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On Track: Fifteen Years of Student Improvement

Wesley Elementary School
Houston, Texas

Editors Note: The Association for Direct Instruction recognized the work of Thaddeus Lott in 1982. He was the first recipient of the ADI Excellence in Education Award for Administration and Supervision. Since that time Lott has continued to provide strong leadership at Wesley.

Wesley Elementary is in the center of one of Houston's poorest neighborhoods. Virtually all of its students come from low income backgrounds, and the vast majority of them receive free lunch. Thaddeus Lott has been principal of this school since 1975, and he's lived in the neighborhood even longer — his whole life.

For the entire time Lott has been principal at Wesley, he has been fighting to raise academic achievement. Lott has been working against extraordinary odds and, at times, even the local school district. Rather than adopting the district's curricula, for example, he uses Direct Instruction programs from SRA. Lott takes his lead for this from Project Follow Through, the national program which showed disadvantaged children could achieve in spite of a multitude of rationalizations for failure.

The Promise of Follow Through

In 1967, Project Follow Through was organized to select and test several nationally recognized educational programs. The promising programs that ultimately participated in the Follow Through evaluation were to directly affect the achievement levels of disadvantaged youth in their first three years of school. A wide range of models were selected, from highly Piagetian approaches to behavioral methods. Follow Through eventually included 180 communities in this country and 75,000 children. After nine years, the Direct Instruction model — which is the foundation of curricular programs from SRA like *Reading Mastery, DISTAR Language I, II,* and *III, Corrective Reading, Spelling Mastery,* and *Connecting Math Concepts* — was deemed superior to all other models in terms of academic achievement and self-concept.

Thaddeus Lott, Principal, Wesley Elementary School

The success of the Direct Instruction programs, then and now, has been attributed to a distinct set of features: small group instruction, well-designed and field tested curricula, carefully worded instructions to the teacher, a positive attitude toward learning, and specific feedback. These elements have remained essentially the same since the late 1960s even though all of the SRA programs have been revised several times; either to add new material (e.g., stories in the reading series, etymology in the spelling programs) or to expand the series into higher grade levels.

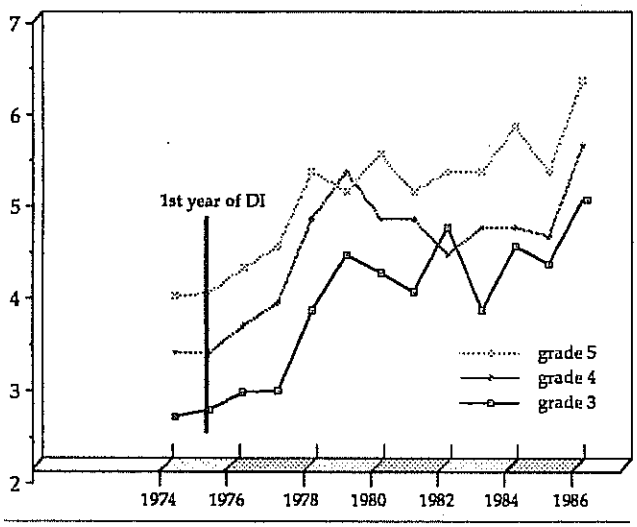
Lott believes that, "if we had not implemented the DISTAR Systems [SRA's earlier name for its Direct Instruction programs] here at Wesley, we would have had many children who would have become non-readers and they would have left school as non-readers. The difference lies in the repetition, the sequencing, and the progression of skills that are offered in the DISTAR program."

Rising to Excellence

A testimony to Wesley's success is in its test scores. Data come from a variety of sources, and all of it is impressive, particularly in the way it developed over time. It shows a cumulative effect for the Direct Instruction method of teaching.

Lott piloted the *DISTAR Reading Mastery Series* in a Title I Reading Resource Room at Wesley in 1975. It was so successful that it was used as a supplement to the basal reading program for low achieving first graders the next year. Again, the results were excellent, propelling more and more teachers in the school to use the programs. Shortly, the materials were used throughout the school. The graph below shows the positive changes in reading for third, fourth, and fifth grades on the Iowa Test of Basic Skills from 1975 to 1986.

Composite Scores for the ITBS: 1974 – 1986



The school shifted to the Metropolitan Achievement Test (MAT6) as its annual form of achievement testing in 1987. Scores for grades 1 through 5 on the MAT6 are reflected below. Performance in reading and math show that median tests scores are typically at, and, in many cases, *above* grade level during the spring testing.

MAT6 Achievement 1987-1990

Reading

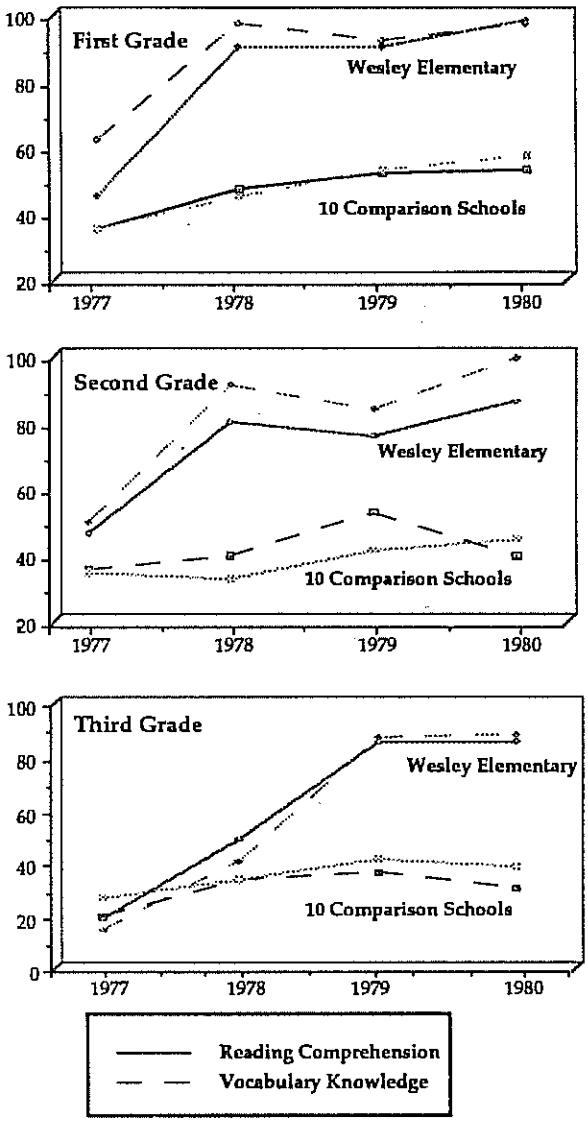
	Grade 1	*Grade 2*	*Grade 3*	*Grade 4*	*Grade 5*
1987	2.1	3.0	3.0	4.4	4.7
1988	2.9	3.0	4.1	4.6	5.4
1989	2.7	3.1	3.6	5.2	5.9
1990	2.3	3.1	3.5	5.2	5.0

Math

	Grade 1	*Grade 2*	*Grade 3*	*Grade 4*	*Grade 5*
1987	2.4	3.1	3.7	5.4	7.4
1988	3.1	3.5	4.8	5.3	8.5
1989	2.7	3.9	4.5	5.5	8.0
1990	2.4	3.8	4.8	5.3	7.0

Well before these patterns had become apparent, however, administrators in the Houston Independent School District noticed the dramatic changes at Wesley. In 1980, they compared Wesley's ITBS scores to ten other elementary schools based on the following criteria: a) greater than 85% black enrollment b) greater than 70% of the students on free lunch and c) test scores on the ITBS below grade level for the third grade in the spring of 1975. Looking over the period from 1977 to 1980, the differences for grades 1 through 3 were dramatic.

Wesley Elementary ITBS Scores Compared with 10 Similar Schools



Near the end of the 1980s, Wesley had become one of Houston's best performing schools according to scores on TEAMS (Texas Educational Assessment of Minimal Skills). In 1987, Wesley ranked 23rd in the Houston Independent School Districts list of 232 schools. Of the 22 schools above Wesley, none had a greater percent of students receiving free lunch nor a higher number of minority students. And in 1988, Wesley ranked in the top 25 percent of the elementary schools in the state of Texas.

Wesley's success has attracted the support of community leaders and business groups. For example, George Scott of Tax Research Association, a government watchdog group, helped raise $10,000 to buy paper, workbooks, and maps for the school. Like so many in Houston, he has recognized the immense contribution that the educational methods used at Wesley are making to disadvantaged children in the inner city.

Wesley Today

One key to Wesley's success is early intervention. To make up for reading and language skills that students may not have when they enter Wesley, students in the pre-Kindergarten class use SRA's *Language I* program. For many, *Arithmetic I* is used in kindergarten, and all students begin the *Reading Mastery* program by the first grade. There are six levels to *Reading Mastery*, one for each grade level. However, those who excel in reading are not held back. They begin another level of the program *before* moving into the next grade. This policy is another big reason for Wesley's high scores on standardized tests.

Annette Barstow, a third grade teacher at Wesley, has found the Reading Mastery Series to be immensely successful for her students. By spring 1991, half of her class were in *Reading Mastery V*. "I have tried basals and even a whole language approach, but I haven't had the success — they're all too disjointed. I like the connections and the flow to these programs. They make sense to kids. Children will even raise their hands and point out the links from one story to another, the way the characters, for example, develop over time. I think that this leads to greater retention. The controlled vocabulary also helps."

Chris Wallace of ABC's *PrimeTime Live* program visited Wesley Elementary in the spring of 1991 for a special report on the school. Wallace noticed the enthusiasm and genuine excitement that Wesley students had as he toured the school. When interviewing a group of intermediate students about this, one answered that she liked working hard, "because it's fun learning and reading. Reading helps you out for the rest of your life."

Observing that many children were doing work up to *two years* ahead of their grade level, he asked Thaddeus Lott what drives this unique and very persuasive approach to education. For Lott it rests in the potential of systematic and well-designed education to impact the lives of disadvantaged children. "I believe the children can do a lot. Once you get them into a setting where they feel like they can and they know that you believe in them, then they rise to the occasion. We have too many people who have low expectations of children, too many people who really don't think that children in a setting like this even have the brains or ability to learn. The truth about them is that they *can* learn, and that's what we're proving." ◆

Summer 1992 Conference Update...Save These Dates to Improve Your Skills!

July 13-16 • Rehoboth, Delaware
8th Atlantic Coast DI Conference

July 27-31 • Eugene, Oregon
18th Annual Eugene DI Conference

August 3-5 • Salt Lake City, Utah
7th Salt Lake City DI Institute

August 3-5 • Madison, Wisconsin
3rd Wisconsin Summer Conference on DI

Would you like to apply to a business or agency for funds for implementing a Direct Instruction program or program series?

Or would you like to fund the program through your local school budget? We will send you a model proposal with budget (that includes money for implementation and training so the program will work) for you to use as a gudie in developing your proposal. Tell us the content area, level and number of students you want to serve and give us some idea of the funding limitations. Write to:

Bonnie Grossen
ADI
PO Box 10252
Eugene, OR. 97440

Effects of Direct Instruction on Math Achievement of the Mentally Retarded in Taiwan, ROC

by Tai-Hwa Emily Lu
University of Oregon

Study I: A Two-Year Pilot Study of Mildly Retarded Students at the Junior High Level

In this study, mildly retarded Junior High level students were taught DI Math programs in Chinese. During the second year, 35 moderately- and mildly-retarded children received DI Math instruction. The data showed that the students achieved above expectations for retarded children.

Method

Subjects

Six students in the second lowest group, according to the cross-grade ability-grouping results, received DI math instruction during the first year of this study (from Sept., 1984 to June, 1985). Their grade equivalent scores ranged from 1.00 to 2.00 on the *Key-Math Diagnostic Arithmetic Test*. The prerequisite math skills were: 3 digit (1-999) addition and 2 digit (1-99) subtraction without renaming. Although they knew the rote counting skills, they did not exactly know the place value of 1-999. No skills in other areas were assumed. As to their IQs, three ranged from 50-62, and the other three were below 50 on the *Stanford-Binet*. During the second year of the study, all 35 seventh-to-ninth-grade retarded students (IQs from 70 to 43) received DI math teaching.
Instructional Design and Procedures

The following DI strategies and teaching procedures were implemented in this study:

Small group instruction. The *Key-Math Diagnostic Arithmetic Test* and the *DI Placement Tests* (6 levels, revised in Chinese by the researcher) were used to divide students into groups. DI presentation skills were used to present the Math Lessons (e.g., union responding, signals, rapid pacing, seating arrangement, monitoring, correcting, and diagnosis and remediation techniques).

Revising and editing instructional materials. DI Math's scope and sequence is an important reference. First, the researcher revised the skill hierarchy and the sequence and assessment charts into Chinese and discussed with the other four teachers how to implement the teaching. According to the assessment result, each teacher had to find and edit teaching materials related to each skill hierarchy to teach her own group. After designing the groups' individualized educational programs (IEPs), all teachers discussed if it was appropriate for that group and each particular student. In addition, a once a week discussion and three periodic IEP evaluation meetings were held.

Planning daily lessons. Teaching in strands is the most important factor in this study. Each lesson, fifty-minute-unit, was divided into 4 to 5 segments to address different topics. However, *only* one of them was a new skill. Three or 4 segments practiced and reviewed previously taught skills. The one constant segment in each lesson was the mental computation skill, a ten-item math computation test dictated by the teacher at the beginning of each lesson. DI strategies, i.e., model-lead-test, discriminating test, guided practice, cumulative review, and separate teaching of easily mixed skills, were integrated into the daily lesson plans.

Motivation system. Reinforcement principles were used by: giving tokens, providing immediate feedback, recording systematically, and holding game-like competitive activities to enhance students' motivation. The reinforcers include primary (food and drink), social, token, and the learning activities.

Independent work. Each teacher had to design a worksheet for each lesson as student's homework. The worksheet design was according to the DI principles and mixed previous learned skills with newly taught skills.

Results

First Year

Table 1 shows the math achievement level of the six low achievers after one year's implementation of the DI model.

Second Year

The result on *Key-Math Diagnostic Arithmetic Test* showed that all 35 students age-equivalent scores exceeded their mental age by at least 2 years (the exact data analysis is not available here).

Discussion and Conclusion

Mildly retarded children can learn beyond the current expectations of the teachers and educators in Taiwan. Highly structured materials and methods can enhance the math achievement of mildly retarded students.

Strand teaching makes students pay great attention to the teaching content, feel curious and interested in the various strands, and reduces the feeling of length of class period.

The small-step, new-skill teaching, distributed practice, and cumulative review force students to use their judgment and discriminating abilities. It also makes the teaching more systematic. The teacher can catch each component error easily and correct it immediately to avoid whole strategy errors.

The motivation system contributes a lot in this study. The learning itself becomes an indispensable reinforcer, gradually. This may be the essential component to maintain the learning motivation and interests of these children, who many people think are deficient in motivation.

Understanding math concepts is a common deficit of mentally retarded students. Through the DI programs, students no longer are computation machines, but can apply the math concepts to daily living.

Table 1. Subjects' Average Math Achievement Level

Skill	Achievement Level
Counting	1-99999.
Symbol Identification	Reading and writing 1-99999, 5 digit equations.
Mental Computation	1-99 mixed addition, subtraction, multiplication, and division basic facts together.
Addition	4 digit (1-9999) addition.
Subtraction	3 digit (1-999) subtraction with renaming zeros and renaming in consecutive columns.
Multiplication	3 digit (with zeros) times one digit.
Division	1 digit division facts with remainders.
Fractions	Converting fractions to diagrams or diagrams to fractions; comparing the quantity of fractions; adding and subtracting fractions with like denominators.
Time	Telling time from various kinds of watches and clocks (including no digit shown on the watch); drawing correct time from clock diagrams; converting time to various units.
Money	Counting money (with coins and bills together); converting money (changing money to different units).
Measurement	Metric units: length, length conversion (kilometers, meters, and centimeters). Metric units: weight, weight conversion (kilograms, grams), measuring objects.
Story Problems	Two digit mixed addition and subtraction; 2 digit times 1 digit; 1 digit division with and without remainders.

Study II: A Two-Year Study of Severely and Profoundly Retarded Children at Primary Level

Severely and profoundly retarded children were excluded from the educational system in Taiwan before 1988. The Educational Bureau of Taipei City and NTNU cooperatively set up an experimental class to examine the effects of educating the severely and profoundly retarded students in public schools. The DI model was implemented in the teaching of this class from Oct., 1989 to June, 1988.

Method

Subjects

Seven students, from age 5-9 to 7-7 (mean = 6-9), participated in this study. Their IQs ranged from 34 to 17 (mean = 29). Two of them are Down's Syndrome, 2 are hyperactive, and 1 is autistic. They are all language impaired. Three had articulation problems, 2 can not speak, 1 can only speak Taiwanese dialog instead of Mandarin, and the other one had listening comprehension difficulty.

Instructional Design

DI multiple-strand instructional design was used in all subject teaching (e.g., math, language arts, music, and independent living skills). The mainly DI strategies used were avoiding teaching similar mate-

rials in the same or adjoining lessons, distributed practice, and cumulative review. Except for math, the materials were selected and edited by the researcher and teachers themselves. For math teaching, the procedures and instructional design are quite similar to the Study I. However, due to the needs and individual differences, two small groups plus individual instruction were used here. In addition, the format of teaching each skill was translated and revised by the researcher before class. Based on the pretest analysis of DI Placement Test, the researcher and two teachers together designed the IEP for each student. Two teachers designed the next week's daily lesson plans one week in advance and discussed them with the researcher. Formative evaluation data, including daily records and weekly assessment, were recorded by the teachers. A time-series design, using the DI Placement tests, was used to examine the progress. For the non-verbal kids, the assessment methods were adjusted by using clapping and pointing instead of oral responding.

Results and Discussion

Table 2 shows quarterly scores of the seven students on the DI Placement Tests for one-and-half years (Oct., 1986 to June, 1988).

From the result, we can see that the four higher students (No's 1 to 4) perform at their grade level (86% to 100%). Even the autistic child (IQ 21) and another non-verbal child (IQ 19) can also learn some number identification skills and counting skills. In the other subject areas, DI model also affects the learning. For instance, these students' listening comprehension, oral expression, reading, and writing abilities also improved during the two-year experiment.

In other pre-posttest comparisons (i.e., *Stanford Binet Test, Preschool Language Scale*, the *Columbia Mental Maturity Scale, Draw-a-Man Test, Adaptive Behavior Scale*), the findings all indicated students' performance pro-

Table 2. DI Assessment Analysis on Subjects Math Achievement (Number Correct).

Student Number and Date of Testing

		1				2				3				4				5				6				7			
Item type	No. Items	Oct. 86	Feb 87	May 87	June 88	Oct. 86	Feb. 87	May 87	June 88	Oct. 86	Feb. 87	May 87	June 88	Oct. 86	Feb. 87	May 87	June 88	Oct. 86	Feb. 87	May 87	June 88	Oct. 86	Feb 87	May 87	June 88	Oct. 86	Feb. 87	May 87	June 88
Counting by 1s	20	11	20	20	20	8	10	20	20	10	20	20	20	3	7	10	20	11	20	20	20	0	0	0	0	0	0		
Counting lines	2	0	1	1	2	0	0	2	2	2	1	2	2	0	0	2	2	0	0	1	0	0	0	0	1	0	0	0	
Draw lines	2	0	0	1	2	0	1	2	2	1	2	2	2	0	0	2	2	0	0	0	1	0	0	2	1	0	0	2	1
Numerical identification	9	2	6	9	9	0	8	9	9	9	9	9	9	0	6	9	9	0	0	4	5	0	0	0	3	0	9	3	9
Numerical writing	9	2	2	9	9	0	1	1	8	9	9	9	9	0	1	2	5	0	0	0	0	0	0	0	0	0	0	0	0
More-less concept	2	0	0	1	2	0	1	0	2	0	2	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Percentage of correct items	44	34	66	93	100	18	48	77	88	70	98	100	100	7	32	59	86	25	45	57	59	0	0	5	11	0	20	25	27
Symbol identification (11-99)	14			5	12				13		14	14	14				70												
Counting (11-99)	3			1	3				1		0	1	3				0												
One digit addition	2			0	1				0		1	1	2				0												
One digit addition (missing addition)	2			0	0				0		0	0	0				0												
One digit subtraction	2			0	1				0		0	1	2				0												
Story problems (addition)	2			0	2				1		1	0	2				0												
Story problems (subtraction)	2			0	0				0		0	0	2				0												
Two digit addition without renaming	2			0	0				0		0	0	1				0												
Two digit subtraction without renaming	2			0	0				0		0	0	0				0												
Percentage of correct items	31			19	61				48		48	55	79				23												

gressed a lot. For instance, the students' average IQ increased 10 points.

Conclusions

The DI model's theory and application are compatible to the educational expectation and learning environment in Taiwan. "Everybody can learn no matter who he/she is," an important DI tenet, is also Chinese people's belief on Confucious thought. It is much easier to implement DI model in Taiwan because the whole society emphasizes basic knowledge teaching. However, the teaching strategies used are traditionally centralized and intensive teaching on skills. Typically, after a skill is familiar, teachers begin to teach another one. Students, especially the disabled, always remember the newest skill, but forget or mix up all previous taught skills. Thus, most teachers of disabled students are willing to modify and adapt this model to their teaching. The DI model verifies that teachers cannot use student inability or other extrinsic environment features as the excuses for students' not learning. ◆

Cognitive Rehabilitation of Brain-Injured Children: *A Direct Instruction Approach*

by Julie Becker Eisele, M.Ed.
Mark Tindell
Education Specialists
New Medico Rehabilitation Center of Florida

Four boys noisily clamor down the hall of the school at the New Medico Rehabilitation Center of Florida. One boy slaps the wall several times as he walks, then jumps up to touch the ceiling. One boy is wearing headphones and is singing a rap song that would challenge any lyrics sung by "Two Live Crew." The other two don their best "street wise" swagger. The boys bound into the classroom, brashly pull desks and chairs from their ordered places and redesign the seating arrangement. Customarily, the therapist enters the room with practiced caution and persistence when starting a new learning situation. Ridicule laced with sarcasm overrides all semblance of an organized entrance. Everyone seems to want to "outdo" the other in whatever may be the feat of the moment. At the top of the list is the ever-present denial–denial of injury, denial of deficit, denial that relearning must take place in order to lead a near-normal life. Absence of "normal" in this situation is brought on by a traumatic brain injury. These injuries are caused by any number of things from anoxia at birth to a car accident. The therapist–any good therapist–comes into this particular room with the understanding that, first of all, these students can be taught and are taught well when the educational program is structured and behavioral contingencies are followed precisely. With this level of understanding, the therapist begins to create order out of what seems to be, at best, an intolerable situation.

Lack of compliance with the learning environment, once relied on to provide an exit from such a setting, is accompanied now by persistent reminders that appropriate behaviors earn appropriate rewards as well as appropriate placement and discharge. What a surprise for the boys to find this "system" does not use inappropriate behaviors to initiate those cherished three-day vacations called "suspensions." After the initial trial period with the expected escalation of class disturbances which include verbal and physical aggressions, missed classes, threats, property damage and inappropriate sexual behavior, the highly explicit behavior program withstands the ploys allowing the therapist to get down to the real problems both behavioral and academic. Continued patience meets the boys' insistence that they will remain "tough"; and "tough" certainly does not mean responding to a teacher's or therapist's wishes. Confidence in, both the therapy offered and expectations to be met, results in trust and mutual respect from the beginning. "You gonna make me?' is the common retort. "No, but I know you're bright and I'd really appreciate your help," is the sincere and immediate

reply. When the schedule is consistent and the presentation is carefully executed, the ridicule and sarcasm diminish and the thirst for order seems to override the chaos. High expectations with structure, both behavioral and academic, seem to be a key to unlocking the mystery inside the head-injured adolescent.

This "mystery" leads the child down a path of recovery that can be extremely rewarding and equally baffling because of the unique ways in which a brain injury affects the processing of information and the behavior of the individual. The disruptive, sometimes bizarre, behaviors of the aforementioned students are likely to be misinterpreted and thus mistreated as time elapses post-injury. The diagnoses and resulting prescriptive solutions to an injury to the brain can be as elusive as the functions and intricacies of the brain itself. Described here is one prescription used over a period of one and one-half years with a population of traumatically brain-injured children ages 4 through 17. The results are impressive, the progress ongoing.

The foundation is laid in this paper for belief in several hypotheses:

1. Brain-injured children respond positively to highly structured material and environmental situations.
2. Positive self-concept is fostered through increased academic accomplishment and positive teacher/student relationships.
3. Functional skills can be first taught in a classroom academic situation and then generalized to other settings.
4. Extended rehabilitation can minimize the frustration of the brain-injured student upon re-entering the public school environment.

The school at the New Medico Rehabilitation Center of Florida is part of a residential facility aimed at rehabilitating brain-injured children. At its core, the philosophy of the school is to acclimate brain-injured children to the community and specifically to a school environment. This is done through simulation of the school environment by means of academically-based therapy and by adding the specific traditional therapies (Speech, Occupational, Physical, and Behavioral).

There is a scientific basis to all procedures used and cross-therapy interactions are encouraged. This "transdisciplinary" approach allows maximum input and focus on specific deficits by the therapists. It also produces an increase in the practical application of skills by the recovering child. Therapists become "teachers" and teachers become "therapists". A child being taught cognitive skills in a speech therapist's setting begins by learning the process by which a deduction is made, for example, and is taught with academically based material and techniques. The same child in an academic setting is encouraged to increase oral expressive skills by utilizing a specific cue carried over from the speech class. A child experiencing walking difficulties is prompted by the teacher, when leaving the classroom, to remember certain gait patterns prescribed by the physical therapist. A physical therapist, on the other hand, may refrain from giving a child a written list of exercises to do in sequence if that child is unable to read well enough to interpret written instructions. The child may also have problems sequencing events well enough to follow directions. Experience shows the system's approach works well and is strengthened by an instructional sequence that is familiar to all therapists. The support of specific academic material itself, replete with the characteristics that positively interact with the brain-injured individual, completed the projected expectations. Skill deficits are determined by standardized evaluative tests and are then reduced by therapists carefully building skills and confidence through the systematic team approach.

At the New Medico school, the Direct Instruction materials published by Science Research Associates form the academic base for instruction. The teaching techniques prescribed in the program design provide a basis for presentation consistency even when other texts are in use. The Direct Instruction techniques are encouraged across all therapies. Specific skills and strategies are aimed at teaching generalizations that will be useful upon re-entering a particular school situation after discharge from rehabilitation.

Direct Instruction programs incorporate precisely the procedures needed to maximize treatment of cognitive deficits in traumatically brain-injured individuals. They require frequent responding, procedures to accommodate individual rates of progress, programmed materials which teach essential concepts and operations required for more complex skills, systematic reinforcement, and cumulative review of information taught. The programs are implemented in small groups or individually as the level of skill deficit dictates. For students with major skill deficits the focus is on sentence syntax, oral expression, following directions presented orally, object identification, actions, sequencing, story patterns, beginning decoding and comprehension, written expression, and basic computation. At the intermediate level, the focus is on maximizing memory of pre-learned information as well as new information, inductive and deductive reasoning, using facts or clues to eliminate possibilities, grammar and its usage, vocabulary development, following written di-

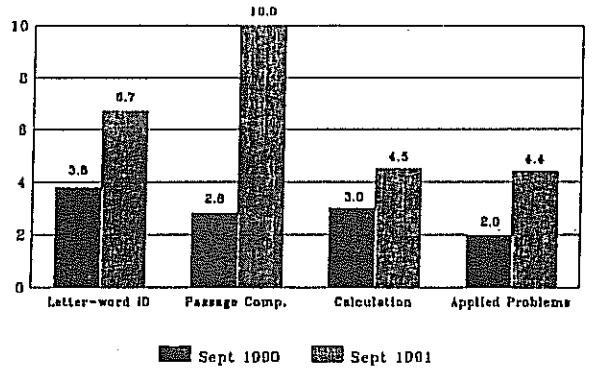
rections, information processing and analysis, basic writing skills, and problem -solving strategies in math. For those with minimal deficits the focus is on thinking skills, evaluation, analysis, reading for information, and a variety of other reasoning skills.

The object of education in the rehabilitation setting is to help bridge the gap between the time of injury and the time of re-entry into the school system. Too often a brain-injured child will re-enter the same school he/she attended before being injured. In many cases failure is "set up" by expectations based on pre-injury behaviors. A child with minor cognitive deficits may look normal and carry on logical conversations with fellow classmates and yet not remember how to get to a class or follow a schedule throughout the day. In such situations, a level of frustration is likely to build. Overcrowded classrooms and a lack of information dealing with brain-injured children forces them to get attention any way they can. The door is, many times, opened for brain-injured children to exit the public school system. This leaves parents to find a "place" for these children who are described by teachers as "different". Acute and post-acute rehabilitation, which include education, offer these individuals specialized help in overcoming physical, cognitive, and psychological obstacles that hinder their progress in school.

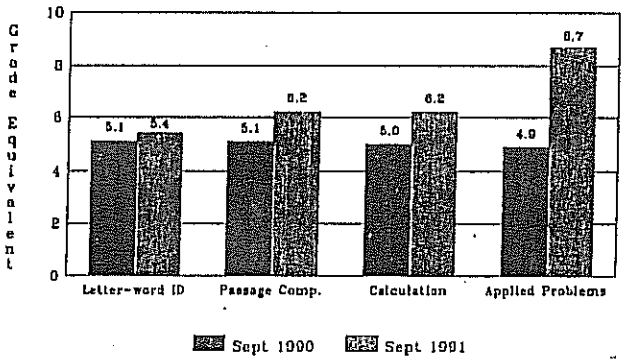
Each year the number of head-injured children increases. The National Head Injury Foundation's recent report on education argues for extended educational rehabilitation to help reduce the problems of re-entry to the school and community. At the same time it promotes further education of teachers and parents involved with head-injured individuals.

At the New Medico Rehabilitation Center of Florida the progress of three adolescent boys (ages 15 to 17) was followed for one year and measured by standardized test scores. All of these boys entered rehabilitation with moderate to severe cognitive deficits coupled with severe behavioral deficits. School performance was more than one year below grade-level with attention spans ranging from 30 seconds to 15 minutes. Inappropriate verbal and physical disruptions averaged 20-30 per 50-minute class session. They were taught for three hours a day using the *Corrective Reading Program Decoding* and *Comprehension* strands, *Spelling Mastery*, American history using a basal text, and current events using the daily newspaper. Most subject matter was taught two to three times a week, with math taught in the Occupational Therapy class. The results follow as measured by the Woodcock-Johnson Test of Achievement (Revised).

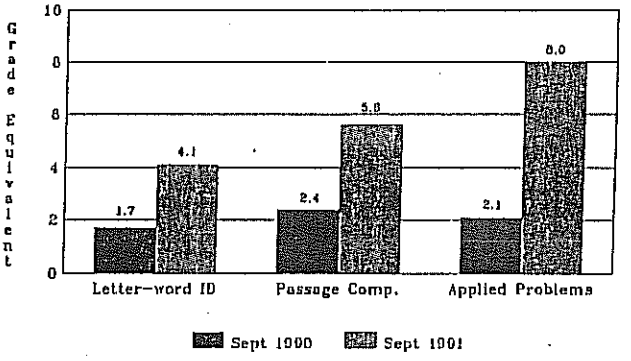
Academic Gains–Client A



Academic Gains–Client B



Academic Gains–Client C



It might be appropriate to conclude with several noteworthy facts:

1. All of three adolescents are boys. Boys comprise

the majority in the head-injured classification.
2. Each boy was more than one-year post-injury at the pretest date.
3. The majority of adolescents entering this rehabilitative setting performed poorly in school *prior* to injury.

Through the process of teaching the head-injured child, many observations are made and various cognitive interventions are based on those observations. Bettered self-awareness is brought about by good teaching. Good therapist-child relationships, positive attitudes and interventions, integrity in instilling trust and self confidence, as well as the use of humor, are essential interventions comprising the total treatment plan.

The strategies and multi-component treatment procedure set forth here produce the changed behaviors which ready children, not only, for long-term maintenance, but for the learning of new skills to increase their quality of life.

The teacher waits for the boys to settle. The pace in this classroom is brisk, always moving. There is an awareness of the genuine confusion inside these boys and of their attempts to grasp the real person who lies waiting inside, sometimes "miles from nowhere." "I ain't gonna take this test. You didn't tell me nothin' about it and, besides, I don't need this to graduate. It's stupid! Just mark me noncompliant." There is the ever-present urge to confront...the always thoughtful care to defuse a behavior chain at its beginning...Control prevails and the teacher finds a reasonable solution...no words...no movement...a move away... later a choice. "You can study for a minute if you want." The boy slouches. "Yeah," he slurs...another chance... "Let's work the first few questions together," the teacher cautiously responds ...And the progress begins. After class the bedlam resumes. The boys push their way out the door and down the hall. A hand touches the rapper on the shoulder. "Thanks for your hard work. You did a great job on your test." "Yeah, right!" was the angry, loud reply. "I hate this stuff." Then the explosive slam of the front door is heard with a softer, almost reverent voice saying, "I'm gonna send this paper to my Mom."

The teacher slowly rearranges the chairs in the disheveled classroom. A warm smile and a weary sigh bring to an end yet another successful day battling enormous challenge, a new frontier. ◆

A Field Report: Specific Learning Disabilities
Corrective Reading Pilot Study 1989-90

by Brenda Thomson
SLD Teacher, Ballard Elementary School
Manatee County School District, Florida

During the 89-90 school year, an informal study was initiated to look at the effectiveness of a Direct Instruction reading program for specific learning disability (SLD) students in resource rooms and regular elementary and middle-school classrooms. The Direct Instruction material selected for trial is known as the *Corrective Reading Program*. The performance of these SLD students was compared with students participating in a more traditional/basal approach and students participating in a whole language approach.

Pre/post achievement test scores and reading fluency rates were collected. A total of 255 students participated in the study. Miss Patricia Mathis of Vanderbilt University assisted in collecting and running the data. Both she and Mary Kay Habgood of Manatee County schools assisted in interpreting the results.

The Direct Instruction/Corrective Reading Group consisted of teachers who volunteered to be trained and initiate *Corrective Reading* in their classrooms. Participants were provided training, materials, demonstration teaching, and on-going support throughout the project.

The Traditional/Basal Group was selected by the SLD coordinator. That approach was defined as an approach which relies primarily on traditional basal materials.

The Whole Language Group was selected by the SLD coordinator as well. That approach was defined as one which used mostly a literature or student-produced curriculum.

A total of 144 students were in the *Corrective Reading Group*. A total of 61 students were in the Traditional/Basal Group. A total of 50 students

were in the Whole Language Group.

Note: A disproportionate number existed within the groups primarily because some of the traditional/basal and whole language teachers asked to participate in the study chose not to. From these groups there were also a few data sheets that were incomplete and could not be used. Also, a few standard scores did not match the grade equivalents and could not be used.

Results

The Figures 1 and 2 illustrate the results of the *Woodcock-Johnson Individual Achievement Tests* and the increased fluency rates on a timed *Dolch Story Reading Test.*

There was an average of 5 points (1/3 standard deviation) increase in standard scores within the *Corrective Reading*/Direct Instruction group. There was an average increase of 21 words per-minute in the fluency pre/posttest scores for that group as well.

It should be noted that the Woodcock-*Johnson Achievement Test* looks at mainly word recognition and not other reading skills that may have been stressed in a traditional/basal or whole language classrooms.

However, for improving word recognition skills in LSD students, who typically find that skill a major hurdle, the Direct Instruction/*Corrective Reading Program* did seem to be an effective tool. It is also interesting that:

1. *A larger number of Direct Instruction students happened to be lower in intelligence and socio-economic status than their counterparts.*
2. A larger number of Direct Instruction students were older students who typically do not make large gains.
3. Standard scores which are designed to remain fairly constant (year-to-year) indicate significant growth.
4. The Woodcock-Johnson usually does not yield large gains when using a controlled vocabulary text such as that in the *Corrective Reading Program.*
5. Many first year Direct Instruction teachers see very few gains among their students because teacher behaviors are still in the developing stage.

Figure 1. Woodcock-Johnson Standard Score Growth by Type of Instruction.

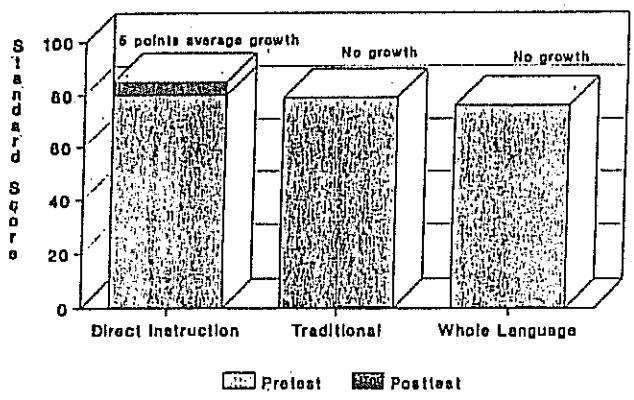
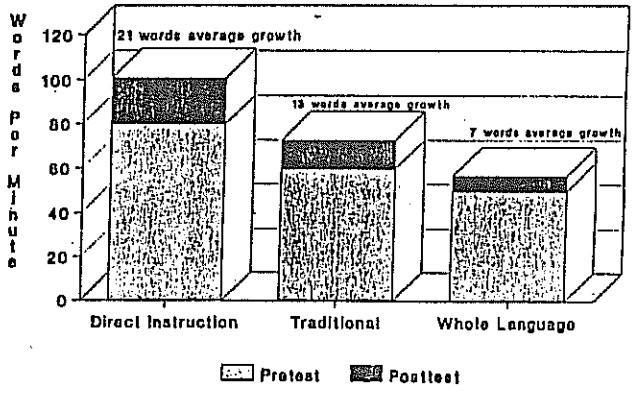


Figure 2. Reading Fluency Growth by Type of Instruction.



Conclusion

The results of this Pilot study seem to indicate that the *Corrective Reading Program* was effective in improving decoding skills in learning disabled students in elementary and middle-school classes. Several components of these Direct Instruction materials seemed to be advantageous to the learning disabled student. They include:

1. A necessary structure of specific teacher and student behaviors.
2. Skills are built upon skills.
3. The student is an active learner.
4. The teacher teaches until mastery.
5. Daily assessments are built into the lessons.
6. The scripted lessons lend to continuity for SLD transfer students and consistency within the program with the proper teacher training.
7. The scripted lessons lend themselves very well to the components of the Florida Performance Measurement System.
8. A behavior shaping component is present.

However, this program, as any program, takes a committed, highly trained teacher for optimum stu-

dent success. If a teacher does not believe in the methods used in these Direct Instruction materials, it may not be of value for her students.

The results of this pilot study do indicate that the Direct Instruction materials known as the *Corrective Reading Program* can and should be a viable choice for the SLD teacher to consider. The teacher who chooses this approach should be encouraged to use this as a core curriculum, but not deny herself and her students the wide array of materials and approaches that can quite easily work in concert with a *Corrective Reading Program* core. ◆

National Center to Improve the Quality of Technology, Media and Materials

University of Oregon
Douglas W. Carnine, Director
Edward J. Kameenui, Associate Director

The National Center to Improve the Quality of Technology, Media, and Materials is funded for a five year period (199101996) by the Office of Special Education Programs in the United States Department of Education. The primary purpose of the Center is to carry out activities that will result in improving the quality of curriculum programs and teaching materials, electronic media, and computer technology for all students, particularly individuals with disabilities.

The Center will engage in at least four sets of activities. First, the Center will work with professional organizations representing parents, teachers, and administrators to define what is meant by quality technology, media, and materials. Focus group meetings will be conducted at national conferences with representatives from these stakeholders to identify the features of high quality technology (software), electronic media (videodisk), and print materials (textbooks and curriculum programs). In addition, the Center will work with these professional organizations to influence the demand for high quality technology, media, and materials by developing standards for the development and adoption of high quality technology, media, and materials.

The Center will also work directly with commercial textbook and curriculum developers, producers, and publishers to explore ways in which materials can be improved to accommodate all individuals, but particularly those with disabilities. Like architectural barriers that can deny or limit a person's physical access to a building, the way in which technology, media, and materials are designed can also create barriers that limit a person's visual, physical, or cognitive access to the information contained within the materials. For individuals with learning problems in particular, the barriers are not necessarily obvious–nor are they obvious to teachers, to parents, or to the publishers of the materials themselves.

The Center will work with nationally recognized researchers to establish a research base for the design of quality technology, media, and materials for grades kindergarten through grade 8. Research syntheses on the principles for designing high quality technology, media, and materials in the academic areas (reading, language arts, mathematics, social studies, and science) and nonacademic areas (social skills, early childhood, severe mental retardation, transition, blind and visually impaired, deaf and hearing impaired, bilingual, as assistive technology) will be written. In addition, the Center will establish an exchange process with national research centers and projects to acquire and share information on the principles for the design of quality technology, media, and materials.

Finally, the Center will work with a range of professional educational organizations, private industry, and national organizations outside of education in an effort to increase the demand for quality technology, media, and materials for all students, but particularly for individuals with disabilities.

The Center will publish a newsletter on a quarterly basis and establish an 800 telephone number to respond to questions by users, and commercial developers, producers, and publishers about the quality of technology, media and materials. ◆

Parental Involvement in the Teaching of Reading: A Comparison of Hearing Reading, Paired Reading, Pause, Prompt, Praise and Direct Instruction Methods*

by David J. Leach
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and
Susan W. Siddall
Ministry of Education, Western Australia

Summary. The parents of 40 children in two grade 1 classrooms were randomly assigned to receive brief training in one of four instructional methods for helping their child or to hear their children read at home. The tutoring methods were Hearing Reading, Paired Reading, Pause, Prompt, Praise, and Direct Instruction. The results showed that the use of the additional instructional strategies included in the Direct Instruction and Paired Reading tutoring methods led to faster progress by the children receiving them than by children whose parents simply heard them read. Some theoretical and practical implications of the study are discussed.

Introduction

Since 1970, a growing number of publications have shown how parents can be guided to help their children acquire reading skills at home. Such additional help has often led to faster rates of progress than those achieved by schooling alone. Whereas early papers concentrated on parents' use of general strategies for enriching the home "reading environment" and on the effects of enhanced home-school links (Quisenberry, et al., 1977), later ones have focused to a greater extent on the effects of formally taught, more complex parent tutoring skills (Topping and Wolfendale, 1985).

A number of strategies and techniques have emerged from this effort which have gained substantial experimental support. At the simplest, least intrusive level of involvement, a consistent finding, with one or two exceptions (e.g., Hannon, 1987), has been that parents who are guided by professionals to listen to their children read at home on a regular basis are more likely to have children with higher reading attainments than parents who do not listen to their children read. This relationship seems to be causative and holds true irrespective of differences between children, such as IQ, and differences in maternal language and child rearing styles (Hewison and Tizard, 1980; Tizard et al., 1982). At a more complex, more intrusive level of involvement, the strongest support seems to have accrued for two parent-delivered tutoring packages – Paired Reading, a method employing simultaneous parent-child reading of texts (e.g., Morgan and Lyon, 1979; Bush, 1983; Robson et al., 1984) and Pause, Prompt, Praise, a method to teach self-correction responses to errors in reading using syntactic and semantic cues (e.g., McNaughton et al., 1981; Love and Van Biervliet, 1984).

Although these methods have been shown to enhance the reading skills of children across ages, abilities and degrees of reading difficulty when compared to no treatment controls, the variety of populations found in evaluation projects has made it impossible to compare their relative effectiveness. Nor has it been possible to weight the contribution of their components, such as practice and motivation on the one hand, and the additional, more time-consuming and demanding strategies of the parent tutoring packages on the other. Despite the promise of the literature, there is need for further investigation of whether guided Hearing Reading at home is all that is needed of parents in order to enhance their children's reading attainment, or whether there are greater gains to be made by investing time and resources in more elaborate parent training programmes.

This study was designed as an initial attempt to compare the relative effectiveness of the Paired Reading and Pause, Prompt, Praise tutoring methods with a basic Hearing Reading strategy when used by parents. We also added a fourth method which lies at the more complex, more intrusive end of the continuum. This was Direct Instruction reading – a comprehensive, task-analyzed, phonic-based instructional programme which incorporates fully-scripted lessons and finely graded reading tasks based on a theory of instructional design developed by Engelmann and his colleagues (Engelmann, 1980). Direct Instruction reading programmes, at least when

*Reprinted from the *British Journal of Educational Psychology, 60,* 349-355, 1990, with permission of the author and the Journal.

by teachers, have received broad research support in the USA (Becker et al., 1980), Australia (Lockery and Maggs, 1982), in the UK (Gregory et al., 1982; Branwhite, 1983). In the main, however, researchers have concentrated on their use with disadvantaged children, low achievers, or children with intellectual disabilities. Suprisingly few (e.g., Noon and Maggs, 1980) have evaluated their use with regular students. Also, as far as can be ascertained, there have been no published evaluations of their effectiveness when delivered solely by parents. Despite these omissions, our own (as yet unpublished) work has led us to believe that average to above average students can make exceptional progress on Direct Instruction programmes, and that parents can be taught how to use them with brief training and are able to achieve equal (if not better) results than those achieved by professional teachers.

It was hypothesized that Direct Instruction, the most comprehensive instructional package, would increase beginning reading skills to a greater extent than either the PR (Paired Reading) or PPP(Pause, Prompt, Praise) methods and that, because of their additional instructional components, the Direct Instruction, Paired Reading, and Pause, Prompt, Praise methods would each be more effective than the minimal, Hearing Reading strategy.

The study was also of some theoretical interest. Firstly, it might be argued that any successful parent involvement in reading could be due to the extra time that was being spent on reading practice plus an increase in their children's motivation. To control for this, all children were to receive the same amount of parental involvement and interest over the experimental period and were to be drawn from the same school classes, thereby increasing the likelihood that any differences found between methods were due to the methods themselves.

Secondly, there has been some criticism in the literature about the lack of comparison groups receiving equally valid, equally novel programmes in the evaluation of Direct Instruction, particularly in the UK (Wheldall and Glynn, 1988). Although this is certainly not true of at least one major evaluation of Direct Instruction conducted in the USA (e.g., Becker, 1977; Becker and Gersten, 1982), the same point could be made about the majority of evaluations of novel approaches to the teaching of reading. In this study, therefore, all tutoring methods were novel for the children concerned.

Thirdly, there has been a continuing debate about the role of errors in learning to read and the optimum way to deal with them in the instructional context. One view is that errors play a central, productive role in that children learn to be more self-regulated readers if they are helped and prompted to obtain appropriate information from them (Clay, 1979; McNaughton, 1988). The opposing view is that, in order to facilitate retention and increase rates of learning, errors should be minimised by programming for high success using graded discrimination, massed examples, pre-teaching, prompts and immediate corrective feedback (Engelmann, 1980). The Pause, Prompt, Praise method utilised here is based on the productive view of errors, whereas the Direct Instruction approach, through its programme design features, plans to minimise errors. The Paired Reading method falls between the two in that it is not programmed to prevent errors but that, when errors occur, immediate corrective feedback is given without prompts to gather information from them.

Method

Sample

Parents and their children from two grade 1 classes in two primary schools participated in the study. With the full support of the school staff, all parents in the two classes were asked by letter whether they would like to become involved in a project to teach them how to help with their children's reading at home. Parents of children who could already read at a grade 1 level or above and of children considered by their teachers to have marked learning difficulties were included in the training but their children were excluded from the experimental sample. From the remaining pool of parents, 40 were randomly drawn and then randomly assigned to receive one of the four tutoring methods – Direct Instruction (DI), Paired Reading (PR), Pause, Prompt, Praise (PPP) or Hearing Reading (HR). None of the parents was aware of the overall experimental design.

The final sample of children was composed of 26 boys and 14 girls with chronological ages ranging from 5 years 3 months to 6 years 4 months (M= 5 years 7 months). No child was considered by the teachers to have significant learning difficulties. One girl had a mild speech impediment and one family spoke English as a second language. The children were all beginning readers in the middle of their first term in school. Each made more than 16 errors on the first story of Neale Analysis of Reading Ability. They continued to receive instruction in reading according to the school's normal practices throughout the intervention period.

Parent Training

Parent training was carried out at school by two psychologists, one of whom was the second author. Separate training sessions were held for each tutoring group but no formal training was given to the

Hearing Reading group. The latter received written guidelines and so could be described as a minimally guided hearing reading group.

All reading sessions were conducted by parents in their own homes for a period of 10 to 15 minutes per weekday for 10 weeks after the completion of the last training group. Three of the designated parent tutors were fathers, one was an 18-year-old sister who spoke the most fluent English in the family, and the rest were mothers. They received one home visit to observe a reading session and a telephone call to check on their appropriate use of the methods taught.

(a) Hearing Reading (HR)

The HR group received a brief summary of suggestions for helping with reading at home. This included advice on choosing a suitable time and place for hearing their children read from books brought home from school, talking about the story to be read, giving encouragement and avoiding criticism, and allowing the children time to think about a word when an error occurred before trying to help or correct. Teachers at the school ensured that the children took home appropriate grade 1 level books of their choice after each school day.

(b) Paired Reading (PR)

The PR group attended a formal training evening of one and a half hours duration. The training session included:

An introduction to the concept of Paired Reading and an account and demonstration of its two components–simultaneous and individual reading.

A demonstration of how to do Paired Reading.

Supervised role-playing by parents using Paired Reading.

Parents were given a summary of the techniques involved in Paired Reading to take home for reference. The teachers ensured that the children took home a grade 1 book of their choice after each school day.

(c) Pause, Prompt, Praise (PPP)

The PPP group also attended a training evening of one and a half hours duration. This session included:

An introduction to the concept of Pause, Prompt, Praise and an account and demonstration of its treatment of errors.

A demonstration of how to do Pause, Prompt, Praise.

Supervised role-playing by parents using the Pause, Prompt, Praise method.

Parents were also given a summary of the method for reference. The teachers similarly made sure that children took home grade 1 books of their choice each day.

(d) Direct Instruction (DI)

The DI group met for three evening training sessions of one and a half hours each. These sessions included:

The provision of a Direct Instruction reading programme–*Teach Your Child to Read in 100 Easy Lessons* (TYCTOR) (Engelmann et al., 1983)–which is based on the fast-cycle component of DISTAR Reading I and II programmes (Engelmann and Bruner, 1975) and written especially for parents.

An introduction to the basic concepts of Direct Instruction, the organisation of the programme and the lesson format.

A demonstration of some lessons from TYCTOR with an emphasis on correct letter pronunciation and blending, and error correction procedures.

Supervised role-playing of selected lessons from TYCTOR by parents.

No reading material was brought home from school by the children in this group. The single book which constitutes TYCTOR was the only resource used.

The parents in all groups used social reinforcement for child effort and correct reading each day throughout the intervention period.

Measures

As the children were beginning readers, it was necessary to ascertain whether or not the groups of children were equivalent in their readiness to benefit from their parents' help. Pre-reading skills were, therefore, assessed. Phonic knowledge was tested by having the children complete List A from the Graded Spelling Test (Daniels and Diack, 1977) and a measure of reading readiness, which included verbal reasoning, word fluency, visual and auditory discrimination and word meanings, was taken from exercises they were given to complete from The Red Book (Thurstone, 1973). Reading accuracy and comprehension before and after the 10-week experimental period was assessed on the Neale Analysis of Reading Ability (1966). All testing was carried out by the second author.

Results

The results of the pre-reading tests of phonic knowl-

edge and reading readiness are presented in Table 1. One-way analysis of variance showed that the groups of children were not significantly different in their phonic skills at the beginning of the study [F(3,36) = 0.108, NS] nor in their readiness to read [F(3,36) = 0.017,NS]. Thus, there seemed to be no bias in the likelihood of improvement in favour of any one group.

Table 1. Means (and Standard Deviations) of Students' Pre-Reading Skills Before Differential Parent Involvement with Reading.

Parent Reading Group	N	Phonic Knowledge	Reading Readiness
Hearing Reading	10	1.6 (1.56)	18.7 (1.42)
Paired Reading	10	1.6 (1.57)	18.7 (1.13)
Pause, Prompt, Praise	10	1.9 (1.64)	18.6 (1.20)
Direct Instruction	10	1.5 (1.50)	18.6 (1.28)

The pre- and posttest results on the Neale Analysis of Reading Ability are shown in Table 2. A one-way analysis of variance confirmed that the pretest scores for reading accuracy and comprehension by the groups were not significantly different [F(3,36) = 0.706,NS]. However, a subsequent analysis of covariance on the posttest scores, with pretest scores as the covariate, showed that the observed differences between groups at this stage were statistically significant (Accuracy [F(3,35) = 11.751, P<0.05]; Comprehension [F(3,35) = 31.396, P<0.05]).

A number of planned comparisons between treatment groups were made according to the stated hypotheses (see Table 3). Applying the Modified Bonferroni Test (Keppel, 1982), the critical value of t was set at 2.101 (P<0.03) for all comparisons to correct for possible type 1 errors.

According to t he diaries kept by the parents, the mean time spent with their children when reading ranged from 10.89 to 11.50 hours during the intervention period. There were no significant differences between groups on this measure [F(3,36) = 0.133, NS].

Discussion

The results strongly suggest that increases in rates of reading progress can be expected if parents are taught more precise instructional methods that go beyond the provision of increased opportunities to practise, enhanced interest and reinforcement. In particular, there was demonstration of the feasibility and value of brief training in Direct Instruction and Paired Reading techniques. For the expenditure of two hours of extra professional training time per family, beginning readers taught by these methods achieved rates of progress in reading that were two to three times greater than rates achieved by the HR group. These increases were not due to differences in children's "engaged time" on reading between groups and seem unlikely to have been due to the slight variations in time the parents spent on training.

Table 2. Means (and Standard Deviations) of Pre- and Post-Intervention Reading Ages (in Years) and Gains Made (in months) by Group.

Group	Pretest	Posttest	Gain
	Reading Accuracy Age		
Direct Instruction	5.70 (0.03)	7.11 (0.47)	+16.8 (5.4)
Paired Reading	5.71 (0.04)	6.76 (0.36)	+12.6 (4.3)
Pause, Prompt, Praise	5.75 (0.03)	6.53 (0.53)	+ 9.9 (6.4)
Hearing Reading	5.70 (0.00)	6.19 (0.34)	+ 5.9 (4.1)
	Reading Comprehension Age		
Direct Instruction	5.70 (0.00)	7.06 (0.47)	+16.3 (5.6)
Paired Reading	5.70 (0.00)	6.84 (0.25)	+13.7 (3.0)
Pause, Prompt, Praise	5.70 (0.00)	6.52 (0.48)	+ 9.8 (5.8)
Hearing Reading	5.70 (0.00)	6.25 (0.39)	+ 6.3 (4.7)

Table 3. Comparisons of Posttest Mean Reading Accuracy and Reading Comprehension Scores Between Groups.

Reading Accuracy	t-value	df	P
DI ≈ PR	1.772	18	0.045 (NS)
DI > PPP	2.468	18	0.011
DI > HR	4.763	18	<0.001
PR > HR	3.453	18	0.002
PR ≈ PPP	1.082	18	0.147 (NS)
PPP ≈ HR	1.631	18	0.058 (NS)
Reading Comprehension			
DI ≈ PR	1.237	18	0.115 (NS)
DI > PPP	2.401	18	0.013
DI > HR	3.958	18	<0.001
PR > H	3.836	18	<0.001
PR ≈ PPP	1.789	18	0.044 (NS)
PPP ≈ HR	1.314	18	0.102 (NS)

Support for the Pause, Prompt, Praise method as an extra tutoring strategy was not strong. Although the group's mean gain was greater than the HR group, the results were not consistent enough across students to reach statistical significance. Clearly, more comparative studies of this kind need to be carried out before the value of teaching. Pause, Prompt, Praise to parents of beginning readers over

and above the minimal Hearing Reading strategy can be assumed.

At a theoretical level, the results indicate that the strategy of reading simultaneously with children, as in Paired Reading, has utility for accelerating early reading attainment. However, why and how Paired Reading works has not yet been determined. For example, is adult modelling of fluent reading most important, or is the immediate, corrective feedback given to the child when errors occur more critical? The contribution of these and other elements of the Paired Reading method are well worth identifying experimentally.

The complex set of programming strategies and instructional techniques embodied in Direct Instruction reading packages has received broad experimental support already (e.g., Carnine and Silbert, 1979), not to mention the extensive literature indicating the importance of phonological recoding strategies for beginning readers. Suffice it to say that the particular programme of "Teach Your Child to Read ...", which was evaluated here for the first time, produced equally impressive results with regular students, when delivered by parents, as those obtained by other Direct Instruction programmes designed on the same principles which have been applied to disadvantaged children (Becker, 1977) and children with a range of learning difficulties (e.g., Lockery and Maggs, 1982) by professional teachers. Moreover, the gains made by the children were, on a test of general reading skills, unrelated to the programme content and were achieved despite the fact that the group completed only one half to three-quarters of the programme in the time available. This meant that they had been exposed to short reading passages, no longer than a few sentences in length, which were of very restricted, phonically controlled prose and written in a modified script at this early stage of the programme. Thus, the group had read far fewer regularly scripted passages at home than any of the other groups during the experimental period and had read no extra books as such. It is possible that the group would have gone much further ahead had the full TYCTOR programme been completed.

The issue of how to respond to children's reading errors needs proper experimentation. Nevertheless, the uniqueness of the PPP method is its dependence on prompting children's self-instructional responses to the errors they make. The equivalent progress of the PPP group to the HR group, particularly in reading accuracy, may have been due to the inefficiency of the method with beginning readers who had little experience of written prose and little or no phonic knowledge to draw on for self-correction. In view of the marked superiority of the DI and PR groups in reading accuracy and comprehension, however, real differences would seem to be due to the additional instructional components of the DI and PR methodologies, including their similar correction procedures. All that can be concluded, other than the fact that the PPP group did not progress as quickly as the DI group and the PR group, is that the self-correction strategies taught in the PPP methodology were not sufficient to increase the rate of gain of these beginning readers significantly beyond those achieved by a simpler Hearing Reading strategy that did not employ them. Perhaps, however, as with Direct Instruction, a better assessment of the utility of Pause, Prompt, Praise for parents would have been over a longer period of six months to one year, as this would have given the children more time to master the self-correction strategies and gain more reading experience from which to draw sufficient knowledge to apply them.

The generalisability of these results must be tempered by the small-scale nature of this study and the relatively short time period involved in the intervention. However, the significance levels of the inter-group differences do give some confidence in concluding that there is real value in teaching parents the PR strategy and the DI early reading package. Long-term follow-up measures are now required to assess the maintenance of these gains. Also, comparative studies need to be carried out with students who are at later stages of learning to read. ◆

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Acquisition of Basic Concepts by Mentally Retarded and Nonretarded Children Through Video-Presented, Stimulus Conversion Procedures[1, 2]

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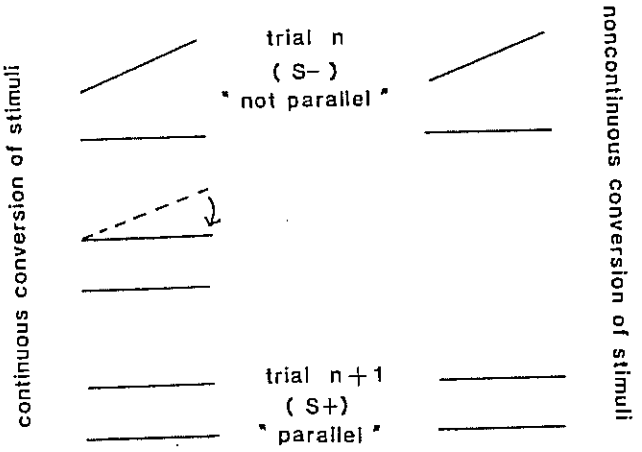
Abstract

Using two different procedures, two concepts, *parallel* and *diameter*, were taught to mentally retarded (EMR) and nonretarded (NMR) third graders. Through the use of computer-programmed television displays, stimuli were continuously converted (CC) either into concept examples (S+) or concept nonexamples (S-) that demonstrated the range of S+ and S-. In another procedure using the same training stimuli, examples were not continuously converted (NC); each stimulus (S+ or S-) was withdrawn from view and replaced, after a brief delay, by another one. The EMR students learned *parallel* faster under CC than NC presentation procedures, though there were no differences in acquisition for the NMR students. Concept acquisition for *parallel* was faster for both the EMR and the NMR students under CC compared to NC procedures. Generalization of training effects to novel examples of *parallel* was better after CC training.

A serious and recurrent problem in developing instructional procedures for teaching basic concepts is to ensure that the learner's behavior comes under control of the target stimulus dimension (Clark, 1971; Doran & Holland, 1979; Trabasso & Bower, 1968). This is particularly important for instructionally naive learners and those with attention deficits (Mercer & Snell, 1977; Ross, 1976). When presented a series of concept examples, some that contain the positive or target stimulus attributes (S+ examples) and others that lack that attribute (S- examples), these individuals often fail to focus on the critical S+/S- difference (Dixon, Spradlin, Girardeau, & Etzel, 1974; Sidman & Stoddard, 1966) or attend to some irrevelant feature associated with either S+ or S- (Mercer & Snell, 1977; Touchette, 1971; Wilhelm & Lovass, 1976).

Recently, Engelmann and Carnine (1982) have developed stimulus control procedures for single-dimensional stimuli that enable attention to the relevant attribute. The key is to change a single example on one trial continuously to create the stimulus configuration of the next trial. This continuous conversion (CC) of stimuli is done in the presence of the learner, affording the possibility of detecting what is crucial about the change. Figure 1 illustrates two trials of the CC procedure.

Figure 1. Segment of a Sequence for Teaching the Discrimination Between Parallel and Non-Parallel Through Continuous Conversion of Stimuli and Noncontinuous Conversion.



The arrow indicates the movement of the top line enabling the preceding S – (nonparallel) example to be converted into an S + (parallel) example.

Assume the target concept is *parallel*. Two lines are presented on trial *n* and, to this S- example, the instructor says, "not parallel." Then the angle of the top line is altered, moving into position on trial *n* + 1 to create and S+ example that the instructor labels as "parallel." (Depending upon programming requirements, one line or both lines will be transformed.) Minimum difference changes will sometimes be made in which a slight but critical change in S- creates S+ or, conversely, S- examples are formed out of S+ examples. The CC procedure takes advantage of the fact that the movement is a compelling cue that

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draws the learner's attention to the stimulus display (Gibson, 1969); as long as the stimulus changes are above threshold and juxtaposed S+ and S- examples differ only in the target attribute, not much movement is needed to show the learner the essential difference between examples labeled *parallel* and *not-parallel.*

Besides providing S+/S- conversions for teaching subtle discriminations, a sample of the range of the various forms that S+ and S- can take must also be demonstrated for generalization purposes. This can be done by converting an S+ (or S-) example successively into several other more varied S+ (or S-) configurations to reveal what is the permissable range of acceptability for parallel lines. Finally, the learner is tested for concept acquisition and restricted generalization: a wide assortment of S+ and S- examples consisting of those previously shown together with novel examples (but still line drawings) are presented at random, and the learner is asked, "Is this parallel?"

Another means of sequencing stimuli is to show a concept example, remove it from view, and present another example until all examples are unveiled. A two-trial segment of this noncontinuous conversion (NC) mode of presenting *parallel* is also indicated in Figure 1. Because the entire stimulus is withdrawn, leaving a blank display, attending to the details of what was just presented and reconstructing those details should be much more difficult than during the CC procedure, where some aspect of the stimulus is always in view.

Continuous conversion procedures are ideally suited for instructional media that guarantee dynamic and easy-to-discern changes in stimulus attributes when used in an automatic and standardized presentation. Computer-programmed and and prepackaged videotape and videodisk displays would fit these criteria. To produce dynamic changes in stimuli, the few pioneering studies evaluating the effects of CC procedures have hand-manipulated stimuli, such as manually rotating the leaf of a cardboard-mounted flower to create various angles where less than 90 degrees was the target concept (Carnine, 1980) or raising or lowering a wire to produce forms that were convex or not-convex (Gersten, White, Falco, & Carnine, 1982). Moreover, single sequentially presented examples were used to teach concepts through CC (dynamic) presentations, whereas pairs of examples were used to reflect NC (static) presentations.

This study sought to evaluate the relative effectiveness of CC and NC procedures in teaching basic concepts to nonretarded (NMR) and educable mentally retarded (EMR) third-grade children, who often have attention deficits (Zeaman & House, 1963). For training purposes, examples and nonexamples of two concepts (*parallel* and *diameter*) were computer-programmed, with either CC or NC presentation procedures governing their display on a television monitor. Tests for transfer of training were also conducted without the use of television, employing novel concept examples and nonexamples to evaluate generalization across instructional settings and type of stimuli.

Experiment I

Method

Subjects. Participants were 30 EMR students from self-contained third-grade special education classes and 30 NMR third-grade students. Of the 91 NMR and 50 EMR subjects originally pretested for *parallel,* 57% and 72%, respectively, did not meet the pretest criterion. The first 15 subjects from each group who failed the pretest were randomly assigned to the four training conditions.

Mean ages (in months) and *SD's* by groups were CC-NMR, 107.9, 5.1; NC-NMR, 111.5, 6.0; NC-EMR, 115.6, 7.9; and NC-EMR, 114.4, 7.1. The students were tested on the Otis-Lennon School Ability Test (Otis & Lennon, 1979), which purports to provide an index of verbal-educational ability. The mean standard scores (100 is the norm) and SD's for the four groups were CC-NMR, 98.2, 11.6; NC-NMR, 89.9, 18.0; CC-EMR, 64.7, 8.9; and NC-EMR, 64.7, 12.5.

Settings. The subject sat before a table containing a television monitor. The experimenter sat behind and slightly to the right of the subject. A computer was linked to the monitor. Unused rooms were used as the settings.

Materials and apparatus. There were four sets of stimuli used. In the order presented, they were pretest stimuli, training stimuli, posttest stimuli, and transfer stimuli.

Pretest and posttest stimuli were 20 pairs of black line drawings. The 9-cm drawings were presented on unlined 12.7 x 20.3 cm index cards. Ten cards displayed parallel lines, with the distance between the pairs, varying form 2 to 5 cm. Ten cards displayed nonparallel lines, with the angles for each pair varying from 10 to 90 degrees off parallel.

The training stimuli consisted of 20 parallel and 20 nonparallel lines presented twice, if necessary, on a 30.4 cm black-and-white television monitor. The lines, as measured on the monitor, were 8 cm long. A computer program controlled by a TRS-80 computer generated the various parallel and nonparallel lines. Each subject's answer was entered into the computer by the experimenter for automatic recording, storage, and retrieval.

Transfer stimuli consisted of 20 different pairs of parallel and nonparallel lines, constructed from common objects and glued to unlined 12.7 x 20.3 cm index cards. The same two objects were used in any given pair (e.g., two green toothpicks placed parallel to each other). However, across adjacent pairs, the objects varied on irrelevancies such as type of object (plastic-coated wires, pipe cleaners, toothpicks, soda straws, ice cream sticks, pencils, yarn, strings, metal rods), color (yellow, white, blue, red, black, plus the natural color of the object), length (from 6 to 17.5 cm), width (.2 to 1 cm), and shape (cylindrical and rectangular).

Procedure. The pretest stimuli were randomly presented one at a time, with the subject asked, "Are those lines parallel?" Subjects correctly answering 15 or more examples were considered to know the concept *parallel* and were no longer used in the experiment.

Prior to training, the subjects were told they were going to watch the television and learn about *parallel* and, if they worked hard, they would receive a prize. In truth, regardless of performance, each subject at the end of the experiment was told that he or she performed well and each received an ink stamp reward that said "excellent."

For both the CC and NC training conditions, six different demonstration examples were presented in this order: two examples of nonparallel lines (S-), two examples of parallel lines (S+), another S-, and finally another S+. Upon each presentation, the experimenter said, "These lines are [are not] parallel."

Following the demonstrations, the training examples were presented at random. Accompanying each S+ and S- presentation was a sound that cued the subject to look at the example. The experimenter then asked, "Are these lines parallel?'" Feedback for correct answers was in the form of verbal praise and a computer-generated melodious tone. Incorrect answers led to the experimenter saying, "No, these lines are [are not] parallel." Then, the question was repeated and, if necessary, the correction procedure was repeated until the student answered correctly.

Criterion performance was 10 consecutive correct responses to the presented training examples. As many as 80 training (the original 40 S+ and S- examples repeated once) were available for presentation.

For the NC-trained groups, successive presentations of the demonstration and training stimuli were separated by a 2-second intertrial interval, during which time the lines from the previous example disappeared and the monitor was "blank," displaying a light gray homogeneous field, until the next example appeared. In contrast, during the same 2 seconds for the CC-trained groups, the lines from the preceding examples moved into position to form the next example. Either one or both lines moved, depending upon the best way of creating the next example.

After training, posttesting occurred; after that, the transfer test was conducted. In both cases the subject was asked, "Are these lines parallel?" As in pretesting, response-specific feedback was not provided for answers.

Results

Training. The mean numbers of correct responses for the various experimental phases are shown in Table 1. Subjects who failed to learn within 80 trials (examples) were assigned scores that assumed perfect performance from the point of their last incorrect response. Thus, if the last incorrect response was on trial 76, a trials-to-criterion score of 86 was assigned.

A significant interaction between mode of presentation and intelligence level was found, F (1, 56) = 4.02, $p < .05$. As assessed by planned comparisons, the most discrepant group was NC-EMR, whose mean significantly differed from each of the other three groups (p's < .01), which in turn did not differ

Table 1. Means and Standard Deviations for Training and Testing Scores for the Concept *Parallel*.

	Training Conditions			
	Continuous		Noncontinuous	
Test Phase	NMR	EMR	NMR	EMR
Pretest				
M	8.60	9.67	11.00	8.60
SD	3.64	3.92	3.07	3.68
Training				
M	26.67	29.53	29.53	55.93
SD	23.34	20.90	20.27	25.96
Posttest				
M	18.00	17.80	16.87	15.53
SD	2.36	1.61	2.61	2.59
Transfer				
M	18.40	18.07	16.80	13.80
SD	1.84	1.83	2.96	4.57

Note: Maximum score for pretest posttest and transfer = 20; scores for training are trials to criterion.

from each other. The NC-EMR group also contained five nonlearners (scores greater than 80), whereas the CC-EMR group had no nonlearners. The CC-NMR and NC-NMR groups each contained one nonlearner.

The main effect for mode of presentation was significant, $F(1, 56) = 6.22, p < .02$, as was intelligence level, $F(1, 56) = 6.22, p < .02$.

Posttest. The main effect of mode of presentation was significant, $F(1, 56) = 7.98, p < .01$. No reliable effects were found for IQ and for the mode of presentation by intelligence level interaction.

Transfer. The mode of presentation effect was significant, $F(1, 56) = 14.20, p < .001$, as was the effect for IQ, $F(1, 56) = 4.58, p < .05$. The mode of presentation by intelligence level interaction failed to achieve significance, $F(1, 56) = 2.94, p < .10$.

Experiment II

Method

Subjects. The EMR and NMR third-grade students came from the same background and schools as in Experiment I. Fourteen students were assigned to each group. Nine children in each group had participated in Experiment I; 5 who had no previous training with *parallel* were added. Mean ages (in months) and SD's by group were CC-NMR, 111.7, 6.5; NC-EMR, 111.4, 5.6; CC-EMR, 114.5, 8.5; and NC-EMR, 117.0, 8.9. The mean standard score and SD's for the Otis-Lennon Test were CC-EMR, 92.2, 11.7; NC-NMR, 85.5, 15.0; CC-EMR, 65.9, 11.1; and NC-EMR, 60.4, 13.7.

Materials and apparatus. Pretest and posttest stimuli were 20 black drawings on unlined 12.7 x 20.3 cm index cards. These drawings contained circles 37.7 cm in circumference with lines drawn within the circle at varying angles. Half of these lines went through the center (0 cm off center) and thereby formed a diameter. The other 10 were off center by 1.0, 1.5, 2.0, 2.5, or 3.0 cm and thus represented "nondiameter."

The demonstration and training stimuli were shown on the monitor and consisted of circles 25 cm in circumference. Half of the lines were 0 cm of center (diameter); half varied from 1 to 3 cm off center (nondiameter). Forty training stimuli were repeated, if necessary, for a total of 80 trials.

The transfer stimuli appeared on index cards and consisted of line drawings of circles varying in color (blue, red, green, black, and purple) and circumference (31.4, 26.7, and 13.3 cm). For the lines reflecting diameter and nondiameter, various common objects were used (a pipe cleaner, pencil, copper wire, wooden peg, soda straw, ice cream stick, and string). These lines varied in color (blue, red, green, purple, white, plus the object's natural color) and distance off center (0, 1.0, 1.5, 2.0, 2.5, 3.0 cm).

Procedure. Except for differences in the nature of the stimuli used for *diameter* and questions about this concept, the sequence and procedural details of Experiment II were the same as Experiment I.

During each stimulus probe the subject was asked, "Does this show a diameter?" While the six demonstration stimuli were presented, the subject was told, "This shows [does not show] a diameter."

During CC training, the circle always remained in place during the 2-second intertrial interval while the line moved to form the S+ or S- example. The selection and sequencing of S+ and S- examples followed the same programming guidelines as in Experiment 1. During NC training, the stimulus configuration was removed and the monitor remained blank for 2 seconds.

Results

Training. Table 2 presents the mean number of correct responses for the various phases. Because subjects previously trained with *parallel* did not differ on trials to criterion from subjects not trained, $F(1, 48) = 1.10, p < .20$, concept training experience was not treated as a separate factor in the analysis.

Main effects were found for mode of presentation, $F(1, 52) = 6.12, p < .025$, and intelligence levels, $F(1, 52) = 6.61, p < .025$. However, despite the dismal learning scores of the NC-EMR group (Table 2), the mode of presentation by intelligence level interaction only approached significance,

Table 2. Means and Standard Deviations for Training and Testing Scores for the Concept *Diameter*.

	Training Conditions			
	Continuous		Noncontinuous	
Test Phase	NMR	EMR	NMR	EMR
Pretest				
M	9.50	9.29	9.57	9.79
SD	4.69	3.67	4.42	2.86
Training				
M	24.14	31.21	30.50	60.71
SD	26.73	28.83	28.60	29.02
Posttest				
M	18.28	17.07	18.21	14.71
SD	2.49	2.52	2.49	4.01
Transfer				
M	18.00	16.57	18.28	14.64
SD	3.40	3.50	2.95	3.86

Note: Maximum score for pretest posttest and transfer = 20; scores for training are trials to criterion.

$F(1, 52) = 2.55, p < .10$. Nevertheless, six subjects in NC-EMR failed to reach criterion within 80 trials and were nonlearners, whereas only one subject in the CC-EMR group failed. Two subjects in each of the CC-EMR and NC-EMR groups were also nonlearners.

Posttest. Mode of stimulus presentation was not significant, though the effect of intelligence level was significant, $F(1, 52) = 8.93, p < .01$. Although the NC-EMR group had the lowest posttest scores (Table 2), the mode of stimulus presentation by intelligence interaction was not significant.

Transfer. As in the posttest, the main effect for intelligence level was significant, $F(1, 52) = 7.60, p < .025$, whereas nonsignificant effects were found for mode of presentation and for the interaction of these factors.

General Discussion

The superiority of computer-programmed CC displays over NC displays for the development of basic concepts supports the findings of previous research in which a single stimulus is dynamically changed by means of manual manipulation and compared to pairs of static stimulus (Carnine, 1980; Gersten, et al., 1982). The EMR students benefitted to a greater extent from CC training procedures than did NMR students, in that the between-group differences in trials to criterion were more pronounce under NC that under CC conditions (Tables 1 and 2). In fact, concept acquisition by the EMR children receiving CC training was equal to that of the NMR children receiving NC training. This finding underscores Woodward, Carnine, and Collins' (1986) contention that, in a specific content area where instructionally handicapped individuals are taught concepts or skills to mastery levels through logically programmed procedures, they will perform at least as well, and sometimes better, than nonhandicapped individuals taught under traditional procedures.

For the EMR subjects in this study, CC procedures apparently increased the salience of the relevant concept dimension, whereas NC procedures failed to do so. Weisberg, Packer, and Weisberg (1981) have found that the *modus operandi* in laboratory and theoretically based discrimination studies has followed NC presentation procedures; stimuli are presented, withdrawn, and, except for differential reinforcement applied to S+ and S- examples, no active measures are taken to demonstrate what is the critical concept attribute. The subject is usually left to discover what is important about the stimulus display through trial and error. This need not be the case for classroom and other instructional settings where rapid and error-free performance is desirable, particularly for students with developmental delays. Here positive and negative examples differing on a single stimulus attribute can be made more distinctive by showing what changes in the attributes are necessary to create an S+ and S- example.

For the NMR students, the acquisition scores were somewhat better under CC than NC conditions, though the differences were not statistically reliable. This would seem to imply that conversion procedures are not as important for more sophisticated learners who, on the basis of past experience, can more readily identify the relevant dimension and ignore irrelevant ones (Liebert, Wicks-Nelson, & Kail, 1986). However, this conclusion might pertain only to the relatively simple concepts taught in this experiment. With more advanced concepts, conversion procedures might indeed make a difference.

Although within each experiment the posttest and transfer scores followed the same trends, the between-experiment patterns were somewhat inconsistent. In both experiments the CC-NMR and NC-EMR groups yielded the highest and lowest scores, respectively, in agreement with their standing during training. However, whereas somewhat better performance was obtained by the CC-EMR group than the NC-NMR group in Experiment I, these groups changed places in Experiment II. The net effects of this reversal of scores were significant mode of presentation main effects for posttest and transfer in Experiment I and intelligence level main effects in Experiment II.

It is not clear what created the differences between Experiment I and Experiment II. The overall trials to criterion mean was higher for *diameter* than *parallel*, suggesting that *diameter* was harder to learn. However, a greater percentage of students failed the *parallel* pretest than the *diameter* pretest. It is possible that because the transfer stimuli for *diameter* contained more irrelevant stimuli than *parallel* (irrelevancies pertaining to the circumference and the line were varied with *diameter* whereas just the lines were varied with *parallel*), *diameter* was more troublesome for the EMR than the NMR students. If this is so, a host of irrelevant stimuli should be programmed into computer displays after successful learning without these stimuli has been accomplished. Then, when the concepts appear as static stimuli (on worksheets or in books), the learner might ignore the

irrelevant features.

Teaching by continuously converting examples requires careful attention to many details. A teaching example must be properly positioned before it is quickly and obviously repositioned (or converted) into the next example. Adherence must also be given to Engelmann and Carnine's (1982) programming logic dealing with the creation of a teaching-sequence in which there is juxtaposition of minimum-difference examples, and a set of unpredictably ordered test examples. This experiment took advantage of the precise programming features of the computer to guarantee standardization in example sequence as well as its graphics to assure dynamic presentations.

These findings do not imply that manual manipulations of examples by a well-practiced teacher having the benefit of some contrivance to create examples would be any less effective than computer-assisted instruction. Indeed, the cost-effectiveness of the former method to teach one concept would suggest its use. However, if the goal is to teach a set of related concepts, computer software packages could be designed for this purpose. For example, in vocational and other settings, the concepts involved in these instructions could be taught via continuous conversions: "Turn the knob *counterclockwise*"; Hold the screwdriver *perpendicular* to..."; or "Keep the rails *parallel* to each each other."

Basic concepts are the building blocks for more complex rules and procedures. If traditional instructional procedures that teach nonhandicapped individuals fail to induce the handicapped learner to discriminate the relevant features of basic forms, there will be serious gaps in their knowledge base that will impede later learning. These findings indicate that it is possible to develop attention to critical concept features by transforming a single stimulus continuously either into positive or negative examples. Whereas a large percentage of the EMR students originally did not know the two concepts, continuous conversion procedures allowed them to be taught fairly rapidly. The implications are that a whole set of single-dimension concepts could be similarly taught by this mode of presentation. Automatic transfer to novel examples presented in a mode different from that of training (i.e., noncontinuous vs. continuous) should not be assumed, and the instructor should be prepared to sequence a series of intervening steps to promote the transition. ◆

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A Comparison of Classrooms Using a Meaning-Centered Approach and a Code-Centered Approach*

by Carolyn Salerno

The fundamental purpose of public education is to provide all students with the competencies and knowledge that will enable them to lead successful lives in a contemporary and future society. The failure of schools to meet the educational needs of all students is reflected in the claim made by former Secretary of Education Terrel Bell that, "The school reform movement has benefitted about 70 percent of our students, but has had no significant impact on the other 30 percent." Our literacy problems are confirmed by repeated reports that indicate that 90 percent of remedial reading students today are not able to decode fluently, accurately, and at an automatic level of response (Chall, 1983; Groff, 1987). California schools continue to enroll a growing number of low socio-economic, and multi-ethnic students. Our educational organizations continue to attempt to implement interventions generated by more than 8,000 research studies, but the problems remain.

A factor inhibiting progress in curriculum implementation is the lack of agreement about what constitutes effective action to support the performance of students of diverse cultural and sociological influences (Chall, 1989; McGoldric, Pearce & Giordano, 1982; Slavin, 1989). The present study attempt to contribute to conceptualizing more effective educational reform processes. The study focuses on a comparison of how a meaning-centered approach to the teaching of language arts compares to a code-centered approach with low achieving, low socio-economic, multi-ethnic, and learning handicapped students in the implementation of the new California English Language Arts Framework. Utilizing *descriptive statistical methods*, this one-year study described relationships among teacher-centered behaviors, curriculum materials, organizational processes, and student performances. Through the use of both qualitative and quantitative data – interviews, surveys, observations, standardized test scores, and criterion referenced scores – this researcher examined how a meaning-centered approach and a code-centered approach to the teaching of language arts affected student performance in grades one, three, and six.

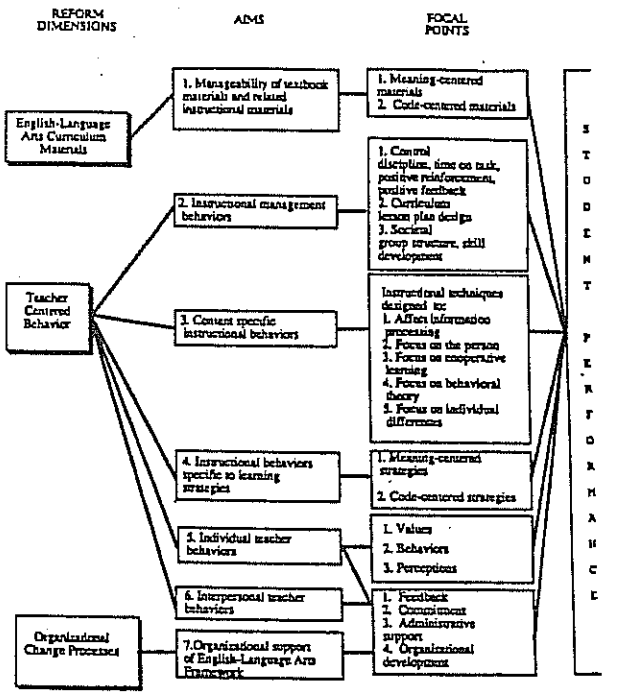
Conceptual Framework

Three interrelated reform dimensions were targeted which led to eight specific research questions that guided the examination of programs. The three related targets of organizational change, noted by Timar and Kirp (1989) and Adams, et al., (1990), link student performance to selected curriculum materials, teacher behaviors, and organizational change processes (see Figure 1).

Dimension I: Curriculum Materials

Dimension I examined the differences between classrooms using meaning-centered and code-centered published language arts curriculum materials.

Figure 1. An Overview of the Three Interrelated Reform Dimensions that Guided the Examination of the Differences Between a Meaning-Centered Approach and a Code-Centered Approach in Language Arts Instruction.



* Summary of Dr. Salerno's Dissertation presented, in part, for fulfillment of the requirements for the Ed. D. degree at the University of San Diego.

The extent to which the presentation requirements of the published language arts meaning-centered, code-centered, and related materials were followed by the classroom teacher was examined.

Dimension II: Teacher-Centered Behaviors

Dimension II examined the differences between teacher-centered behaviors used in a meaning-centered classroom and a code-centered classroom. There were five categories of teacher behaviors which were explored for this study: (a) instructional management, (b) specific instructional procedures, (c) student learning strategies, (d) individualized teacher additions to programs, and (e) teacher commitment to program.

Dimension III: Organizational Processes

Dimension III examined the differences between the effects that organizational processes have on teacher-centered behaviors and on the intervention model of the California English-Language Arts Framework in code-centered and meaning-centered classrooms. Four interrelated categories of organizational processes that affected organizational change were looked at: (a) individual and interpersonal teacher behaviors; (b) commitment; (c) administrative support; and (d) organizational development. A control question was: To what degree did the organization support the changes introduced by the California English-Language Arts Framework?

Outcomes: Student Performance

The final research question interrelated the three reform dimensions to student performance, i.e., how did the differences in materials, teacher behaviors and organizational processed between classrooms using a meaning-centered approach and those using a code-centered approach in language arts affect student performance?

Theoretical Base

A total of 128 references influenced this study. The most frequently used primary sources were from the following educators and researchers: Adams, Chall, Goodman, Graves, Carnine, Anderson, Jones, Costa, California State Board of Education, Foster, Burns, Bennis, Argyris, Schein, Benne, Bloom, Timar & Kirp, Joyce and Shower, and Slavin. The span of time the references ranged were from 1950 to 1990; 3 from the 1950's (Bloom, Dewey, Flesch), 6 from the 1960's, 26 from the 1970's, 84 from the 1980's, and 9 from the 1990's.

Foundations of a meaning-centered approach are educational models derived from the highest ideals of citizenship in a democracy. These models propose to lead students to wisdom and virtue, to deepen their sense of ethical responsibility, and to develop allegiance to the highest ideals of citizenship in a democracy (California State Department of Education, 1987). Plato, Aristotle, Augustine, Thomas More, Locke and Dewey have provided blueprints for this kind of educational program (Joyce & Weil, 1986).

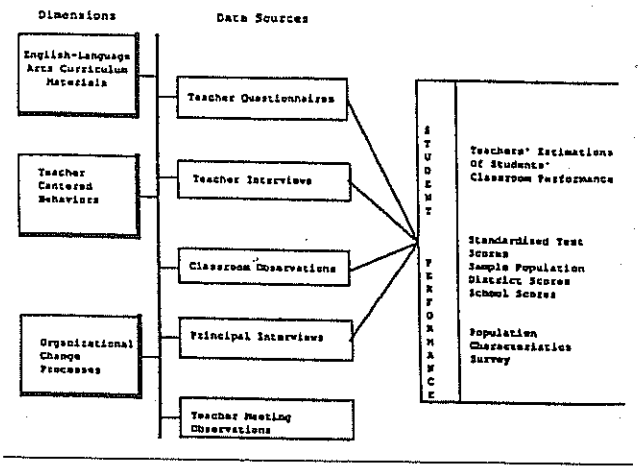
Theoretical foundations of the code-centered approach are behavioral psychology, cognitive psychology, developmental psychology, psycholiguistics, and neurology (Chall, 1989; Engelmann & Carnine, 1982). The advocates of the code-centered approach support one or more of three notions: (a) that knowledge should be logically organized for instruction so that relatively efficient communications are possible for related knowledge, (b) that empirically-based principles determine universal ways in which the environment influences behavior for different classes of learners, and (c) that there are principles for a logical design of communications that transmit knowledge (Engelmann & Carnine, 1982).

Research Design

This research study extended from September, 1989 through June, 1990. District I and District II, together, provided a total of 7 school sites, 12 teachers and classrooms, 322 students, and 5 principals. An overview of the data sources are noted in Figure 2.

Participating districts were intentionally targeted because they had similarities in instructional history, in curriculum design, and in curriculum materials, and had similar student population characteristics; but they had different language arts implementation focus:

Figure 2. An Overview of the Data Sources that Guided the Examination of the Differences Between a Meaning-Centered Approach and a Code-Centered Approach.



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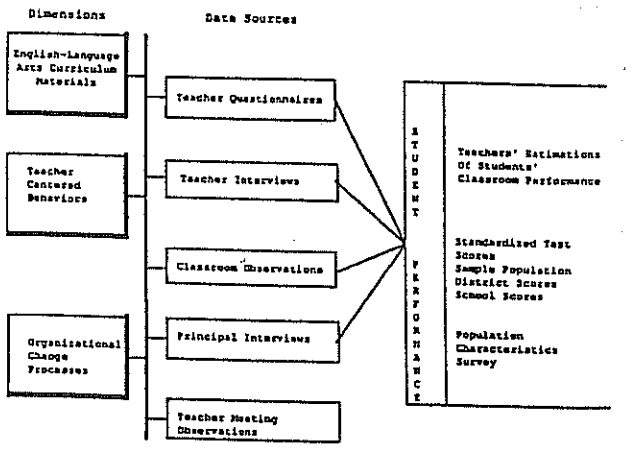

1. Before 1989, both school districts followed a code-emphasis approach in the language arts curriculum. Both districts did boast of exemplary schools.

2. Both school districts were implementing the California English-Language Arts Framework during the school year, 1989-1990, in grades one through six. Both districts were using the same literature textbook series in their implementation.

3. All teachers who volunteered to participate in the study were using the new prescribed curriculum materials for the first year.

4. The teachers in each district were directed to implement the California English-Language Arts Framework by their district administrators in two different ways: (a) teachers in District I were directed to use only a meaning-centered approach, supported by their prescribed literature series; (b) teachers in District II were directed to implement the California English-Language Arts Framework through the prescribed literature series and to maintain a code-centered approach.

Summary of Findings

1. The prescribed cur*riculum materials* seemed to generate motivation, excitement, and interest in classroom instruction among teachers and students in both districts.

2. Teachers willingly *followed the recommendations* of the curriculum materials, regardless of the difficulty experienced with the prescribed materials in both districts. Teachers continued to supplement the prescribed materials with materials they had found to be effective with student performance.

3. Teachers' initial *commitment* to the language arts philosophy appeared to remain stabilized, neither more committed nor less committed at the end of the school year in both districts. Their degree of commitment seemed to depend upon the standardized test results of their students' achievement.

4. There appeared to be many *variations in the management* of effective instructional time.

5. There seemed to be a set of *instructional practices that affected student performances* on standardized tests, independent reading, and expected homework among first, third, and sixth-grade classrooms. The effective instructional practices were: (a) a systematic skill development program, (b) an integrated literature reading program, (c) positive reinforcement, (d) literature read and heard daily, and (e) daily participation in writing activities.

6. Many teachers appeared to use instructional practices they knew to be effective from other experiences regardless of the suggestions of the new philosophy.

7. Teachers *structured the classroom* environment to support the emergent literacy perspective supported by the Framework. However, they appeared to define their role as promoting more teacher-directed activities than promoting more student-directed opportunities.

8. The percentage of multi-ethnic, low socioeconomic, low achievement, and learning handicapped students in first, third, and sixth grade code-centered and meaning-centered classrooms did not seem to make a difference in overall student performances.

9. Low and high performing first grade students who participated in a *systematic phonic instructional program and the literature-based curriculum* performed at a higher level on standardized tests than did students who did not participate in *both* a systematic phonic program and the literature-based curriculum. These students also read more recreational books than did students who did not receive systematic skill instruction.

10. In the first, third, and sixth grades, high performing students made greater gains in reading and writing in the early grades than in the later grades. Low performing students made greater gains in writing in the third grade than other grades, and greater gains in reading in third and sixth grades than first grade.

11. At the end of the first year of the implementation (1990), the total first grade *standardized test scores* in both districts dropped from the previous year totals; however, the students in classrooms using a balanced program of systematic skill instruction (code-based) and literature instruction received higher test scores on comprehension and vocabulary.

12. *Principals* appeared to support the change process within the context of their experiences and understandings: that is, they stated goals related to educational directions, deliberately attempted to produce new and different responses with control forms, articulated their values, and established consistent gathering times and places for their teachers. However, they seemed to lack the power – skills, understanding, energy, time, motivation, beliefs, perceptual procedures or knowledge of collaboration models – to energize the change process. Their energies and efforts appeared to be used to stabilize and manage the existing operations of their environ-

ments. The strategies that were suggested and recommended for teachers to use in the California English-Language Arts Framework to effect improved student performance could be interpreted as suggestions and recommendations for organizational leaders to effect change in members of their organizations.

13. Openness and bonding behaviors in social situations and in occasional working committees, and staff meeting operations did not seem to influence change of teacher instructional behaviors or the academic performance of the students. However, the social bonding could have been transitioned to classroom instructional bonding through the restructuring of interpersonal staff development processes.

14. Administrators less familiar with effective instruction discussed in the California English-Language Arts Framework and/or the research in reading and writing over the past 15 years, or who reflected a special interest in whole language only, tended to interpret the Framework's emphases and goals as the integration of listening, speaking, reading, and writing in literature books.

Conclusion

This study indicates that an emergent literature approach combined with a direct, systematic skill approach to language arts affects student performance considerably. Perhaps there are additional teaching strategies found to be effective through research which when applied to a balanced program, student performance would have even greater chance to be affected and perhaps at a more rapid rate than is currently observed.

Organizational members seemed to find difficulty in using the prescribed curriculum materials and relating the materials to the emphases and goals discussed in the Framework. Interpretations of the Framework's emphases and goals produced many variations. Perhaps, the two greatest dangers to effective instruction are the continued practices of individual educators interpreting and making value judgments for others, and the continued practice of resisting change. Therefore, opportunities to collaboratively discuss and explore research findings contrary to personal experiences, belief systems, and sociological influences, and opportunities to address emotions related to change, may lead to a shift in attitudes and motivational energy that effects change. Strategies to counter these dangers are to be found in team collaboration, cooperation, and coaching models. A revised focus on continuous organizational collaboration would enable organizational support of a change process based on the best that we know from research today. Shared collaboration for creating change, already successful in businesses (Argyris, 1985, 1987; Costa, 1987; Goodman, 1986; Joyce, et al., 1990; & Schein, 1986), should become the business of educational organizations in the 90's. ◆

References may be obtained from the author, Carolyn Salerno, PO Box 50, Carlsbad, CA. 92008.

ADI Association for Direct Instruction

Announces...

The 18th Annual Eugene Direct Instruction Conference

Promoting School Success— Academics and More

July 27–31, 1992
Eugene Hilton Hotel & Conference Center
Eugene, Oregon

Featured Keynote Speakers:

Zig Engelmann, Anita Archer, Randy Sprick, Hill Walker

Presenters:

Zig Engelmann, Anita Archer, Barbara Bateman, Doug Carnine, Jane Carter, Geoff Colvin, Bob Dixon, Ann Glang, Stuart Greenberg, Phyllis Haddox, Tracey Hall, Jan Hasbrook, Gary Johnson, Kathy Jungjohann, Bernie Kelly, Kathy Madigan, Jerry Silbert, Marilyn Sprick, Randy Sprick, Marcy Stein, Susan Wayne, Linda Youngmayr

Successful students in school have excellent academic, social and study skills. Successful teachers and schools systematically teach these skills. Too often in education we concentrate on one skill area at the exclusion of the others. Yet all are bound together in a tightly woven web. The student who doesn't achieve well academically often has major management and social skill problems. The student who hasn't learned how to study will have serious academic problems.

Come join us at the Eugene Conference to learn how to teach these skills more effectively. Come join us at the Eugene Conference to renew your skills and energy. Come join us at the Eugene Conference to gain a new perspective on teaching.

Conference Features...

- Daily keynote speakers discussing the interface of academic, social and study skills.
- Training sessions on Direct Instruction programs.
- A mix of informational and training sessions on topics related to school and student success.

Join us with other professionals from around the country in furthering your skills and knowledge to make schools and students successful. Sessions are designed for teachers, assistants, supervisors, and administrators whose goal is to promote excellence in all facets of education. There are optional 1 or 2 quarter unit credits available from the University of Oregon Summer Session.

As a participant, the city of Eugene is literally at your doorstep. Next door to the Hilton is the Hult Center for the Performing Arts, a world class performance hall. Within walking distance of the Conference site are scores of restaurants and stores catering to a variety of tastes. Eugene's setting makes the Conference a rewarding professional experience as well as a relaxing vacation for you and your family. To help renew old friendships or make new acquaintances, a picnic has been planned for Monday evening.

Keynotes...

Daily Keynote Speakers

- Monday, July 27 (Opening) • *An Anti-Failure Perspective*
  Zig Engelmann - Professor, University of Oregon
- Tuesday, July 28 • *Promoting School Success: Study Skills*
  Anita Archer, Professor, San Diego State University
- Wednesday, July 29 • *Myths, Misconceptions and the Thief at the Door*
  Randy Sprick, Educational Consultant
- Thursday, July 30 • *Promoting School Success: Social Skills*
  Hill Walker - Associate Dean, University of Oregon
- Friday, July 31 (Closing) • *Making School Reform Happen*
  Zig Engelmann

SESSION INFORMATION

There are 5 Keynote presentations and 30 sessions offered during the 5-day Conference. Participants may attend all 5 Keynotes and up to 4 sessions. Sessions are either training or informational. Training sessions focus on specific teaching behaviors. These sessions cover program rationale and provide task practice. Informational sessions provide the detailed information needed to implement successful techniques or to understand the topic.

Sessions are scheduled in the morning and afternoon. For their morning sessions, participants choose one "A" session (M-Th) and one "E" session (Fri). For their afternoon sessions, participants can choose either one "B" session (M-Th) or a combination of one "C" session (M-Tu) plus one "D" session (W-Th). A summarized schedule is located on page 36 for further reference.

SESSION DESCRIPTIONS

A SESSIONS

1) Connecting Math Concepts, A–D • *Bernie Kelly* This session introduces the first four levels of the newly developed Direct Instruction series for math—*Connecting Math Concepts*. All four levels are available for the 1992 school year. The session is appropriate for teachers involved with regular-classroom elementary students, as well as special-education teachers. The session provides an overview, and practice in effective presentation techniques.

2) Reasoning and Writing, C & D • *Jerry Silbert* For students performing at grade levels 3 and 4. This session provides training in teaching the newly developed *Reasoning and Writing C* and *D* language programs. *Reasoning and Writing C* focuses on narrative written expression. The program begins with simple regular order sentence writing and concludes with multi-paragraph writing assignments. Level D functions as the introduction for expository writing. The principal focus of level D is unique. Most writing assignments involve examining a source of information, identifying problems of accuracy, specificity or clarity and writing an explanation of the problems. Students work with misleading advertis-ments, faulty arguments, irrelevant evidence, contradictory assertions and directions that are too general.

3) Teaching the Corrective Reader • *Gary Johnson* For students performing at grade levels 3-12 and adults. Participants will learn developmental and remedial techniques for effective reading and language presentations with primary age students through adults. This session is based on the Decoding and Comprehension strands of the *Corrective Reading* programs that include presentations of skills such as deductions, inductions, analogies, following instructions, vocabulary building, editing, writing and logical analysis. Also stressed will be how to teach students to accurately decode, increase rate, build vocabulary, and read for information in books, newspapers, and magazines.

4) Reading Mastery I, II and Fast-Cycle • *Phyllis Haddox* For students performing at grade levels K-2. The session is focused on teaching beginning reading skills. This session will provide training in *Reading Mastery I, Reading Mastery II,* and *Reading Mastery Fast-Cycle*. Participants learn the basic information and skills needed to implement the programs—placement, acceleration, scheduling, grouping, and presenting pre-reading exercises.

5) Solutions to Classroom Discipline Problems • *Randy Sprick* For teachers of students in grades K-12. Participants will learn specific techniques for solving common types of behavior problems including absenteeism, disruptive classroom behavior, students not completing homework, tardiness, student motivation and reducing misbehavior. Some of the strategies covered include the use of rules, effective grading policies, consequences, ignoring, and procedures for helping the at-risk student.

6) Adapting Content Area Curriculum for Low-Performers • *Marilyn Sprick* For teachers of students in grades 2-10 and administrators. Participants will learn strategies that help low-performing students manage the academic demands of the regular classroom without watering down the curriculum. Topics will include identifying instructional requirements, instructional planning, increasing engagement in instruction, and assisting students with reading problems.

7) Introduction to Direct Instruction Techniques • *Ann Glang & Tracey Hall* For instructional staff new to Direct Instruction programs. In this session, participants learn to motivate students, maintain student interest, use effective signals and pacing, and correct errors effectively across all Direct Instruction programs. This session complements training in specific DI programs. Recommended for newcomers to DI.

B Sessions

8) Reading Mastery III-VI • *Gary Johnson*
For students performing at grade levels 3-6. These programs present a careful sequence for teaching comprehension and decoding skills to students who have mastered beginning reading skills. These programs meet a full range of comprehension and decoding objectives. Training includes management systems for monitoring student progress and teaching all component skills (vocabulary, rules, information, map skills and context analysis) needed for students to completely understand the factual and fiction selections presented in the program.

9) Advanced and Corrective Math • *Bernie Kelly* For students performing at grade levels 3-6. This session will provide specific training on SRA's *Corrective Math* and *Math Modules*. Programs include skills instruction in facts, operations, story problems, fractions, decimals and percents, and ratios. The session also presents training on the Core Concepts Videodisc programs (*Mastering Fractions, Mastering Ratios, Decimals and Percents* and *Algebra*).

10) Reasoning and Writing Level A & B • *Jerry Silbert* For students performing at grade levels K-2. This session provides training in the newly developed *Reasoning and Writing A* and *B* language programs. These programs, which teach higher-order thinking skills, are appropriate for children who have basic language concepts. Children learn about story grammar, answer literal and interpretive questions, make interpretations and predictions about characters, sequence and classify information, make deductions, follow instructions and construct sentences and stories. The programs are designed according to Direct Instruction principles while being less teacher-intensive than other Direct Instruction programs.

11) Direct Instruction Supervision and Training Strategies • *Tracey Hall* This session is designed for administrators and teachers experienced in teaching Direct Instruction programs. Strategies will be presented to train, coach and supervise classroom teachers to use Direct Instruction effectively. Participants will learn how to diagnose and remediate student problems, and will learn teaching and management techniques for a range of students. This session will also present procedures for data collection, evaluation, intervention and feedback techniques. Participants will analyze video- taped teaching examples and practice strategies presented.

12) Managing Severe Behavior Disorders and Serious Emotional Disturbances • *Geoff Colvin & Stuart Greenberg* For K-12 teachers, assistants, and administrators. Specific procedures will be presented for analyzing behavior patterns of students who exhibit severe behavior problems. Strategies will be presented that are designed to break up these patterns and to teach replacement behaviors that are more acceptable in public school settings. Special emphasis will be given to serious acting-out behavior, escalated behavior, and withdrawn behavior. The basic focus will be on preventing serious behavior problems through the application of instructional principles. Participants will receive a workbook for the session.

C Sessions

13) Expressive Writing I & II • *Kathy Madigan*
For students performing at grade levels 4-7. Overview and training in specific procedures for using Levels I & II of SRA's *Expressive Writing*. The program teaches students the most difficult first steps in expressive writing through a basic sentence writing strategy and an organization strategy. These strategies are applied to simple reporting and interpreting activities. Students learn editing, punctuation and paragraphing skills.

14) DISTAR Language I • *Linda Youngmayr*
For teachers of basic language in preschool through grade 2, and for teachers of English as a second language. Focus is on the language of instruction: polars, if-then, following directions, comparatives, prepositions, etc. — with an emphasis on statement production. Training involves both rationale and role playing.

NEW **15) What Makes DI Tick? • *Bob Dixon***
Designed for teachers and administrators experienced with Direct Instruction. DI is deeper than the surface behaviors of signals and group responses. This informational session overviews the fundamentals of instructional design developed by Engelmann and Carnine. The session will compare Direct Instruction with other approaches to instruction (including other mastery-based approaches and recent reform movements).

16) Advanced Teaching Techniques • *Susan Wayne* For experienced Direct Instruction teachers, supervisors, and administrators only. This session presents information and practice on effective correction and firming procedures. Participants will view videotaped teaching segments to analyze student performance and design remediation.

NEW **17) Skills for School Success: Organization Skills and Learning Strategies • *Anita Archer*** For teachers of students performing at grade levels 3-8. In this session, participants will learn how to teach their students organizational skills (materials, time, etc.) and learning strategies for completing common assignments. Instructional procedures

for introducing these skills will be demonstrated and practiced. Special emphasis will be placed on how to maintain and generalize these strategies.

18) Research on Beginning Reading Instruction: Implications for Practice • *Marcy Stein* In this session, the extensive research about beginning reading instruction will be discussed and the controversies of this field addressed. The *Reading Mastery* beginning reading program will be examined in light of this research. Participants will receive a copy of the summary of Marilyn Adams' book *Beginning to Read: Thinking and Learning about Print.*

D Sessions

19) Effective Spelling Instruction • *Bob Dixon* For students performing at grade levels 1-6. This session presents specific information and training on SRA's *Corrective Spelling Through Morphographs* and *Spelling Mastery Series* (1989), a six-level basal spelling program that integrates the morphographic analysis with sound-symbol analysis and whole-word analysis. The series teaches the spelling of over 15,000 words. This session covers the use of these programs in regular and remedial settings.

20) Overview of New Direct Instruction Basals for Arithmetic and Language • *Zig Engelmann* For teachers of students in grades K-4 and administrators. Overview of SRA's new math series, *Connecting Math Concepts*, and language-writing series, *Reasoning and Writing*. Participants learn how higher-order thinking skills and problem solving proficiency are fashioned by these programs. Participants learn procedures for presenting material to the entire class, for effectively integrating skills, for accelerating students, and for avoiding or correcting common mistakes are covered.

NEW **21) Selection of Language Arts Basals • *Marcy Stein*** This session is designed for teachers who want to learn about ways to meet the needs of main-streamed or at-risk students receiving their language arts instruction in the general education classroom. The instructor will provide information about the general learning characteristics of students with learning disabilities and will review current research about teaching language arts to this population. An important component of this session will be discussion of how to determine instructional priorities for language arts. Teachers will participate in activities designed to help them choose, analyze and modify materials using examples from currently published programs.

22) Direct Instruction and Whole Language • *Linda Youngmayr* This session will concentrate on SRA's *Learning Through Literature*, which focuses on applying children's literature within your curriculum. The program offers material appropriate for non-readers as well as advanced readers. Some modules link various primary read-aloud books into cohesive units while other modules provide for an in-depth study of novels.

E Sessions

23) Supplemental & Transitional Activities • *Kathy Jungjohann* This session will provide teachers with examples of seat work and instructional games for independent and supplemental skills practice. Evaluation guidelines will be presented to assist teachers in selecting appropriate activities for their students. These materials were prepared for primary students performing at grade levels 1 and 2.

24) Options for At-Risk and Special Needs Students • *Jane Carter* This session has been designed to provide teachers, administrators, consultants and other specialists with practical approaches to teaching students responsibility. The session will include building-level, district-level and classroom-level strategies for managing unproductive student behavior while encouraging productive school behavior. Participants will learn how to apply comprehensive student management strategies to their own situations.

25) Literature in Reading Mastery • *Linda Youngmayr* This session will focus on the study of literature within Levels V and VI of *Reading Mastery*. This session is appropriate for teachers of students reading at the fifth-grade level or above.

NEW **26) Addressing Unique Needs • *Barbara Bateman*** This session presents a new approach to developing and implementing Individual Education Plans (IEPs) for children who have disabilities. The premise of the session is that traditional IEPs are burdensome and not useful. A new framework will be offered which results in IEPs that are both educationally useful and legally correct.

27) Curriculum-Based Measurement: Applications to Direct Instruction • *Tracey Hall* This session is designed for experienced DI teachers interested in implementing a measurement system that assists with initial student placement and allows the teacher to monitor student progress. The concept of Curriculum-Based Measurement will be introduced, followed by specific application to teaching techniques and to Direct Instruction programs.

28) Direct Instruction & Higher-Order Thinking Skills • *Doug Carnine* This session provides examples and rationale for using Direct Instruction strategies with a wide range of students. Direct Instruction responds to the need for teach-

ing "the big picture" and the need for efficient teaching.

NEW **29) Involving Parents as Partners • *Jan Hasbrook*** Often educators encounter numerous barriers in their attempts to involve parents in planning, implementing, and evaluating educational programs. This session will provide information about improving home/school relationships, understanding the parents' perspective, communicating effectively with parents, improving parent conferences and other related topics.

30) DI for Learning and Behaviorally Disordered Students • *Kathy Madigan*
The Institute for Effective Education (formerly the Children's Workshop) has developed four new Direct Instruction Programs designed for and field tested with the Learning Handicapped, Severely Handicapped and Severely Emotionally Disturbed population. Participants will receive an overview of the four new programs: Walking Around Your Community: A survival and mobility skills program; Let's Talk: A conversation skills program; Being a Purchaser: A money skills program; Facts About Yourself: A personal data facts program. This session is appropriate for elementary and secondary level special education personnel.

CONFERENCE REGISTRATION INFORMATION

Where-When
Monday, July 27, 8:30 am through noon Friday, July 31, 1992, at the Eugene Hilton Hotel and Conference Center, 66 East 6th Avenue in downtown Eugene, Oregon.

How to Register
Fill out the registration form on page 15. Enclose with check or institutional purchase order for the proper fee. Send completed form and fee to the Association for Direct Instruction. Registration received before July 7 guarantees space in preferred sessions. Any session with less than 20 participants may be cancelled. A confirmation receipt will be sent for all registrations received by July 7. ***THIS FORM COVERS CONFERENCE REGISTRATION ONLY. THIS DOES NOT CONSTITUTE PRE-REGISTRATION FOR COLLEGE CREDIT OR ROOM RESERVATION.***

Fees and Discounts
The conference registration fee is $195.00. Association members receive a 20% discount ($39.00 off). New members are eligible for the 20% discount when ADI membership application and appropriate fees accompany registration form. (See page 14 for ADI Membership form.) Groups of 5 to 9 participants receive a 10% discount. Groups of 10-19 receive a 20% discount. For groups of 20 or more, call Bryan Wickman at (503) 485-1293 for a quotation. The member and group discounts cannot be used together. Choose the discount that will benefit you or your group the most. The fee does not include lodging or meals with the exception of the Monday picnic, and coffee each morning. All training materials are included in the fee.

Travel
The Association for Direct Instruction has selected Red Baron Travel as the Travel Agency for the Eugene Conference. On United Airlines flights, Red Baron can offer a 5% discount on the lowest applicable fare or 40% off coach fare, whichever is lower. Call Red Baron at 1-800-289-4222. You need to tell them you are attending the ADI Conference in order to get the discounted airfares.

Lodging
The special conference rate at the Eugene Hilton is $60.00 per day for a single, $70.00 double ($35.00 per person) plus tax. The Hilton has sold out during the conference for the past 9 years, so early reservations are recommended. You may contact the Hilton at (503) 342-2000 or 1-800-937-6660. You need to tell them you are with the ADI group in order to receive the discounted room rates. There are a number of other hotels in the area. We will send a sheet of other lodging options to pre-registrants. ***DO NOT SEND ANY ROOM RESERVATION MONEY TO THE ASSOCIATION.***

College Credit
An optional 1 or 2 hours of college credit through the University of Oregon Summer Session is available at an additional cost of $40.00 per quarter unit. Grading is Pass/No Pass. The credit is listed as: Special Education 408 (or 508), Direct Instruction. Transcripts will be available in early October. Fee payment and registration will take place at the conference. ***DO NOT SEND ANY COLLEGE CREDIT MONEY TO THE ASSOCIATION.***

Refunds and Cancellations
A 100% refund will be issued if a written request is postmarked by July 21, 1992. After that an 80% refund will be given. A written request must be received in our office before any refunds will be made.

Optional Events
There will be a get-acquainted picnic at Skinners Butte Park on Monday, July 27. A meal for you and one guest is included in the registration fee.

Monday	Tuesday	Wednesday	Thursday	Friday
Keynotes *Monday–Thursday, 8:30-9:15*				**E Sessions** *Friday, 8:30-11:00*
Zig Engelmann *An Anti-Failure Perspective*	Anita Archer *Promoting School Success—Study Skills*	Randy Sprick *Myths, Misconceptions and the Thief at the Door*	Hill Walker *Promoting School Success—Social Skills*	Supplemental and Transitional Activities • Kathy Jungjohann Options for At-Risk and Special Needs Students • Jane Carter Literature in Reading Mastery • Linda Youngmayr Addressing Unique Needs • Barbara Bateman Curriculum-Based Measurement • Tracey Hall Direct Instruction and Higher-Order Thinking Skills • Doug Carnine Involving Parents as Partners • Jan Hasbrook DI for Learning and Behaviorally Disordered Students • Kathy Madigan
A Sessions *Monday–Thursday, 9:30-12:00* Connecting Math Concepts A–D • Bernie Kelly Reasoning and Writing C & D • Jerry Silbert Teaching the Corrective Reader • Gary Johnson Reading Mastery I, II & Fast-Cycle • Phyllis Haddox Solutions to Classroom Discipline Problems • Randy Sprick Adapting Content Area Curriculum for Low Performers • Marilyn Sprick Introduction to Direct Instruction Techniques • Ann Glang & Tracey Hall				
B Sessions *Monday–Thursday, 1:30-4:00* Reading Mastery III-VI • Gary Johnson Advanced & Corrective Math • Bernie Kelly Reasoning and Writing A & B• Jerry Silbert Direct Instruction Supervision & Training Strategies • Tracey Hall Managing Severe Behavior Disorders and Serious Emotional Disturbances • Geoff Colvin & Stuart Greenberg				
C Sessions *Monday–Tuesday, 1:30-4:00* Expressive Writing I & II • Kathy Madigan DISTAR Language I • Linda Youngmayr What Makes DI Tick? • Bob Dixon Advanced Teaching Techniques • Susan Wayne Skills for School Success • Anita Archer Research on Beginning Reading Instruction • Marcy Stein		**D Sessions** *Wednesday–Thursday, 1:30-4:00* Effective Spelling Instruction • Bob Dixon Overview of New Direct Instruction Basals for Arithmetic and Language • Zig Engelmann Selection of Language Arts Basals • Marcy Stein Direct Instruction and Whole Language • Linda Youngmayr		**Closing Keynote** *Friday, 11:00-11:30* Zig Engelmann *Making School Reform Happen*
Optional Evening Events *Monday, 4:00pm* Get-Acquainted Picnic		*Wednesday, 4:00 pm* Social Hour		

JOIN THE ASSOCIATION FOR DIRECT INSTRUCTION BEFORE THE CONFERENCE AND SAVE 20%!

Membership Options:

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- Sustaining Membership – $40.00 or more per year (includes regular membership privileges and recognition of your support in the *ADI NEWS*).
- Institutional Membership – $75.00 per year (includes 5 subscriptions to the *ADI NEWS* and membership privileges for 5 staff people).
- *ADI NEWS* subscription only – $10.00 per year (outside of North America and Hawaii, $15.00 per year).

ADI sponsored products and events include books and other materials published or marketed by the Association. The *ADI NEWS* is published 4 times a year (Fall, Winter, Spring, Summer).
To join the Association, complete the lower portion of this form and mail it, with your check in U.S. funds. Include your conference pre-registration form and save $39.00 on your registration fee.

I wish to become an Association member. Please enroll me as a:

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NAME_____
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CITY_____ ST_____ ZIP_____

ADI
Association for Direct Instruction
PO Box 10252
Eugene, Oregon 97440

CONFERENCE REGISTRATION FORM

Please fill out the registration form completely and mail to ADI.
Make checks payable (U.S. funds only) to **Association for Direct Instruction.**
Because space is limited, early registration is recommended. Use an address where you will receive your mail up until the conference date.

Name (as you would like it to appear on your name tag) _____
Home Address _____
City _____ State _____ Zip _____
Phone _____
Agency Affiliation _____ Position _____

I would like to register for the following (list one "A"and one "E". Choose one "B" or one "C" plus one "D"):

"A" _____
"B" _____ or **"C"** _____
"D" _____
"E" _____

am an Association for Direct Instruction member: Yes No
have attended a Eugene Conference previously: Yes No

lease return this form with your check or District Purchase Order to ADI

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For office use only: Fee_____ Check_____ PO#_____ By:_____ Part ____

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Overview of Lessons:

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- Presenting scripted material with enthusiasm
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- Setting clear behavioral and academic expectations
- Providing consistent feedback
- Using group management systems to increase student motivation

Lesson 3, *Corrections* (30 minutes)
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Cost: $75.00 per lesson (includes trainer guide and 1 workbook)
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ADI MATERIALS PRICE LIST

Theory of Instruction

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Membership Price $32.00 List Price $40.00

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Members of the Association for Direct Instruction may purchase copies of the materials listed above at the Membership price. Shipping charges are $1.50 per book for 1-5 books and $1.00 per book for orders of 6 or more. Orders are to be paid in U.S. Funds, in advance. Purchase orders are also accepted. Please allow 4 weeks for delivery.

ADI cannot provide copies for entire classes nor can we provide desk copies. All such requests must be made to the publisher of the specific book.

SEND YOUR CHECK OR PURCHASE ORDER TO:

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Check one:

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