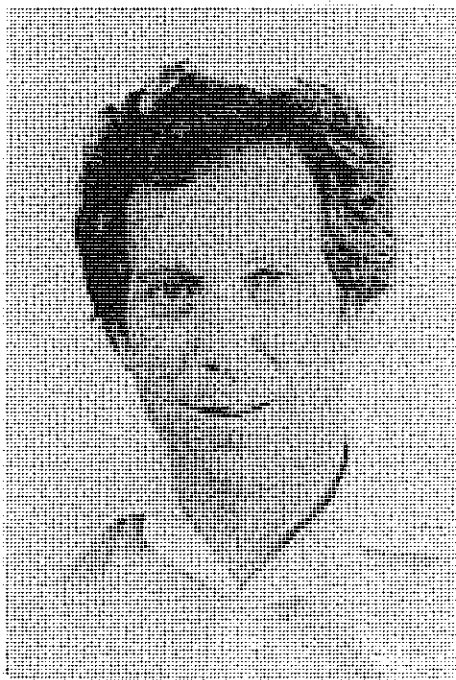
### Non-equivalent Comparison Groups: Issues in Selection of Beginning Reading Curricula

A recent study by L.E. Stein and Goldman (1980) contrasted the effectiveness of two phonics-based programs—Distar and Palo Alto—on 63 'primary grade children with reading problems' between the ages of 6 and 8. The children's IQs were in the normal range (mean = 100.1). All the children were formally diagnosed as possessing minimal brain dysfunction, but the authors (rightly, in my opinion) felt that 'the term was not particularly relevant to each specific child's curriculum, which was based on pretest needs as measured through academic assessment' (p. 53).

L.E. Stein and Goldman did a careful job of articulating the two treatment programs and why they were selected. Both programs chosen provide phonics-

based instruction for beginning readers. They were chosen because the bulk of research supports phonics approaches to beginning reading instruction (Chall, 1979; Pflaum et al., 1980). The major differences between Distar and Palo Alto, according to the authors, are:

1. Distar insists on complete mastery of each component skill in the program before continuing on, while Palo Alto calls for less complete mastery.



RUSSELL GERSTEN

2. In the initial stages of instruction, Distar teaches phonetic decoding strategies only, whereas Palo Alto relies on both systematic phonics and contextual cues (Gill, 1974).
3. Palo Alto allows for greater teacher latitude in directing child behavior than do the scripted Distar lessons.
4. On a more theoretical level, Palo Alto is heavily rooted in cognitive theories that look at the teacher as a facilitator of active learning (Gibson & Levin, 1975); in Distar, the teacher directs all stages in the learning process (Becker et al., 1981; Stevens & Rosenshine, 1981).

No details were given on how students were assigned to each program. Thus, as with all non-equivalent group designs, there is always a fear that the two samples were not equivalent at the beginning of treatment, and that the results are somewhat biased. However, the researchers scrupulously attempted to insure that the groups were comparable, and no significant differences were found on entry scores on either the reading recognition or reading comprehension subtests of the Peabody Individual Achievement Test (PIAT) or on measured IQs.

Students were post-tested on both these subtests of the PIAT. A significant difference was found between Distar and Palo Alto. The mean gain for the Distar group corresponded to 15 months for 9 months of instruction; the mean gain for the Palo Alto students was approximately 7 months. The differences were present in both reading recognition and comprehension, though it should be mentioned that the early level of the

PIAT measures primarily literal (as opposed to inferential) comprehension skills.

The study looks at two commonly used special education curricula. It articulates four salient variables of interest (mentioned above). The study gives a reasonably clear indication of the combination of variables that was most effective. It is unfortunate that no classroom observations were done during the teaching sessions to assess: (a) the extent to which teachers were following the procedures specified by the curricula, and (b) quantitative differences in the aforementioned four variables of interest. Another crucial issue would be amount of practice on each skill (including review and delayed practice exercises that each program allots). The importance of practice and review has been documented by Good and Grouws (1979). Procedures for this type of research are discussed in Meyer (in press) and Gersten, Carnine, and Williams (1982).

The L.E. Stein and Goldman (1980) study is the only study involving Direct Instruction to utilize the non-equivalent comparison group design. In this case, the authors did much to insure that the two samples were comparable.

### Norm-Referenced Comparisons: Longitudinal Growth of Moderately Retarded Children

The norm-referenced comparison is a relatively new design originating in the work of Horst, Tallmadge, and Wood (1975) in Title I evaluations. In many ways, it is an easy design to implement. Students are pretested and post-tested on the same form and level of a well-normed, reliable, standardized achievement test, whose content matches the objectives of their curriculum program. The gain against the standardization sample is assessed for statistical and educational significance. There is no need to select a control group; the standardization sample of the test serves this purpose. In theory, the standardization sample should be similar to the target population; i.e., Title I students should be compared to other low income students, special education students to other handicapped students, etc. (Tallmadge, 1977). In reality, virtually every standardized test in use is normed on a primarily non-handicapped population; evaluators have no choice but to use these sources of comparison. This situation is slowly changing with the development of several new instruments. A curriculum-referenced test of academic and social skills called The Student Progress Record (Oregon Mental Health Division, 1977) has been developed in the state of Oregon that has been normed exclusively on a trainable mentally retarded (TMR) population. The Adaptive Performance Inventory (White, 1980) was developed and standardized exclusively with severely handicapped preschoolers. The Trainee Performance Sample (Irvin, Gersten, Bellamy, Taylor, & Close, 1981), a vocational skill test, was normed exclusively on a sample of severely retarded adults.

Although norm-referenced comparisons are not often used in special education, their potential contribution in the future may be great. In most situations, however, one has only the non-handicapped standardization samples to use as comparison standards; they may be too stringent a standard to use. For example, in the two studies discussed previously (Part I of this series) by Maggs and Morath (1976) and Lloyd et al. (1980), there are slight, non-significant drops against the norm group.

There is another example of a norm-referenced comparison that I wish to discuss. Gersten and Maggs (in press) used a norm-referenced evaluation design to assess the cognitive and academic progress over 5 years of a sample of 12 adolescents and preadolescents whose initial IQs would place them in the high moderate range of retardation. The students were engaged in the Distar Language programs for the entire 5 years. After 18 months of language instruction, when they had mastered the basic language competencies and ability to follow instructions in an academic setting, they began Distar Reading I. Each lesson (reading or language) lasted 30 minutes per day and was supplemented by 30 minutes a day of independent seatwork. At the end of the 5 years the students had completed most of the lessons in the Language III program and most had begun the Reading III program. (The Level III programs contain material intended for average third graders.)

Since no comparison group was feasible in this situation, the standardization sample of the Stanford-Binet served as a comparison standard; the progress of these students was compared to the progress of those in the Stanford-Binet norm group with similar IQs. Students were tested on the Stanford-Binet upon entry and again 4 years-9 months later. Their mean growth in standard score units (i.e., IQ) was assessed for statistical and educational significance (Tallmadge, 1977) after a correction for regression was made (Campbell & Erlebacher, 1970). The mean IQ at entry was 41.9 (SD = 2.6). After 5 years of the program, the mean IQ was 50.6 (SD = 5.4). If there was only a regression effect operating, the mean IQ at post-test would have been 44.8; there was a gain of .36 standard deviation units beyond what would be expected from regression. This gain was therefore found both statistically significant and educationally significant. The moderately retarded children in this sample were gaining at a significantly faster rate than their non-handicapped peers, even though typically these children would be expected to lose against the norm group. These students were also tested on Australian standardized tests in Reading and Language; the mean scores were comparable to an end-of-third grade level in language and early third grade level in reading. The children appeared to be close to mastering the basic functional literacy skills essential for vocational training and independent living.

Continued on Page 13





# Book Reviews

## Direct Instruction Reading

By Douglas Carnine and  
Jerry Silbert

DIRECT INSTRUCTION READING.  
Columbus OH: Charles E. Mer-  
rill, 1979. (536 pp./\$23.95)<sup>1</sup>

<sup>1</sup>This book may be purchased through the Association for Direct Instruction at a cost of \$19.00 for members and \$23.95 for non-members. Please add \$1.50 for each book ordered to help cover shipping and handling charges. To order, write: Association for Direct Instruction, P.O. Box 10252, Eugene, OR 97440.

Unlike virtually all other reading textbooks on the market today, *Direct Instruction Reading* wastes no time discussing issues which are peripheral to reading instruction. It gets right to the point in communicating what it takes to teach students to read.

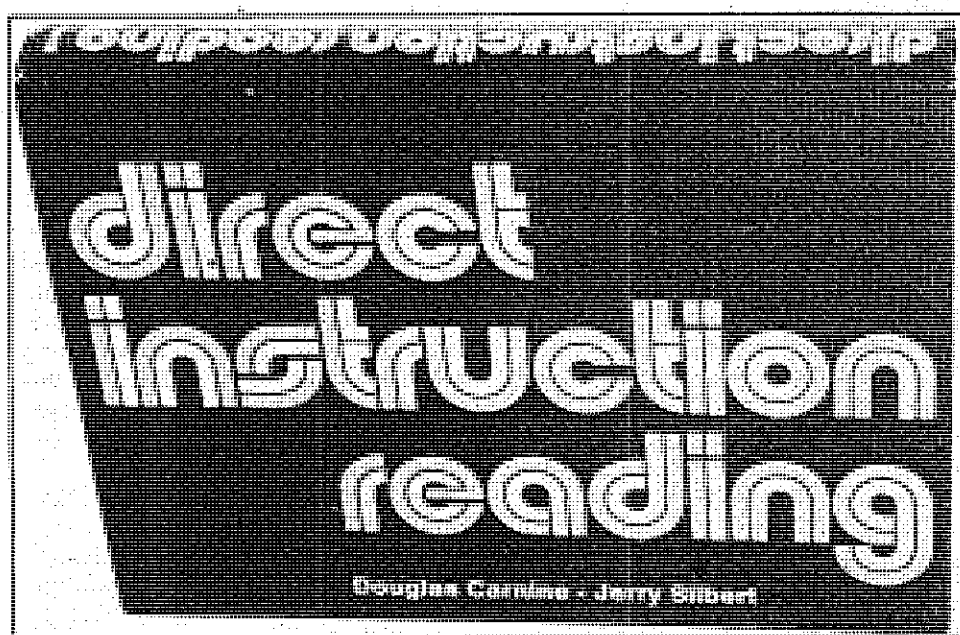
Carnine and Silbert's book offers viable teaching strategies and instructional design strategies, which together form a sound basis for the teaching of reading. It is the only reading text I know of that provides teachers with a theoretical model, its practical application, and research data to substantiate its use.

Carnine and Silbert based their teaching strategies on more than 14 years of research data compiled by the Direct Instruction Follow Through Project at the University of Oregon. Their book is based on the philosophy that teachers are responsible for student learning and that virtually every child can be taught. With this philosophy, Carnine and Silbert explain how to teach specific reading skills and provide alternate strategies to employ when students encounter failure. These procedures have proven effective, even with handicapped, bilingual, and economically disadvantaged students.

*Direct Instruction Reading* should not be viewed as a recapitulation of the DISTAR Reading Series, which is also associated with Direct Instruction research and teacher training procedures at the University of Oregon. Carnine and Silbert have used the basic design strategies that are incorporated in DISTAR, but have expanded their application to a variety of commercial reading programs and materials.

Carnine and Silbert divided their book into five major units. These units include a perspective on the direct instruction model, an in-depth approach to teaching reading from beginning reading through eighth grade, and techniques for motivating students. Each incorporates a thorough and up-to-date review of research related to each topic covered.

The unit on beginning reading covers the first few months of instruction and opens with Carnine and Silbert's reasons



for choosing code-emphasis programs over meaning-emphasis ones. Also included in the unit are subsections on auditory skills, letter-sound correspondences, word reading of both phonetically regular and irregular words, passage reading, and vocabulary and language skills.

Primary reading follows the beginning stage and continues until third grade. Subsections in this unit cover phonic, structural, and contextual analysis, along with comprehension skills. Higher level comprehension skills such as inference and critical reading are included in intermediate reading instruction which continues through the eighth grade. Additionally, the unit on intermediate reading focuses attention on vocabulary instruction through the use of morphemic and contextual analysis, and reading instruction in content area textbooks.

Skills for each of these three levels of reading instruction (beginning, primary, and intermediate) are task analyzed to insure that teaching occurs in a sequential manner and necessary preskills are identified. Direct instruction methods for teaching each of the skills are presented in a clear, concise and easily understood way.

Much of the criticism of *Direct Instruction Reading* has been directed towards the provision of scripted formats for teaching each of the skills presented in the units. In my opinion, these formats help teachers to make the transition from theory into practice. They further illustrate the use of the direct instruction approach by providing a step-by-step analysis for teaching skills that includes teacher talk, expected student responses, and consistent correction procedures for remediating student errors. These formats should prompt us to examine our ability to explain skills in a clear, logical, and sequential manner.

They help us to focus on minimizing teacher talk, while maximizing opportunities for student responding. This in turn insures more on-task behavior from our students and provides additional opportunities to monitor student acquisition of new skills. The consistent correction procedures also facilitate learning by focusing on relevant features of the learning task and by providing immediate feedback to the learner.

An added attraction of *Direct Instruction Reading* is the inclusion of application exercises following the literature reviews at the end of each subsection. These application exercises are excellent for use in reading instruction classes. They require teachers to use information gained from the section to solve classroom problems and to remediate specific errors their students may make.

Carnine and Silbert have made a significant contribution to the literature on reading instruction. *Direct Instruction Reading* describes an empirically based, demonstrated-to-work, technology of teaching that insures student success. Furthermore, Carnine and Silbert show that good teaching techniques are truly cross-categorical. These techniques work across categories of age, ability levels, and skills. Such a technology of teaching is indeed necessary if we are to bridge the gaps between regular and special education and between high and low performers. For teachers, specialists, administrators, teacher trainers, and researchers, I recommend this book most highly.

reviewed by Donna Dwiggins

(Donna Dwiggins is a teacher and supervisor in the Irving (Texas) Public Schools. She has extensive experience teaching reading and reading instruction from the elementary through the college level.)

## The Chalkboard in the Kitchen

By Teresa Savage

THE CHALKBOARD IN THE KITCHEN (prepublication version). New York: A & W Publications, 1982. (approximately 288 pp./estimated cost, \$14.95).

This book should be a significant help to mothers and fathers interested in teaching reading and arithmetic to their preschoolers. The slim volume offers a detailed home teaching program based on sound educational methods and presented in lively, easy-to-read style and format.

The "kitchen chalkboard" program uses a direct instruction approach to home teaching. The reading lessons resemble DISTAR (with some Montessori and other techniques added). Phonics is the core of the program. Letter sounds, not letter names, are taught—most common sounds first—with heavy emphasis on decoding, blending, and rhyming skills. Sight words are introduced only after the program is well underway. The program provides many opportunities for early success: positive reinforcement and shaping are strongly emphasized, the instructional pace is geared to the individual child's needs, and systematic review is incorporated in the lessons.

Most of the book is in the form of daily lesson plans, accompanied by specific activities or games. Together, the lessons form a several-month program intended to help the preschooler become a fluent reader (and counter). The daily lesson plans are accompanied by weekly assignments for the parent/teacher. The book begins with guidelines for time use and behavior management, preparation of the learning area, and several weeks of games, not lessons, to strengthen reading readiness and promote love in the learning environment.

Throughout, the book is exceptionally readable. The 5-by-8-inch size fits easily in the hand and does not appear forbidding—a major consideration for many parents. The type is large enough to be read easily. A consistent and attractive series of subheads is used to break the chapters into short segments. Rather than presenting page after page of uniform typescript, the text is broken throughout the book by a series of cartoons starring Daisy, a hippopotamus and Macadoo, a parrot.

The author, Teresa Savage, shows a real gift for being able to talk with parents in their own terms about issues of concern in many homes. Savage successfully avoids professional jargon.

Continued on Page 1:

Ideally, the progress of these students would have been compared to a norm group of moderately handicapped students; but such data are currently not available. The standardization sample of a well-known test such as the Stanford-Binet or the Comprehensive Test of Basic Skills is a legitimate, if overly stringent, comparison standard, and it is one that is often utilized in special education evaluation. It makes special sense for samples of mildly handicapped students, where "normalization" in academic areas is an immediate goal.

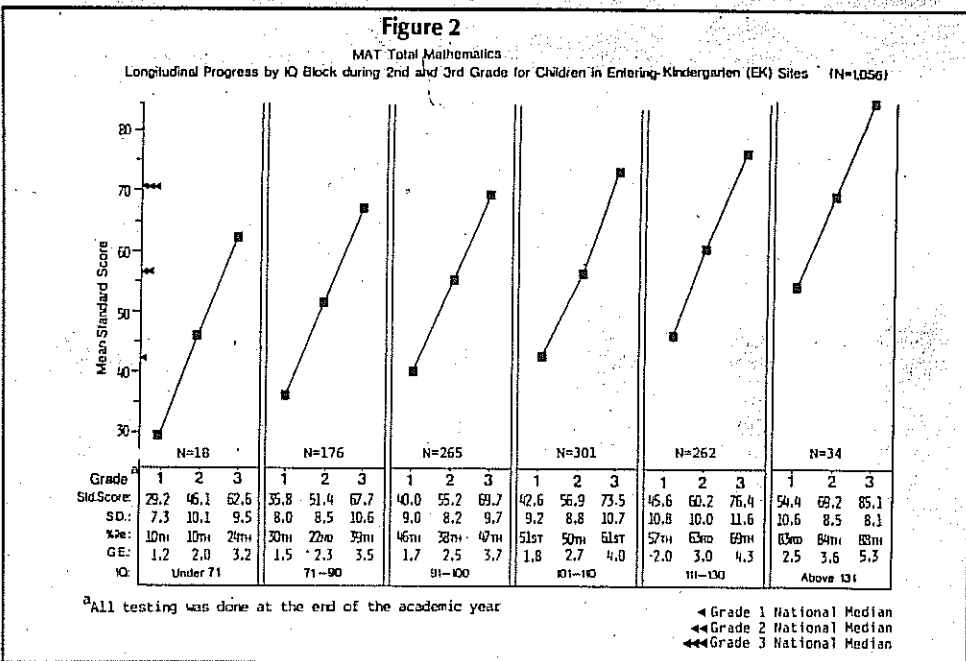
Time-Series Design: Effects of DI Programs on Mainstreamed Low IQ Students

The following norm-referenced comparison is also an example of a longitudinal, time-series design. This design uses repeated observations, or measurements of the same class of behavior (in this case, reading and math performance) at specific points in time. Gersten, Becker, Heiry, and White (1981) followed the annual progress of over 900 low income students in the DI Follow Through program for four full years, from kindergarten through third grade. These students came from twelve communities—inner city areas such as New York and Washington, D.C.; the Rosebud Sioux Reservation in South Dakota; and rural communities, such as Flippin, Arkansas. The purpose of the analyses was to look at the effect of DI on students entering with low cognitive skills (i.e., low IQs). Gersten et al. (1981) looked at the yearly achievement test profiles for low income Follow Through children who entered with IQs on the Slosson Intelligence Test of 70 or below, and compared them to students entering with IQs in the normal range. The low IQ children would normally qualify for special education services, but because of the model's belief that students should be in regular classrooms, the children were *de facto* "mainstreamed." Inservice training for

the teachers and paraprofessionals involved in the programs emphasized that teachers were responsible for the growth of all children, including the lower performers, and that with adequate practice, feedback, and reinforcement, the low performers could learn at a normal rate. IQs were never used for placement purposes or referral for special services; placement and grouping were determined solely by criterion-referenced tests. The Metropolitan and Wide Range Achievement Tests were used to assess progress in reading and mathematics. The Slosson Intelligence Test (SIT) was used to measure growth in general verbal competence.

In analyzing the longitudinal achievement data, the hypothesis was that the yearly academic growth rate would be no different for the lower performers than the others in the program. Though the low IQ students enter kindergarten with lower academic skill levels and leave the third grade with lower skill levels than their normal or high IQ peers, we believed that their yearly growth, their ability to profit from schooling, would be roughly the same as their peers.

No significant interactions (e.g., no relation between IQ level and achievement gain) were found between entry IQ level and WRAT Reading (a measure of word identification) or Total Math on the Metropolitan Achievement Test (a measure of math problem solving, concepts, and computation). Considering



a measure of reading comprehension and vocabulary. Here, the low IQ group sample gained significantly less than the higher IQ children during third grade (see Figure 3).

The average gain on the SIT, a shortened version of the Stanford-Binet, was 8 IQ points, maintained over four years, for the entire sample of 717 children. The mean growth for the lower IQ block is 17 IQ points over the 4-year period (adjusted for regression artifact).

These low IQ students are demonstrating one year's growth for each year in school in mathematics, and even higher levels in reading (decoding). They also show growth in the general language and conceptual skills assessed by the Slosson, representing a net gain of 17 IQ points. The picture is less prom-

ising in the area of reading comprehension and vocabulary. Although they seem to learn the initial decoding skills adequately, these children need more systematic instruction in vocabulary concepts and word meanings as they progress through school (see Becker, 1977). However, in general, these secondary analyses document the effectiveness of a mainstreamed model with DI teaching techniques, Distar materials and mastery learning principles for children who would be typically considered "at risk" or mildly handicapped.

Documentation Activities

At this point, I wish to distinguish between *evaluation research*, where the effectiveness of an instructional program or instructional variable is assessed using a valid research design, and *documentation activities*, where test scores describing the impact of a program are recorded without the benefit of the comparison standards present in experimental or quasi-experimental designs. In the last decade, there has been a good deal of documentation of the impact of Direct Instruction programs with handicapped children in Australia. These studies are summarized in Becker, Engelmann, Carnine, and Maggs (1981), Maggs and Maggs (1979), and Stephens (1980). Though this activity may offer administrators, decision makers, curriculum programmers, and parents some evidence of the impact of these programs, rarely can serious inferences be drawn. An example will illustrate this situation.

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Chalkboard

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throughout most of the book ("digraph," "diphthong," and "phonogram" do sneak in). She discusses such practical points as where in the house to set up the "classroom," how to involve the other parent in the teaching process, what to do with siblings during the teaching, and how to collect inexpensively the relatively few materials necessary for the lessons. A strong vein of humor runs through the book.

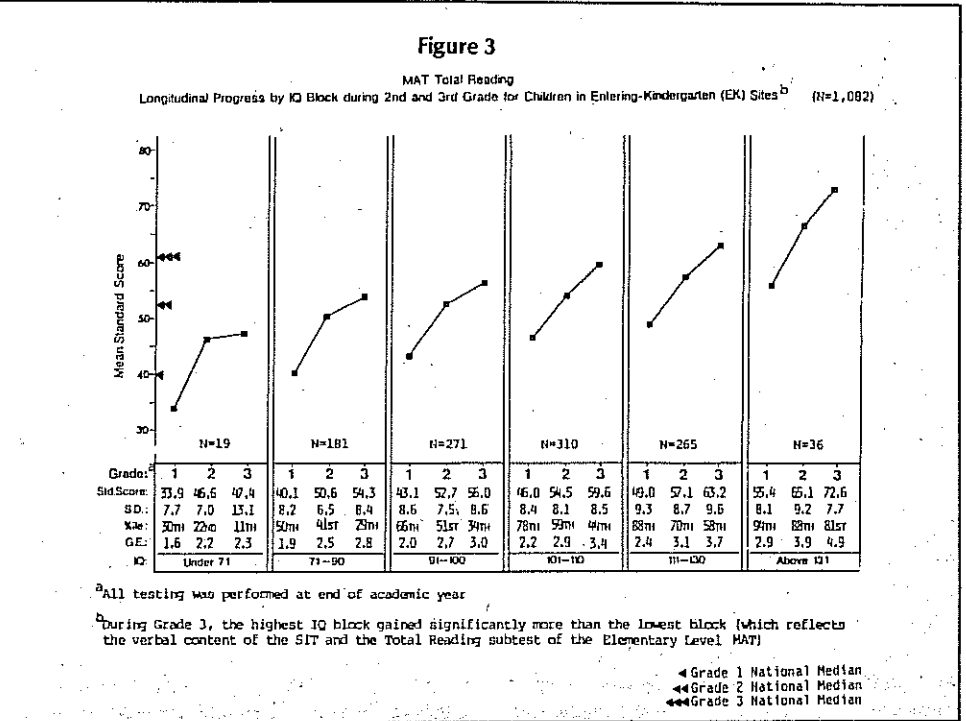
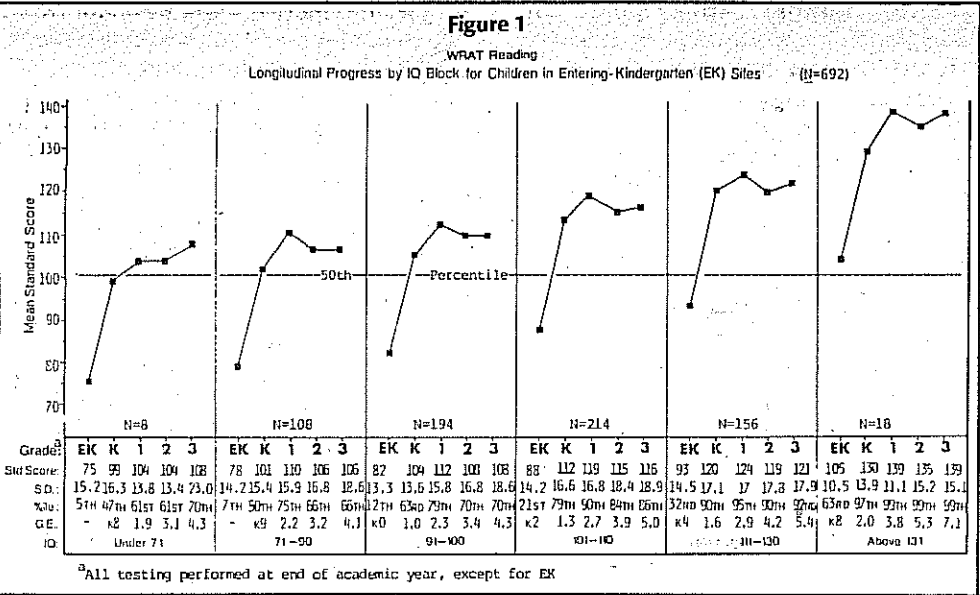
The author has done an exceptional job of translating sound learning principles and teaching methods into language and concepts appropriate for most parents. *The Chalkboard in the Kitchen* deserves an enthusiastic reception.

Reviewed by Lila McQueen

Lila McQueen is a Western Oregon educator and writer.)

the large sample sizes (N=692+1056) and consequent high statistical power, there is reasonably clear evidence of a non-significant effect. Figures 1 and 2 depict yearly gains for the low IQ block (70 and below), those with IQs between 71 and 90, and the higher IQ blocks on WRAT Reading and MAT Math. On WRAT Reading, the low IQ students are virtually at norm levels (the 47th percentile) by the end of kindergarten and continue to make slow but steady growth. By the end of third grade, performance corresponds to the 70th percentile, or a 4.3 grade level. A similar pattern is found for the larger 71-90 IQ group. For MAT Math, the growth rate for both the below 71 and 71-90 IQ blocks corresponds to 1.0 Grade Equivalent unit for each year in school (see Figure 2).

The only significant interaction was found on the MAT Total Reading test (Elementary level) during the third grade. MAT Total Reading is primarily



Appfel, Kelleher, Lilly and Richardson (1975) documented the effectiveness of two structured reading programs—Distar and Rebus (Woodstock, 1967)—for 60 moderately retarded children. They wished to supply evidence that given appropriate curricula material, many moderately retarded children can be taught to read on a functional level. The Rebus and Distar reading programs were selected because both were structured programs. However, Rebus utilized a whole word approach, whereas Distar utilized a synthetic phonics approach to oral group instruction. The authors did not use random assignment, nor did they indicate on what basis subjects were assigned to a reading program. No pretest information was provided. Thus, unlike the L'E. Stein and Goldman study, the reader has no idea whether the two samples were comparable before instruction began.

Student progress was assessed by individually administered criterion-referenced measures. While this procedure is fine for formative evaluation, it does not allow one to compare the relative effectiveness of the two programs. Nor, on the basis of this study, can one assess whether one type of program worked better for a particular type of student. Yet the project did document that nearly all the young TMR participants demonstrated some capacity to profit from reading instruction. A few failed, but some students in both Distar and Rebus advanced to more conventional reading programs. Using Lindsley's (1964) graphic technique for analysis of progress rate, the authors concluded that 20 of the 31 Distar students made *Good Progress* (65%) and the remaining 11 poor progress. For the Rebus sample, 6 of the 23 (26%) were considered to be making *Good Progress* and 11 of the 23 (48%) to be making poor progress. (The remaining were considered "neutral.") Despite some confusing methodology, this study uses teacher-collected progress data to document that reading can be taught to many of the moderately retarded participants with a reasonably high success rate. It suggests that Direct Instruction procedures are effective 65 percent of the time, while the success rate for the whole-word approach is appreciably lower, as one might expect on the basis of research with non-handicapped learners (Pflaum, Walberg, Karregianes, & Rahser, 1981).

## Discussion

A reasonably large number of studies have shown that DI reading and language programs consistently produce higher academic gains than traditional approaches in both mainstreamed settings (Gersten et al., 1981) and self-contained classrooms (e.g., Lloyd et al., 1981; Maggs & Morath, 1976) across a range of handicapping conditions. The L'E. Stein and Goldman study indicated that some of the more subtle principles of DI theory, such as the insistence of complete (rather than partial) mastery in each stage of the learning process, may be quite important for special education students. There is a clear need for further comparative research and norm-referenced evaluation of these programs

across a greater range of handicapping conditions and academic areas.

Several conceptual and related methodological issues need to be considered in future research. Gowin and Millman (1981) recently stated, "evaluative inquiry should raise questions, and produce clarifications (not answers)..." (p. 85). The studies discussed in this series raise many subtle, important questions and issues. First and foremost is the need for increasingly precise definition and measurement of the independent variable—Direct Instruction.

It is unclear from the studies reviewed in this paper whether the increases in academic performance were due to: (a) the programs utilized, (b) the teacher behaviors called for in the programs, or (c) a combination of these factors. None of the studies actually assessed whether the programs were actually implemented as specified. The authors are rather vague in describing how the programs were adapted to meet the needs of the moderately and severely handicapped learners. Furthermore, with the exception of the L'E. Stein and Goldman (1980) study, relatively little was specified (let alone measured) in the comparison classrooms.

A newer line of research, called *instructional dimensions research* (Leinhardt, Zigmond, & Cooley, 1981) or *explanatory observational studies* (Cooley, 1978) can also lend important information about exactly which teaching practices or aspects of the curriculum are most effective. For this type of study, observers look at a set of variables of interest—e.g., degree of structure, allocation of academic time, student engagement during lessons, student accuracy rate during lessons—in a large number of classrooms utilizing a range of instructional approaches. The researcher attempts to detect which variables, or combination of variables, are linked to academic gains. There is no need to select a comparison group; the design capitalizes on the *natural variation* which is everpresent in education. Therefore, these studies need not be bound by traditional achievement tests. As long as the same test is used in all classrooms, criterion-referenced tests tailored to the instructional programs actually used in the classroom can be used.

A recent study by Leinhardt, Zigmond, and Cooley (1981) with 105 learning disabled students exemplifies this approach. The authors found that three teacher behaviors were significantly related to gains in reading—use of reinforcers, cognitive press (the degree to which the teacher focused the child on academic material), and teacher instruction (presentation of models, explanation, provision of feedback). All three are critical in most definitions of Direct Instruction (e.g., Reith et al., 1982). This study was the first to demonstrate the importance of these behaviors in teaching handicapped students. Further explanatory observational studies can be conducted that look at more specific teacher behaviors, such as correction procedure, type of teacher questions, presentation rate, and the nature of the instructional formats. Such studies can contribute to identifying the critical

features of Direct Instruction.

*Need for Formative Research.* Another area for future programmatic research is continuing *formative* evaluation studies, such as those conducted by Carnine (1981) and Close, Taylor, Larrabee, & Taylor (1982). Gowin and Millman (1981) state that future evaluation research "designs are unlikely to be massive and confirmatory, but rather small and exploratory" (p. 85). In these small scale studies, only one instructional variable is manipulated.

Several studies with handicapped subjects have isolated a single component of Direct Instruction as the independent variable. To date, research has shown the superiority of teaching sequences that *separate* the introduction of visually or auditorily similar material (such as "b-d" or "p-q") over those that attempt to introduce both members of the set at once (Carnine, 1981). White (1979) documented how training sequences designed for normal learners must be simplified and adapted for handicapped learners, who are confused by too much variation in irrelevant stimulus features when learning a new geometric concept. Gersten et al. (in press) demonstrated that, when teaching language concepts to handicapped students, dynamic presentations using manipulations of real objects are markedly superior to teaching from a series of line drawings. Close et al. (1982) demonstrated that when teaching mildly retarded adults how to cash a check, learning was more efficient if the instructor used a correction procedure that provided the learner with an explicit strategy and immediate practice in applying the strategy.

Single subject designs can also be extremely useful in formative evaluation, especially when dealing with moderately and severely handicapped individuals. Colvin and Horner (in press) used a multiple baseline design to investigate the effect of the range of examples used in vocational training of severely retarded adolescents on their ability to generalize the skills taught.

*Summary.* Generally, a quite optimistic picture has emerged from these studies. In a recent review of research on Direct Instruction, Cotton & Savard (1982) concluded:

Direct instruction, as that term is used to denote the agreed-upon set of teaching strategies and behaviors described earlier, is very effective for promoting basic skill development among students generally. When teachers set and articulate learning goals, offer highly structured lessons, ask questions which are specific and narrow in scope, provide corrective feedback, and communicate affection and support to students, achievement results are superior to those obtained with other, less direct methods...

Distar programs are also very effective for instructing low-ability children and educable special education students in the primary and upper elementary grades.

The next decade can provide increasingly clear specification regarding which components of Direct Instruction are

most critical for success with handicapped individuals, and it can tell us precisely how programming principles and teaching strategies should be adapted to meet the needs of this population.

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ed together." After further questioning by the experimenter, the student was required to relate the two things that happened together in the passage to the following rule: *Just because two things happened together, it doesn't always mean that one causes the other.* The student would then respond to each item following the passage.

**Workbook with Corrective Feedback.** Lessons for teaching each of the three critical reading skills to subjects in the *Workbook with Corrective Feedback* group were presented via three specially prepared workbooks, one for each category of invalid argument. The workbooks were designed according to the same instructional design principles as the *Systematic Instruction* scripts, with approximately the same number, kind, sequence and review of examples. The workbook pages contained explicit statements of the rule, and models of correctly solved exercises. The absence of teacher explanations and models differentiated the *Workbook* and *Systematic Instruction* treatments.

**No Intervention Control.** Instructional materials for the *No Intervention* group were in three worksheets from the *Specific Skill Series—Book E* (Boning, 1976). This is a supplemental reading comprehension workbook series commonly used in the intermediate grades. The tasks required in the three worksheets were vocabulary exercises in the typical "fill in the blank" format. They did not require use of any of the critical reading skills.

Except for the content of the worksheets, procedures for the *Control* group were identical to that of the *Workbook* group.

Dependent Measures

The major test developed for this study was the Critical Reading Test, a domain-referenced test geared to the three categories taught. This instrument assessed whether students could detect valid or invalid instances of an argument. Subjects were not required to specify the particular rule they used to reach their conclusion. This test was seen as the primary

measure of the dependent variable since the tasks required in the test were similar to those taught and practiced by both the *Systematic Instruction* and *Workbook with Corrective Feedback* groups.

**Supplemental Measures.** Two other tests, *Embedded Argument Analysis Test* and *Skill Classification Test*, were developed to provide supplementary data. On the *Embedded Argument Analysis Test*, subjects were required to detect instances of invalid arguments and reasoning that were embedded in a passage of approximately 450 words.

On the *Skill Classification Test* subjects were asked to correctly identify the specific category of invalid argument.

Results

The results are shown in Tables 1 and 2. On the major criterion measure, the Critical Reading Test, the *Systematic Instruction* group performed significantly better than either the *Workbook* or *No Intervention* groups. No significant differences were found between groups on the *Embedded Argument Tests* or the *Skill Classification Test*. However, while not significant, all differences favored the *Systematic Instruction* group.

The level of achievement of the *Systematic Instruction* group (89.2% accuracy) reflects one of the basic components of most systematic instructional procedures—teaching to mastery. The 58.2% and 56.9% of items correct for the *Workbook with Corrective Feedback* and *No Intervention* groups, respectively, indicate levels of achievement well below the 80% success level suggested by the findings of Brophy & Evertson (1976) and Block (1980).

Another interesting outcome was that the standard deviation on the Critical Reading Test for the *Systematic Instruction* group was significantly lower than that of the *Workbook* ( $p = .05$ ) or *Control* groups ( $p = .05$ ). It appears that, in this study, the *Systematic Instruction* method was more effective with the lower performing members in the group, thus decreasing the variability.

Table 2 shows the scores for each invalid argument on the Critical Reading

Table 1  
Means (M), Standard Deviations (SD), and Percent Correct (%) on Dependent Measures (N = 13 per group)

Group	M	SD	Percent Correct
<b>Critical Reading Test (10)*</b>			
Systematic Instruction	26.77	3.37	89.6
Workbook	17.46	6.35	58.2
No intervention	17.38	6.51	57.8
<b>Embedded Argument Test</b>			
<b>Detection of Invalid Argument (5)</b>			
Systematic Instruction	4.46	.88	89.2
Workbook	3.54	1.51	70.8
No intervention	3.70	1.32	73.9
<b>Embedded Argument Test</b>			
<b>Statement of Rule (5)</b>			
Systematic Instruction	2.00	1.29	40.0
Workbook	.62	.86	12.3
No intervention	.62	.65	12.3
<b>Skill Classification Test (8)</b>			
Systematic Instruction	5.0	2.0	62.5
Workbook	3.54	1.89	44.2
No intervention	3.7	1.7	46.2

\*Maximum score possible



"Dear Ziggy"

Dear Ziggy,

We have encountered a problem in reading with blending. Some of our very low students seem to be able to say sounds in isolation, but they have trouble changing from one sound to another in sounding out a word. The result is a break between sounds. Some of our students will then say a word that has nothing to do with the sounds they just said! They don't understand that they should just say the sounds faster and faster until it becomes a word. I think these same students have gotten as far as they have by copying others in the group and faking it.

Anyway, we are stuck with a few students who have learned to say each sound and then guess. Our strategy has been:

1. Practice oral blending.
2. Practice saying the sounds in isolation and changing from sound to sound quickly (still holding continuous sounds) and
3. Having the student identify each sound in a word before sounding out. Then we have the students say the sounds faster and faster until they recognize the word. This procedure seems to help.

Do you have any ideas?

Linda Campbell  
School Psychologist  
John F. Kennedy Center  
Kalamazoo, MI.

Dear Linda,

Your three-step remedy is reasonable, except for the third step. Here's why. It is based on an inappropriate analysis of "shaping." What is probably happening is that some kids are leading the others. Here's an alternate way:

1. Bring the kids to a very hard criterion on oral blending. Use the sequence that is in the 1982 *Reading*

*Mastery* program. That sequence sets children up for rhyming as well as blending words.

2. When reading a word with them, follow these steps:

- a. Have them identify the individual sounds until they perform at a first-time-correct criterion for all the sounds in the word that is to be read;
- b. Immediately present the word as an oral-blending task. If the word is *ram*, present this task: "Listen: rrrraaaammmmm. Say it with me. Rrrraaaammmmm. All by yourself. (Signal.) "Rrrraaaammmmm." Say it fast. (Signal.) "Ram." Bring them to a hard criterion on the steps in sequence.
- c. Immediately present the written word. Now do it here. Sound it out. Get ready... Touch under each sound. Say it fast... Yes, what word? GOOD.

3. After children reach the criterion of being able to perform on three or four consecutive words, virtually without error, change the procedure by eliminating step b. If children make a mistake in identifying the word after sounding it out, use steps b and c as a correction.
4. Present individual turns with some strong contingency associated with correct responses. Make sure that each child receives cumulative individual tests on the words that have been mastered by the group. Make a big fuss over all kids who performed well. Lavish praise on all of them, for individual test performance. Make comments to other teachers and students about how smart they are and how well they are doing.

By placing a strong contingency on individual-turn performance, you will shape the children's knowledge of what is expected of them. They will know that they are expected to retain and be able to initiate these skills. They will also know that there is a strong payoff associated with correct performance.

This issue is critical, and your commitment to resolving it is commendable. Best wishes for success.

Test. The findings are consistent across all three subtests.

The experimenters' observations of students in the *Workbook* group may shed light on the issue. There was a seemingly qualitative difference among student responses in this sample. Some students made obvious attempts to apply the rules when working the exercises. They were observed referring to the rules continually and seemed to enjoy trying to apply or "fit" a rule. Other students worked consistently, but seemed to pay scant attention to the statements of the rules in their text. These would appear to be the students most in need of active teaching by an adult.

One common feeling expressed by the students in the *Workbook with Correc-*

*tive Feedback* group was that they were "tired of doing workbooks as they were used during most lessons of the day." Contrasted with this was the expressed enthusiasm of members of the *Systematic Instruction* group.

In summary, *Systematic Instruction* seems to compare very favorably with traditional and non-instruction approaches in teaching students to detect invalid arguments—an important skill in comprehension for readers of any age.

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# Committed Teaching

Continued from Page 1

management. If problems can be positive, these certainly are.

An indication of the teachers' high level of commitment was given this past August when 7 teachers, 6 of whom were regular education teachers, attended the DI Conference in Eugene, Oregon, with no financial assistance from the school. These teachers represent over 50% of Center's regular education teaching staff.

### Parents: From Skepticism to Volunteerism

Some parents and other community members have voiced concern about the use of DI in regular classrooms. They knew that DI had been used widely with special education children and wondered why it was being used with their children. There was confusion about the non-standard orthography of the early reading lessons. There were misunderstandings about grouping procedures. Some were afraid the programs moved too rapidly; others were afraid they moved too slowly. Some didn't like finger-snapping signals. A few had gone to resources outside the school to get information and had been given erroneous or partial answers. Several meetings were held and DI was discussed at length. Peggy Peterson answered many of their questions in a parent information session. After obtaining this information, many parents are now volunteering their time to help in the classrooms or with paperwork.

### Dakota Dignitaries Meet DI

This fall, Center's elementary school was visited by some of the most powerful figures affecting education in North Dakota. Visitors included 7 members of the State Interim Education Finance Committee, including State Senator Gary Nelson, the Chairman of the

Education Committee, Dr. Joe Crawford, State Superintendent of Public Instruction, Mike Ferrell, Assistant Superintendent of Public Instruction, and media representatives.

Dr. Crawford informed the group that he had encouraged them to come to Center to see a school which has made significant progress in meeting the needs of all students. He noted that there have been significant improvements both in academic areas and in students' behavior. He stated that he saw what had been done in Center as one successful way of solving the problem of educational quality in small schools.

Although some of the legislators appeared to be skeptical about DI at the beginning of the tour, their attitude was quite positive upon its conclusion. Many of the visitors expressed amazement with the students' ability to remain on task while the other groups were being instructed and strangers were present. One was obviously surprised when he was informed that in one of the classes on which he had commented there were four "LD" students studying quietly. Another noted the importance of teaching the children the logic and reasoning necessary to function in everyday life, as taught in Comprehensive C. Some asked questions about appropriate placement and challenging the high-functioning students. They appeared to be quite satisfied with the answers they were given.

North Dakota will always be known for playing a major role in feeding the people of the world, and its reputation is rapidly growing for keeping our country supplied with energy, as well. And at the Center of it all is a small community with big ideas about education—a community which is rapidly developing its own reputation for applying the best of what we know about teaching our children well.

# Invalid Arguments Continued from Page 15

Table 2

Means (M), Standard Deviations (SD), and Percentage of Items Correct on the Critical Reading Test for Faulty Generalization, False Causality, and Invalid Testimonial (N = 13 per group)-

Group	M	SD	Percent Correct
<b>Faulty Generalization (10)*</b>			
Systematic Instruction	8.6	1.50	86.15
Workbook with Corrective Feedback	5.23	2.04	52.31
No intervention	5.31	2.02	53.08
<b>False Causality (12)</b>			
Systematic Instruction	10.85	1.52	90.38
Workbook with Corrective Feedback	7.31	3.04	60.90
No intervention	6.92	3.09	57.69
<b>Invalid Testimonial (8)</b>			
Systematic Instruction	7.31	.85	91.35
Workbook with Corrective Feedback	4.92	2.10	61.54
No intervention	5.15	2.27	64.42

\*Maximum score possible

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