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Direct Instruction NEWS

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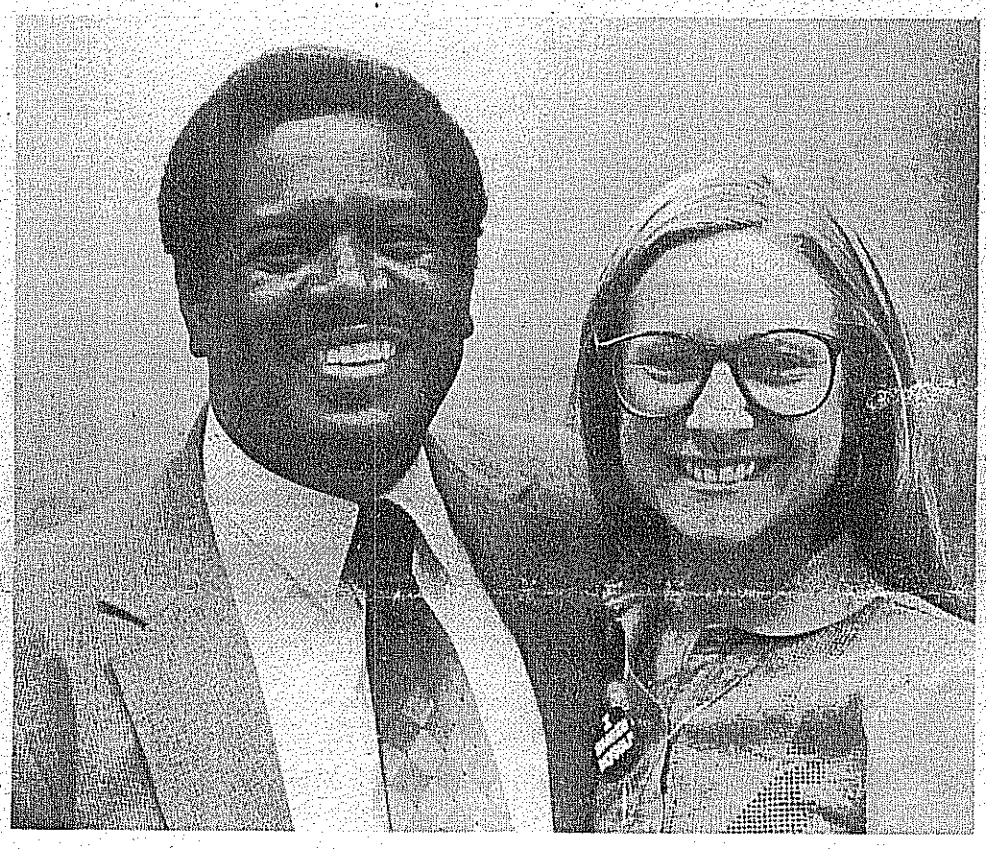
ADI Excellence Awards '82

The First Annual ADI Awards for Excellence in Education were inaugurated at the recent Direct Instruction Conference in Eugene. Recipients were named in four categories. They are: Classroom Teaching, Elementary Level — Lorraine Killion; Classroom Teaching, Secondary Level — Pepe Quintero; School Administration and Supervision — Thaddeus Lott; and Teacher Training and Research — Galen Alessi.

The purpose of the awards is to recognize individuals who have distinguished themselves by their continuing committment to excellence in education for all students and to illustrate for others what can be accomplished, given this committment, through direct instruction.

Honorees were selected this year by the Board of Directors of the Association for Direct Instruction, which acted on nominations made by board members and by DI trainers and consultants. Beginning next year, ADI members will be asked to nominate individuals in the various categories for award consideration. Selections will then be made by the Board based on the strength of nominations submitted.



THADDEUS LOTT — LORRIANE KILLIAN

Lorraine Killion is a teacher and Thaddeus Lott is the principal at Wesley Elementary School in Houston, Texas. Wesley is located in a low income section of Houston and is a school in which achievement would be predicted to be far below the national average. But it is not. Mr. Lott has exerted the leadership and Ms. Killion has exemplified the teaching which has brought Wesley national attention for educational excellence. The work that Killion and Lott have done at Wesley has received extensive media coverage and is described in Robert Benjamin's book, *Making Schools Work*. It is not often enough that dynamic administrators are able to team up with outstanding teachers, as Lott and Killion have done at Wesley. But when they do, the results are nothing short of inspirational, as Lott and Killion have shown. Their work stands as a challenge to all educators, and these honorees would like nothing better than to see other educators meet this challenge.

PEPE QUINTERO

There is some inspirational teaching going on in Utah, too. Pepe Quintero is a secondary special education teacher in the Jordan School District just outside of Salt Lake City. He teaches some of the hardest-to-teach students anywhere — and he makes them look like scholars. He has students who refuse to come to school for any class, except his. He has students who come to his house early in the morning — long before school starts — to receive tutoring. He has students who come to his house in the summer so that they won't lose the skills they have acquired during the school year. He does research in his classroom to refine his skills and to ensure that his students are getting the best education that he can provide. His committment to his students is awe-inspiring. He makes teaching the most noble of all professions.

There is a strong and productive direct instruction following at Western Michigan University. Galen Alessi is its leader. Galen is involved in all aspects of direct instruction: service, training, and research. He has established a remedial education center in Kalamazoo, and he is actively involved in preschool and public school settings, as well. He teaches courses about DI, trains his students to use the technology effectively, and helps them learn how to consult with teachers about its use. His students conduct important new research in direct instruction; his graduates hold key positions in schools and other service settings across Michigan and throughout the country. Galen played a major role in editing and helping to revise Engelmann and Carnine's new *Theory of Instruction*. He was responsible for re-writing Michigan State Law to ensure that school psychologists in that

Continued on Page 3

GALEN ALESSI

Piaget and Instruction

By Siegfried Engelmann

We can look at human development in a number of ways. We can view it from the standpoint of a naturalist and describe human development as we would describe the typical development of an eagle or a chimpanzee. If this description of development is accurate, it is very useful as a yardstick for comparing a particular individual with others who are the same age. For example, if we discover an infant who talks fluently at eight months, we know that this individual is unusual, when compared with other eight-year-old infants. The typical eight-month-older does not talk and does not give a very clear indication that it understands how language works. So the individual that we discovered is indeed far above the norm.

Although this view of human development is useful for some purposes, it is not useful for someone who is interested in changing the behavior of an individual. The reason is that the description of how children develop merely tells what children do at different ages, not how to *cause* an individual to develop more rapidly. The person who changes behavior through instruction must operate within a very limited set of rules. The person cannot use drugs, can-

Continued on Page 6

To the Editor:

While we are pleased to have had the opportunity to communicate with *DI News* readers about Direct Instruction applications with severely handicapped students, we are distressed with the editorial changes in the title of our article.

When we submitted the article it was titled "Direct Instruction with Severely Handicapped Students: Taking Direct Instruction to the Community". The title that appeared in the summer issue, however, read "Taking DI to the Community with 'TMR's". We strongly object to the prominent use of the label "TMR". Special educators, citizen advocates, and handicapped people themselves are working very hard to alter language usage that addresses handicapped individuals as "the retarded", "EMR's", "TMR's". The designation trainable mentally retarded is a phrase that supposedly describes some characteristics of an individual; using the word as a noun to identify a very diverse group of students who are "people first" is indeed stigmatizing.

A publication designed to assist its readers to improve the lives of handicapped individuals should serve as a model in advocacy. While we realize that it is difficult to change language use that until recently was conventional, we hope that our letter is a functional correction procedure and that future description of individuals with handicaps include the word person, students, individual, people, adolescents, children, etc. We also request that your next edition of the *DI News* include a clarification of the title appearing in the last issue.

Sincerely,
Heidi Rose
Robert H. Horner

Dear Ms. Rose and Dr. Horner:

As usual, the headline writer is the culprit. I (Wes Becker) faced the task of getting your long title into a single full-page line using large type. I found in your second paragraph the "TMR" usage in quotes. As the last one who would believe in labels, I kept the quotes on the headline to imply it was not to be taken seriously.

As we have indicated in early calls for articles, we have reserved the right to make editorial changes in story length and word usage, with the goal being one of easy communication in non-technical language.

We at ADI fully agree with your goals and concerns and will keep them more fully in mind in the future.

Thank you for telling us.

Wesley C. Becker
Stan Paine
Editors

(Editors Note: Volume 1, issue number 4 (Spring, 1982) of the *Direct Instruction News* contained several letters we received in response to our request for statements from readers regarding why they use and/or support direct instruction. It was hoped that readers would be able to use the rationales expressed in these letters in their conversations with supervisors or colleagues who were not yet active supporters or users of direct instruction. One of the letters we received was inadvertently omitted when the collection was published last spring. It is printed here with our apologies to the author and with the renewed hope that the reasons which people have for supporting direct instruction might provide material which others could use to "promote and defend" its use in their schools.)

Dear Editors:

I use direct instruction for the following reasons:

1) DI builds successful work habits in students. During DI lessons, students *must* visually and orally attend at all times and overtly respond correctly on cue. Hyperactivity, distractability, and apathy are reduced while active participation and attention span are increased. When students succeed (an inevitable outcome of DI) the correlation between sitting tall, talking big, looking at the book (i.e., good work habits) and academic success becomes a rule: when I work right I learn.
2) DI molds to criterion students whose primary goal is task completion. With large group instruction in a basal program, the goal of some students is often simply to be called on to give one right answer during a 30 minute lesson. DI students, on the other hand, correctly respond to every stimulus item. Distinguishing themselves as top students is not an option: every student learns with DI. Their focus is on completing the tasks to criterion rather than competing with their peers for teacher attention and opportunities to respond.
3) DI follows cohesive, carefully designed task analyses. Sufficient repetition of skills, gradual introduction of new skills, precise, practical rules *which have no exceptions*, and abundant opportunities for application are all combined in every DI program. The result is a program that can't be beat. I don't have time to re-invent the wheel every time I think of meeting my student's needs.
4) DI greatly reduces "teacher burnout." When using DI, I am not nagged with feelings like "I'm not reaching them," "I wish I knew a better way to teach this," or "I don't like this workbook, but we have to finish it." The procedures work; there is no trial and error; the workbooks make sense; I need only study and implement the program. Also, I am not expending destructive energy blaming my students. Rather than negatively reacting to noncompliance or the wrong response, I just follow the correction procedure and continue the lesson.

Lawrence Logan
Washougal, WA

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

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Distar Arithmetic Find a Problem WIN A PRIZE

In most contests you have to solve a problem to win a prize. In this contest you need only pose a problem to win a prize.

What problems have you had in teaching DISTAR Arithmetic I or II? What problems have your students had as you taught the programs to them?

We are planning to revise DISTAR Arithmetic, Levels I and II, and want to know what specific difficulties your students have had with the programs. The revision will try to smooth out rough spots in the programs, but we need you help in identifying those rough spots.

The best problem description submitted will be awarded a $25 prize. Second prize is $15; third prize is $10. Help make DISTAR Arithmetic a stronger series. Tell us how we can improve it. Send 1-2 page descriptions of problems you have discovered and/or suggestions you want to make to:

Doug Carnine
Follow Through/Education
University of Oregon
Eugene, OR 97403

DISSENT

We are interested in publishing dissenting opinions about direct instruction as a regular feature of the *News*. Dissents are important to communicate alternative points of view about direct instruction, to encourage readers to think issues through for themselves, and to maintain a sense of openness and fairness within the *News*.

If you have a point of contention with DI philosophy, theory, or practice which you would like to express, we would like to hear from you. Or if you have colleagues with alternative points of view about some aspect of DI, please mention this forum to them.

Dissenting opinions should be submitted as 2-4 page typewritten, double-spaced articles. Brief dissents of 1-2 pages may also be submitted as letters-to-the-editors. Dissents should be signed and should be polite, but beyond this, they will be edited only for style and length — not for content. We welcome your contributions to this important feature of the *News*.

TELL US

What are you looking for in the *Direct Instruction News*? What kinds of topics would you like to read about? What are *your* special interests and needs pertaining to direct instruction? We are always looking for content for future issues. Please send us your ideas — or, if you wish, send us your manuscripts — for articles or features you would like to see appear in these pages. Chances are, there are hundreds of other people who share your interests. Help make this publication all that you want it to be. Address your ideas or articles to:

Editors
DI News
Box 10252
Eugene, OR 97440

BIBLIOGRAPHY

An annotated bibliography addressing the application of Direct Instruction in Special Education is available upon request for the cost of copying and mailing. For further information contact:

Ted Fabre
Follow Through/Education
University of Oregon
Eugene, Oregon 97403

EMPLOYMENT EXCHANGE

POSITION WANTED: (Grade levels K-9), 8 yrs. teaching experience and Ed. background: Master Teacher/team-teaching situation, (K-3), self-contained and departmentalized situations, direct instruction, learning styles-right/left mode, computer programming (2-9). Valid State Teaching Credentials: Oregon, California, Hawaii. Multi-endorsements.

Contact: Dawn Al-Khalisi, 5741 S.E. McNary Rd., Milwaukie, OR. 97222 (tel. 1-503-659-7358) Permanent address: 10023 S.E. Pardee St., Portland, OR. 97266 (tel. 1-503-760-2184 can leave message)

Logo Contest

Ten entries were received from creative contestants in the "Design a DI Logo Contest". Balloting on logo selection began at the recent Direct Instruction Conference in Eugene and continues in this issue of the *News*. Ten designs were voted on at the conference. We have eliminated four which received no votes. The remaining six designs are presented on different pages of this issue in prominent positions (see pages 3, 4, 5, 13, 14, 15). If you voted at the Conference, please do not vote again. But if you were not at the Conference, or if you did not have the opportunity to vote while you were there, please mark your choice *by number* on a post card or in a letter, sign your name (for verification purposes only), and send it to:

ADI/Logo Designs
P.O. Box 10252
Eugene, OR 97440

(Voting restricted to ADI members only, please.) Please have your ballot postmarked by October 30 for your vote to be counted. All ballots — those collected at the Conference and those received by mail — will be counted in early November, and the winning design will be published in the Winter issue of the *News*.

The logo chosen will represent ADI on our letterhead, on a convention banner, and in various other ways. The designer of the winning entry will receive a one year membership in ADI or a one year extension of a present membership.

Thank you for helping to make ADI a participant organization, and a special thanks to the designers of these entries for their time and talent.

LOGO CONTEST ENTRY NO. 1

ADI ASSOCIATION FOR DIRECT INSTRUCTION

High School Follow-up of DI Follow Through

By Russell Gersten

The results are just beginning to come in from a long-term follow-up study of the impact of the Direct Instruction Follow Through Model on the high school careers of its graduates. The study is being conducted by Russell Gersten of the DI Follow Through staff at the University of Oregon[1].

High school performance measures are being collected on students who completed three years of DI Follow Through experience in one of seven original Follow Through sites: New York, NY; Flint, MI; East St. Louis, IL; East Las Vegas, NM; Uvalde, TX; Cherokee, NC; and Williamsburg County, SC.

Preliminary results, thus far available only from New York, show significant positive effects favoring Follow Through students over the control group on several important measures: 1) a larger proportion of DI Follow Through students graduated from high school; 2) fewer FT students dropped out of school before graduating; 3) FT students had higher 9th grade achievement scores; and 4) the FT group had a higher percentage of students applying to college. Some of the early results are summarized in Figure 1[1]. More detailed results of the study, including findings from the other six sites, will be provided in a future issue of the *News*.

[1]Working with Gersten on the New York follow-up data were Linda Meyer, Coordinator, and Joan Gutkin, Carol Walter, and Mrs. Terry, on-site researchers.

Figure 1

	N	% Graduated	% Dropped Out	% Applied to College	(Median Grade Equivalents) 9th Grade Reading	9th Grade Math
Control 1	29	34.5	58.6	10.3	6.9	7.1
Ft 1	23	56.5	39.1	39.1	9.5	8.0
Control 2	33	33.3	48.5	21.2	7.7	7.8
Ft 2	13	53.8	7.7	23.1	8.4	8.4

Excellence Awards

(Continued From Page 1)

state have training in direct instruction before they can be licensed. He is at the forefront of virtually every aspect of direct instruction. Even without his involvment in DI, his work would stand out as a prime example of excellence in higher education. We are honored that he has chosen direct instruction as a focal point for his career.

The four people chosen as recipients of Excellence in Education Awards this year comprise a group which is awesome in its talent and its committment. But they only *represent* the cream of the crop. We know there are others who are of the same calibre. We ask that you begin thinking about educators you know in the categories identified above who are equally deserving of recognition for the competence and the committment they have shown to excellence in education for all students. Next spring, when we issue the call for nominees for these awards, we urge you to write us and nominate the person(s) who are setting the pace for educational excellence in your world. We will all be richer for learning of their committment and their success, just as we are in knowing the dedication of this year's recipients.

Mainstreaming Down's Syndrome Kids

Reported by Wes Becker

Graham Clunies-Ross, Rosemary Clunies-Ross, and Alan Hudson of Melbourne, Australia, have been working to accelerate the development of Down's Syndrome children using Direct Instruction strategies and programs. Their evidence shows not only remarkable learning accomplishments by these children, but also demonstrates that the earlier you start, the more the children progress.

Recently, Hudson and Clunies-Ross examined the capabilities of schools to deal with the integration ("mainstreaming") of 15 children with intellectual handicaps. They found that most schools were not prepared to deal with the children's academic problems and that "satisfactory academic progress occurred only when the children were in highly structured learning situations." Three of the schools having problems agreed to introduce more structured programs. Each school also had one child from Clunies-Ross' early education project with Down's Syndrome children.

In each of three schools, the teacher in the class with the Down's Syndrome child was asked to identify (by rating all) other children functioning at a similar level as the Down's Syndrome child in reading and/or math achievement. In class A (5-year-olds), 24 children were identified; in class B (5-year-olds), 10 children were identified; in class C (first graders), 8 children were identified. DISTAR Fast Cycle Reading was used as the sole method of reading for the third school term (12 weeks) in all three classes. The children had previously been in a language experience reading program. DISTAR Arithmetic I was used in classes A and B as the sole method for math instruction.

Pretests and posttests were made using the ACER Primary Reading Survey Test, Level AA, and the Keymath Diagnostic Arithmetic Test for classes A and B. The results were as follows:

RESULTS FOR PRIMARY READING SURVEY

Class		Pretest (percentiles)	Posttest
A & B (5-year-olds)	(N = 31)	23rd	50th
C (Grade 1)	(N = 8)	50th	77th

RESULTS ON KEYMATH

		(Grade Equiv.)	
A & B (5-year-olds)	(N = 31)	1.15	1.65

These are obviously substantial gains for the 12-week period. But what about the Down's Syndrome children?

"Although the children's achievement in each instance fell below their respective group means, the children made good progress. In reading, their average normative performance rose from below the 11th percentile to the 40th percentile. In arithmetic two of the children gained, respectively, the equivalent of .3 and .5 grades during 12 weeks of direct teaching. The teachers reported that they were able to work effectively with Down's Syndrome children in the DI groups."

Clunies-Ross notes that the children, selected because of their slower progress, were progressing at a rate comparable to average achievers. "The DISTAR programs seem to produce remarkably predictable outcomes across a diversity of student groups. They appear to have impressive potential as a basis for attaining the goals of instructional integration (mainstreaming)."

Is This Your Last Issue?

Are you alone in speaking out for educational excellence in your district? Would you like to increase your professional support group? Do you need a friend? If so, consider building your support group at school by inviting a colleague — a teacher, principal, or district administrator — to join you as a fellow member of ADI.

If you renew your membership for the 1982-83 school year by November 1 and enclose an application and $15 membership fee for a new member in the same envelope, you will receive your membership for $10. If you have already renewed, send us a note with your colleague's fee, and we will give you a $5 credit on your 1983-84 membership. Sign up a colleague today... and keep the *News* coming.

Avoiding Response Distortion With Severely Handicapped Students

By Heidi Rose and Robert H. Horner, University of Oregon

Good teaching involves instructing a student both *how* to respond and *when* to respond. Response distortion is a problem associated with the "how" part of this process. Direct Instruction can help us understand the problem of response distortion and it can help us structure an instructional solution to it. This article describes response distortion, how it develops and how good teaching can avoid it.

One hallmark of Direct Instruction is the attention given to the details of teaching. The principles of Direct Instruction have been constructed by observing and predicting student errors and by changing specific instructional variables which contribute to these errors. The majority of these changes have occurred in the areas of math, reading and language skills which involve difficult concepts but reasonably simple responses. For example, it is easy to say /b/. The trick is learning that /b/ is associated with "b" and not with "d" or "a" or "t". As Direct Instruction has been applied with more severely handicapped students in different curriculum areas, additional attention has been given to the way instructional details affect the physical "topography" of a response. The topography of a response refers to the muscle movements that occur as the response is performed. With severely handicapped students, learning the topography of a complex response may be as important and as difficult as learning when to perform the response. Undisciplined teaching can lead to a student learning an inappropriate or restricted topography. Attention to the details of good teaching is one way of avoiding this error. Examine the example below.

The setting is an elementary school classroom for severely handicapped students. A teacher stands ready to deliver praise for correct performance as one of his students puts on a new shirt and begins the "targeted" skill of buttoning. The student has been receiving training in a clothes buttoning program for three weeks. She has met the training criterion and is now presented with a generalization test to see if she can button new pieces of clothing not used during training. The student is very attentive and deliberate in her movements, but her attempts are fruitless. Though skilled at buttoning the specially constructed training clothes with big buttons, she is not able to button this new shirt. The problem, however, is not that she is misapplying what she had been taught during instruction, but that what she has learned is dysfunctional. She has learned a way of buttoning that is effective with big buttons but not sufficiently precise to work with small buttons. The way she holds and twists the buttons prevents her from being successful. She has learned a "distorted" response.

Response Distortion

Response distortion can occur when the particular topography used successfully with one example of a task is not effective with other examples of the same task (Engelmann & Carnine, 1982). Most tasks that are useful in society occur in a variety of slightly different forms as they are performed from day to day. Riding a bicycle without falling off requires certain muscle movements. Each time a corner is turned, however, a slightly different variation of the basic skill (or task) of staying balanced on the bicycle is required. A skilled bicyclist can perform many variations of the "balancing" response and can use the proper variation required at any moment. Response distortion occurs when the student only learns one way (or a small number of ways) of performing a response. As a new variation of the task is presented, the student preforms the "old" response topography which worked with the "old" variation of the task but which is a distorted and dysfunctional response with this new variation.

Buttoning buttons, for example, can be done with many variations in topography while still arriving at the desired effect. The button may be held on the pads of one's index finger and thumb as it is inserted. The buttoning may occur with only one hand. If two hands are used, the receiving hand can be positioned with either the thumb or the index finger receiving the button. The point is that many topographies of the response are functional. It is possible, however, that if you teach "buttoning" with only big buttons, a severely handicapped person may learn to grasp the button with his/her thumb and knuckle, or learn that with big buttonholes the button does not need to be received and seated. Development of one of these topographies is not a certainty; they are simply variations which "work" with the big button examples. As such, they are more likely to be acquired by a learner who has difficulty with motor responses. The danger in this situation lies in the pattern of success achieved during training followed by failure in the "real world". The student will perform successfully with some examples, but when presented with other examples of the task (i.e. small buttons) the distorted topography will result in failure.

Development of Response Distortion

Direct Instruction has long advocated teaching "general case" skills (Becker, Engelmann & Thomas, 1975). Response distortion is an error that occurs when the teacher does not attend to the rules of general case instruction. It is a serious error, in part, because it is very likely to occur if teachers use either of two common teaching strategies: (a) Single Instance Instruction, or (b) Easy-to-Hard Instruction. If only one example of a task is presented during training, and that one example can be performed correctly with several response topographies (some of which are dysfunctional with other instances of the task), some students will learn a distorted topography. The teacher has not presented enough information to guide the student to the most functional response. When advocates of Direct Instruction teach math and reading concepts, they select examples that allow only one interpretation on the part of the student (Engelmann & Carnine, 1982). A similar attention to detail is needed when teaching complex motor skills. The selection of examples should guide the learner to a limited number of response topographies that will work with all variations of the task.

The development of response distortion as a result of task selection is depicted in Figure 1. Topographical variations of the response (R) are noted across the top of the diagram. Variations of the task (T) are indexed along the side. Task variations are sequenced with the "easiest" variation of a task being T_1 and the most difficult being T_6. The response topography indexed as R_1 is functional across all examples (instances) of the task. Response topography R_5, however, is functional with only the first two examples of the task. R_5 will not produce the desired effect if it is used with task T_3, T_4, T_5 or T_6. Response distortion occurs when, as a function of receiving training only with task variations T_1 and T_2 the learner acquires the ability to perform successfully by using R_5. Following training, the learner is presented with novel variations of the task which range in difficulty from T_1 to T_6. With task variations T_3, T_4, T_5 and T_6 the newly acquired skill is dysfunctional. The learner has acquired a distorted response. This results both in errors during the more difficult (and usually more applied) instances of a task and increases the number of trials that eventually will be needed for the learner to acquire response topography R_1.

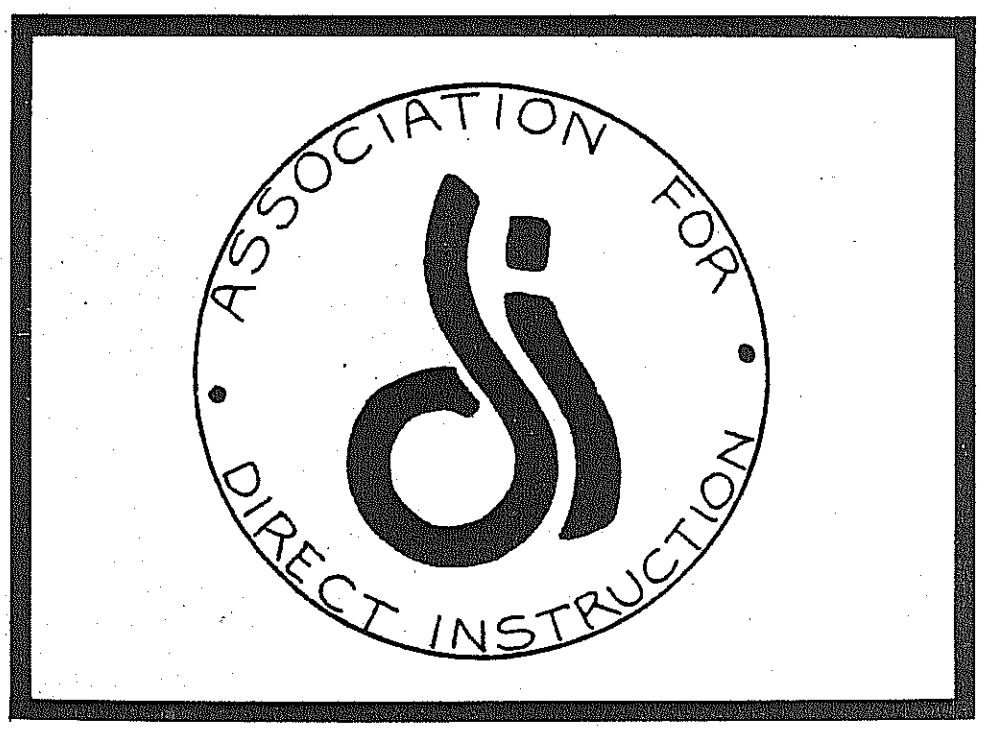
		Variations of Response (R)					
		R_1	R_2	R_3	R_4	R_5	R_6
Easy	T_1	x	x	x	x	x	x
	T_2	x	x	x	x	x	
	T_3	x	x	x	x		
	T_4	x	x	x			
	T_5	x	x				
Hard	T_6	x					

Figure 1: The relationship between topographical variations of a response (R) and their utility with stimulus variations of a task (T). x's denote situations where the particular topography would produce the effect needed for the task (T). Open boxes denote situations in which a particular topography would not be effective.

It is evident that the examples selected for instruction affect the likelihood that response distortion will be learned. Selecting appropriate examples, however, may not be enough. Many curricula emphasize the teaching of complex motor skills in an easy-to-hard sequence (Mercer & Snell, 1977). While this approach has been very successful, it may lead to response distortion with severely handicapped students. Engelmann and Carnine (1982) suggest that in teaching complex motor skills, an easy-to-hard sequence is more time consuming and more likely to induce response distortions than other formats because the learner may acquire response topographies early in the training sequence that are distorted and must be extinguished (i.e. unlearned) in later training phases.

Continued on Page 14

LOGO CONTEST ENTRY NO. 2



Teacher to Teacher

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

The Playground is a Classroom, Too

Now that the school year is underway and your classroom is operating smoothly, you might want to take the time to observe the students on the playground. Do you see any students acting aggressively? Is anyone standing alone, not joining in play? If you see students exhibiting either of these behaviors, you should consider setting up a playground management system. In this column, I will describe a process for developing one version of such a system. It is a version which the other teachers and I have found useful with the students at our school, but you should feel free to make whatever modifications in it you feel are necessary to fit your students. Before I do that, though, I want to issue some words of caution.

First, all staff involved in playground duty must agree to use the system. Otherwise, there will not be the consistency needed to change student behavior. Therefore, all teaching personnel, including the principal, should participate in the planning stages. If people feel involved from the start and are given a chance to help organize the system, it will be more consistent. As a result, the playground, will be a fun and safe place for all students. (And, perhaps, recess duty will be more pleasant for the staff!) Even if teachers do not have recess duty at your school, they should take part in the planning process, for they would be implementing the system in their classrooms.

Here is another caution: Setting up a recess plan requires a great deal of planning. This is sometimes enough to prevent a school from undertaking such a process. However, once the plan is set in motion, it requires little to keep it going. The benefit is a safer and happier environment for all.

During the first planning session, allow time for people to state the problems they see on the playground. Then, use these problems to help set up some rules for the playground. These rules should be few in number, short and specific so that they can be easily taught to students of all ages. Try to state these rules positively. Here are some rules which were developed for a playground where some students were running in a crowded area, teasing, and fighting: 1) Walk on the playground; 2) Run only in the field (grassy area); 3) Play in a friendly way: no teasing, no fighting, join in the fun. Be sure that the rules you come up with fit the behaviors your group wishes to change.

In the second planning session, develop a workable reinforcement system to reward students who follow the playground rules. Here is a system which can be used "as is" or adapted to your school's needs.

During each playground period, the recess supervisor walks around, praising students who are following the rules. Near the end of the playground period, the supervisor hands out three to five "Super Playground Player" tickets. The Supervisor writes each recipient's name and room number on the ticket *and* on a daily master list of ticket holders. The master list helps insure that different students receive the awards each recess. The student then returns to the classroom where the classroom teacher praises him/her and has the student put the ticket into a box. This system is carried out throughout the day at each recess period. At the end of the day, a school-wide announcement is made over the intercom praising the Super Players for that day. At the end of the *week*, all tickets are collected from the classrooms and are placed in a larger box. Names of three to five weekly winners are drawn from the box. These students' names are announced and they receive a prize. At the end of each *month*, one or two tickets are drawn and these students receive a grand prize. At the end of the *year*, the classroom with the most Super Player tickets is awarded a super Grand Prize. Ideas for weekly, monthly, and end-of-the-year prizes are offered below.

Here is a list of things that must be done before starting the playground program described above:

1. The rules are formulated and taught to the students. Parents are informed of the new playground system and asked to help by reminding their children of the rules and by praising them if they receive a "Super Playground Player" ticket.

2. The "Super Playground Player" tickets are made. You can use colored paper with a simple picture on it.

3. A clipboard is set up in a central location of the school so that it can be picked up easily by the person on recess duty. The clipboard should have a copy of the day's master list, a copy of the recess rules, and a pencil.

4. A ticket box is prepared for each classroom so that ticket recipients have a place to store tickets until the end of the week.

5. A person is selected to read the daily Super Playground Players' names from the master list. This can be the principal or any other staff member. No prizes are handed out to daily ticket holders, so each teacher should be sure to praise any daily winners in his/her room.

6. A person is selected to gather all the daily tickets from each classroom at the end of the week. These tickets are placed in a larger box, from which three to five weekly winners are drawn. Winners' names are announced, and they receive a prize.

7. A menu of weekly prizes is made up, and a person is selected to secure everything needed for each week's prizes. Some ideas for weekly prizes are: school supplies, a special badge to wear, or having their picture taken with the principal and displayed in the office.

8. A menu of monthly Grand Prizes is made up, and a person is selected to secure everything needed for the Grand Prizes. Weekly tickets can be accumulated in a large box until the monthly drawing. The tickets can be discarded at the end of each month. Students should be reminded that the more tickets they earn in a month, the higher their chances are of winning the Grand Prize. Perhaps the Grand Prize winners could be drawn at an all-school assembly where the principal praises all Super Playground Players and awards the Grand Prizes to the one or two students. Grand Prizes shold be a little bit more special than weekly prizes. They might include: having lunch at school with a teacher of the winner's choice, having a private tour of the kitchen, helping the cooks serve lunch, or having an extra recess or physical education period.

9. Charts are made up to record the number of Super Playground Players from each classroom. These charts should be quite large, because they will be used throughout the school year. Each classroom teacher takes the responsibility of updating the chart frequently. Weekly updating is probably best for maintaining student interest in the chart. The charts should be displayed where all students can see the progress of each class. The lunch room works well for this. These charts are used to determine which classroom receives the Super Grand Prize at the end of the year. Again, a menu should be preplanned. Examples of Super Grand Prizes are: a pizza party, a skating party, or a class picnic.

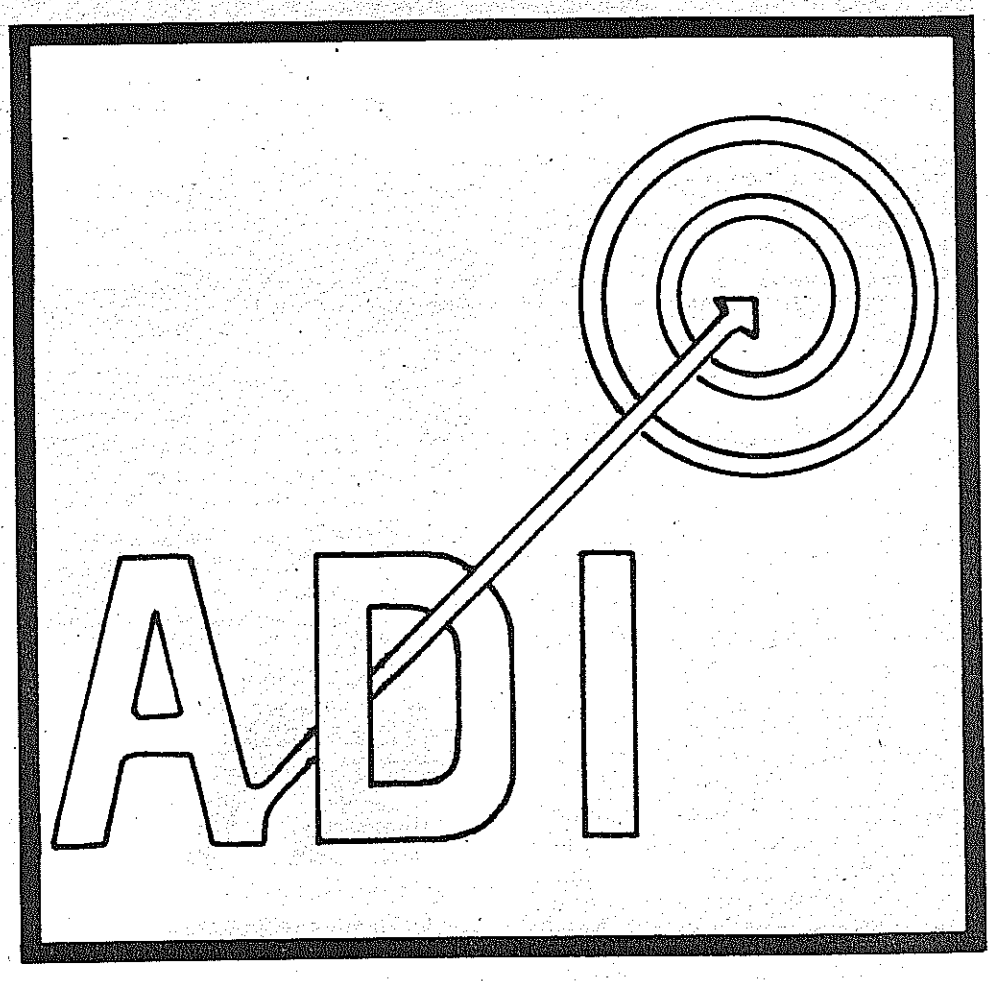
10. A reporting system to parents is initiated to help build parental support. A monthly note home telling weekly winners and monthly Grand Prize winners is a good idea. Parents should hear when things are working well, too!

11. A contingency plan for dealing with playground misbehavior is agreed upon and explained to both students and parents. One plan is to give only one warning for a rule infraction. If the student continues to break the rule, the student is sent from the playground to a room where work at the student's ability level is assigned. This room should be staffed by one of the teachers and supplied with work appropriate to the various grade levels. A set number of these removals would result in that student losing recess privileges for a certain length of time. A parent conference would also be held to discuss this problem. Hopefully, this contingency plan would not need to be used frequently. If the rewards are valuable enough to the students, they will want to follow the rules. Another option for handling misbehavior is to have the student sit against a wall. Other students should be told the rules of not talking to a student in that area. This option can be used in lieu of the separate room if there are problems in using the "room" plan.

12. A review date is set up following one month's operation of the

Continued on Page 15

LOGO CONTEST ENTRY NO. 3



Piaget and Instruction

By Siegfried Engelmann

(Continued From Page 1)

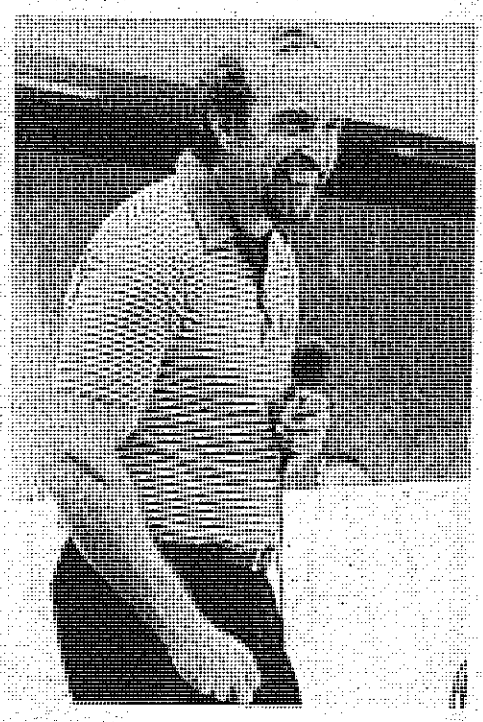
not engage in neural surgery, cannot manipulate the past history of the child, and cannot directly change the operations of the learner's brain.

The teacher can change the child only by manipulating environmental events. In other words, the teacher works strictly on the outside. The teacher can structure the environment so that the child receives rewards for certain behaviors; the teacher can show things to the learner and say things; the teacher can direct the learner to perform different kinds of behavior. But the teacher's only access to the learner's mind and development is through the manipulation of environmental events.

If a description of the learner is to be relevant to the teacher, it must *imply* something that the teacher *can do*. Specifically, the description must imply how the environmental variables should be manipulated. This point is extremely important. Unless the description of the learner suggests what the teacher should do and should not do, the description is either pointless or serves as nothing more than rhetoric.

What kind of description of the learner implies what the teacher should do? A description that tells the teacher precisely what the learner does not know or does not do. That's all. At first blush, this kind of description may seem less than dramatic or revealing. But, when we consider what the teacher must do when working with the learner, this description is the only one that provides the teacher with any direct information about what should be done. If the teacher knows that the child does not attend when somebody is trying to show something to the child, the teacher is provided with direct information about a behavior that must be changed. To remedy this deficiency, the teacher would set up reinforcing consequences for improved attention. If the teacher knows that the child cannot answer questions like, "What does 7 - 5 equal?" the teacher is provided with direct information about how to manipulate environmental events. The teacher would present the learner with practice in answering questions of that type. If the teacher knows that the child has trouble identifying the main-idea of passages that do not contain a topic sentence, the implied remedy is to present examples of this skill and to work on it until the learner is proficient. In theory, the practice is very simple and very direct.

When we make the formula less direct, we encounter various shades of middled reasoning. Even if we look at something as apparently relevant as the home situation, we're actually dealing with circumstances that are not directly relevant to the problem. Certainly, we have humanitarian concerns for the child who is mistreated at home. But unless we expect the home to do the teaching, we should not use the home situation as a reason for the child's lack of knowledge. It really doesn't matter why knowledge is lacking. The only information that is relevant to us as teachers is that the child does have the lack and that we know precisely what the lack is. With that information, we can proceed to change the child by manipulating environmental variables.



ZIGGY ENGELMANN
Closing the Eighth Annual
DI Conference

When we return to the kind of description provided by Piaget, we see that it has nothing to offer the teacher. Let's say that the observations and assessment of a child disclose that the child is 1.3 years below age norm. Exactly what does that tell a teacher to do — change the age of the child so that he is normal? Or perhaps the teacher should refer him to somebody who dispenses wonder drugs that accelerate mental growth. For the description of the child's deficiency to have any direct meaning to the teacher, it must specify what the child does not know. After all, the judgment that the child is below age norm is an inference that is based on the child's performance, and on what the child apparently does not know. But the teacher cannot translate this inference into instruction. The teacher must have facts, such as: the child doesn't understand the preposition *between;* the child is weak in *repeating statements;* etc. When the 1.3 year deficit is translated into specific skills, the emphasis shifts from a comparison of this child with other children who are the same age to a series of statements of things that we should work on.

So the major problem with Piaget's theory is that it is basically irrelevant to instruction. By stretching it somewhat, we could draw conclusions like this: "Well, if the child is 1.3 years below age norm, the child is not ready for reading instruction." Possibly, this conclusion is valid. But the next question that it prompts is possibly embarrassing to the theory: "Precisely what should we do to make the child ready for reading?" Should we wait 1.3 years? Or should we identify the specific skills the child does not have and teach these skills? If we adopt the teaching strategy, we're right back to frame one. We must have a good idea of precisely what the child doesn't know.

But the major problem with Piaget's theory is that it is not a theory. It is a "normative model" that is possible, but not one that has been demonstrated to be consistent with the observed behavior of all children. For instance, Piaget suggests that children do not develop the concept of "class exclusion" until they are over six years old. This conclusion is based on specific items that are used in the Piagetian test battery to assess development. But it's very easy to show that children at a much younger age have the concept of class exclusion. There are a number of simple tests that you can use. For instance, point to a table and ask a three-year-old, "Is there a butterfly on the table?" The child will probably respond, "No." How could the child produce this response without knowing that the class of things called butterflies in excluded from the table? If this demonstration seems too simple, try a different one that we used with four-year-old disadvantaged children in Illinois. We told them this story: There was a place that had lots of white dogs and lots of brown dogs. Then all the white dogs got sick and died. What kind of dogs were still in this place? Virtually all the kids in the preschool could answer the question correctly, demonstrating that class exclusion is learned, in some forms, much earlier than Piaget suggests. A theory is supposed to describe what is true in every case; Piaget's normative model does not do this.

We can pursue this problem further by considering the renowned Piagetian test of "conservation of substance." For part of the test, the child is presented with two water glasses, a narrow one and a wide one. The water is transferred from the narrow glass to the wider one, and the child is asked whether there is more water, less water, or the same water in the wider glass. Typically, younger children say that there is less in the wider glass (because the level of water is lower than it had been in the narrow glass). What does this prove? According to Piaget, it indicates that the child is incapable of performing a mental operation that permits the child to see that although the level of water was lower in the wider glass, the water in the wider glass is also wider. These compensating changes cancel each other out, so the amount must be the same. This operation applies not only to water that is transferred from one vessel to another, but to anything that has a fixed number of parts and is "deformed" in some way. For instance, a clay ball can be made flatter, and this change is accompanied by a change in the "length" of the object, so again, the changes cancel each other out.

Piaget's explanation of the operation is "plausible," but is it universal? If it is, we would expect children to develop the mental operation and perform on all examples of the operation at the same time. Suddenly, the learner would perform on the water-transfer problem, the clay ball problem, and all similar problems. It doesn't happen that way. There are often months and months separating the time between the child's mastery of the water transfer and the child's mastery of the clay ball problem. This time interval suggests that the learning is far more specific than Piaget suggests. It also casts serious doubt on the existence of a single "concrete operation."

Furthermore, Piaget's argument is not logical. For a child to know when to consider the compensating changes of an object that changes shape, the child must know whether the parts that make up the object are fixed parts that cannot expand or contract. We can take a balloon and move it under water. The balloon becomes smaller in width, but it also becomes smaller in height. Why? Because the air inside the balloon is compressible, unlike water and clay balls. So the child cannot apply the compensation formula to air. But how does the child know this fact unless the child knows that air is compressible? If we go a step further, we see Piaget's basic logical problem. How does the child know that the compensation formula applies to water unless the child knows that the parts of water do not compress and expand capriciously? But if the child must know about the properties of the object that is being deformed in shape, exactly where does the compensation formula fit in?

To answer this question, we tested a group of newly-emerged conservers (Engelmann, 1967). These children had recently passed all the traditional Piagetian tests of conservation of substance. We presented them with a new test. We had a model of two glasses, side by side. One was narrow and one was wide. A handle at the bottom of the model permitted one to move a yellow strip up and down, so that it looked like a glass being filled with juice or being emptied. We set the "liquid level" of the narrow glass at a specified point and told the subjects to show how high the juice would be in the wide glass if we poured it all into glass. The subjects manipulated the handle for the wide glass to show the level that they wanted. Outcome: Not one subject made the level of the wide glass the same as the level of the narrow glass; however, nearly half of the children showed the level of the wide glass substantially *above* the level of the narrow glass. In other words, they apparently knew that the levels would not be the same, but they didn't have a clear "compensation formula" that indicated where the level should be. Therefore, the compensation formula is not a reasonable explanation of what these children had learned. They had obviously learned something else.

The other Piagetian tests are as problematic as the test of concrete operations. The major problem with all these tests is not so much that they show things that children typically can't do at different ages. The major problem comes from the interpretation of what the failure means. A child does not pass the test of "specific gravity." A conservative (and safe) explanation is that the child lacks information that is needed to handle specific-gravity problems. A more presumptious explanation (and one that is offered by Piaget) is that the child lacks some general mental operations that are necessary to handle the task.

I once did an experiment to help determine the extent to which performance on higher-level Piagetian tasks depends

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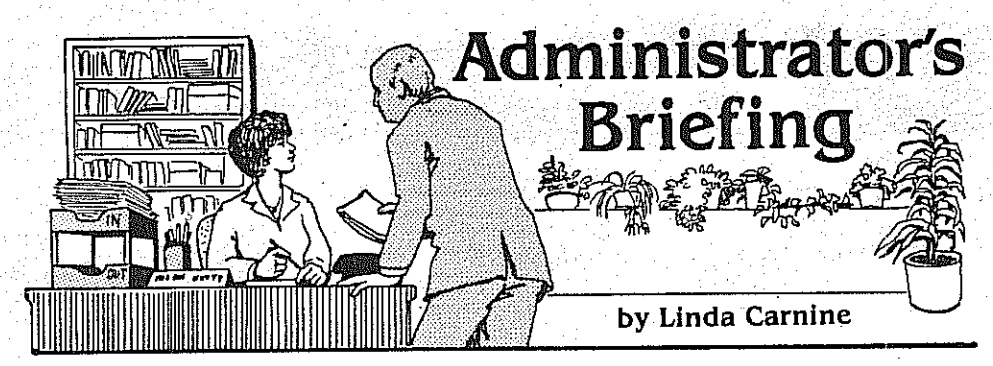

Administrator's Briefing

by Linda Carnine

Evaluating Your DI Program

By Phyllis Wilken, Principal

Garden Hills Elementary School
Champaign, Illinois

My guest columnist today is the principal of an elementary school where Direct Instruction programs were introduced and many District approved programs withdrawn. The author describes some of the steps she took to get approval for the changes in the face of real student need. More importantly she describes the components of a comprehensive program to evaluate the changes which were made. — L.C.

In 1980, the Garden Hills staff knew that an alternative instructional strategy was needed in their school. They knew this because too many students were being considered for retention or assignment at the close of each school year. The staff enlisted the help of the assistant superintendent of instruction who gave Garden Hills permission to use materials other than those prescribed by the district. As more students demonstrated a need for the direct instruction materials, permission had to be secured from K-12 curriculum committees, central administration and the board of education.

Several direct instruction programs are used at Garden Hills. The reading and math programs are used in K-3 to teach the basics. The Corrective Reading Program and the Mathematics Modules are used developmentally and remedially in fourth and fifth grades. Portions of the programs are used by Title I and Learning Disability teachers who coordinate their programs with those of the classroom teachers.

The programs are used in an ungraded fashion. Placement and progress tests are a part of the instructional process. Criterion referenced tests are given as students move through the program so that progress can be monitored. In addition, students have been given the Metropolitan Achievement Test in October and in May in Grades 2-6 in 1980-81 and 1981-82. In 1981-82, Kindergarten and Grade 1 were given the WRAT test. Results of these tests show gains in direct instruction which typically meet or exceed those produced by the standard programs. For example, 1980-81, median gains in reading for direct instruction students after eight months of instruction were 1.4 grade equivalent units. While gains in other grades were somewhat lower, they still matched the gains being made in other grades and those expected of average performing students. Similar results were found in 1981-82.

The gains made have resulted in positive student attitudes toward the school, the curriculum and the staff. The Garden Hills staff believes that the direct instruction programs have also improved the self concepts of many students, as well. To assess this, the Self Observation Scale (SOS), a nationally normed instrument that measures the way children perceive themselves and their relationships to peers, teachers and school was administered randomly to half of the students in April, 1981. The Primary level of the SOS was administered to one hundred twenty-nine children in kindergarten through grade three and the Intermediate level to sixty-five children in grades four and five. Both the Primary and Intermediate levels of the SOS provide scores on several scales. Those most directly related to direct instruction include:

Self Acceptance — Children with high scores view themselves positively and attribute to themsleves qualities of happiness, importance and general competence. They see themselves as being valued by peers, family, and teachers. Children with low scores see themselves as unhappy, lacking in general competence and of little importance to others. The mean score on this scale for the primary children was at the 62nd percentile and for the intermediate children at the 69th percentile.

School Affiliation — Children with high scores view school as a positive influence in their lives. They enjoy going to school, and they enjoy the activities associated with school. Children with low scores view school as an unhappy place to be. They do not enjoy most school-related activities and are negative about the importance of school in their lives. The mean score for the primary children on this scale was at the 51st percentile and for the intermediate children at the 73rd percentile.

Besides achievement and attitudinal measures, parallel questionnaires were administered to students, parents, teaching staff, and support staff of the school to assess the perceptions of these groups on five school success indices: 1) school climate, 2) student behavior, 3) school-administered disciplinary policies and practices, 4) student motivation, and 5) academic focus of the school. Teachers were also interviewed to obtain further detail on their opinions regarding school operations. Information gained in this manner was then used to make program revisions.

Taken together, these indices — of achievement, of attitudes, and of consumer satisfaction with the total school program — provide a comprehensive evaluation of our efforts to provide a sound education for the students of Garden Hill School. I would heartily recommend this multi-dimensional evaluation approach to any school staff as a means to provide maximum feedback on administrative efforts and the greatest opportunity to continually strengthen a school program.

Piaget

(Continued From Page 6)

on specific rules and on information (as opposed to general mental operations) (Engelmann, 1971). For this experiment, I first identified all the conditions that Piaget suggested were necessary for a child to "develop." Piaget stated that children must observe process of change as well as outcomes; he said that they must manipulate real objects; he said that they must have a great deal of time to learn the concepts; and he said that the critical learning could not be provided through "reinforcement," or direct teaching. So, the experiment was very simple. I violated all the conditions that Piaget said were necessary. I designed the instruction so that the total teaching time was less than 5 hours. During this time, I attempted to teach the children all the rules and information that they would need to handle the Piagetian tests of conservation of substance, conservation of mass, conservation of volume, conservation of speed, and specific gravity. (So I was clearly violating the time stipulation.) During instruction, children never saw real objects or real-life examples. (They were never shown an object sinking or floating in water, for instance.) During instruction, no process was ever demonstrated — merely outcomes.

The results of the test were very interesting. No child passed the test of conservation of speed (because I could not demonstrate speed without showing examples of things moving, and according to my constraints, I could not show real examples of any concept, so I couldn't teach conservation of speed). All but one child passed the test of conservation of substance (and that child was absent on the day that the rules for conservation of substance were taught). Most of the children passed the tests for volume, weight, and specific gravity. The test of specific gravity was modified for the test to make it far more difficult that the standard Piagetian test. After the children dealt with two steel balls (one large and one small) in water, the same test was repeated for mercury. Not only could the children predict that if the smaller ball floated in mercury, the larger one would also; they also figured out that mercury was heavier than water (without ever picking up the vessels that contained water and mercury). (If the balls are heavier than water but not as heavy as mercury, mercury must be heavier than water.)

One of my favorite stories has to do with a little disadvantaged girl who was taking the test of specific gravity. During one part of the test, the tester starts to cut a candle into two parts — a long one and a short one. The tester then asks whether the large part will float in water, whether the small part will float, and whether the whole candle will float. At first the girl said that the parts and the whole candle would sink. Then suddenly, the girl reversed her position and would not be shaken from it by questions from the tester. At last the tester asked, "What made you change your mind?" The girl pointed to a pan of water next to the candle and pointed out that while the tester was cutting the candle, a small piece flew off and landed in the water. She then said, " If that piece floats, the whole candle will float and any part of it will float." If only one child achieved this kind of reasoning as a function of instruction, that child would thoroughly discredit Piaget's explanation of what causes children to "develop," and what this mechanism of development is.

People seem to have serious logical problems in dealing with Piaget's explanations. They make a great leap from the fact that children are not able to do certain things at a particular age to the conclusion that their performance indicates some sort of operational deficiency. This leap is not logically sound. Perhaps the simplest way to show how unsound it is would be to construct an example of Piaget's reasoning that is obviously invalid. We could start out by assuming that all learning is caused by exposure to the stars. A child who learns poorly has not had enough exposure. To test the amount of exposure that children have had, we test them on a number of items. We could include in this battery the test of conservation of substance. We present this test to a particular child. The child fails the test. And we conclude that the child has not had enough exposure to the stars. The fact that the child failed the test is not at issue. The child failed. Wat is at issue is what the failure means. Is it valid to conclude that the child did not have enough star exposure? Only if we can demonstrate that star exposure clearly *causes* changes in the child's behavior. Such demonstrations are lacking. So are demonstrations that the Piagetian mental mechanisms *cause* developmental advances in the child. Furthermore, there is no logical way to explain how they could cause these advances. The child cannot apply an operation without knowing what kinds of things the operation applies to. But if the child must have information about the properties of things that are involved in the operation, this information takes precedent over the operation.

The safest position for anybody in instruction to assume is that the Piagetian tests do show some things that children cannot do. If one of our objectives is to teach these things (such as rules about water transfer), we would teach them in a direct way. But we would be seriously misguided to assume that failure of these tests indicates some generic mental operational deficiency in the learner. Failure of the tests merley shows some things the child has not been taught.

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Summary of DI Teacher I

By Stan Paine

I. **Setting Up for Instruction**

A. Organizing and preparing for instruction:

1. Use small-group instruction.

Rationale: Small groups are more efficient than one-on-one; more manageable than large group instruction (Fink & Sandall, in preparation) (i.e., more teacher time available per student per day than with 1:1 instruction; if teaching time is available, however, techniques can be adapted to 1:1).

2. Use aides (when budget permits).

Rationale: Increased person-power translates to more teaching/tutoring time per student; this in turn correlates positively with higher student achievement according to the literature on teacher effectiveness summarized by Rosenshine and others.

3. Provide on-going training and supervision of teaching personnel.

Rationale. Because it is possible to specify critical teaching behaviors, it is possible to train teaching personnel to a high criterion. This training is critical to successful implementation of programs, and supervision is essential to maintaining its fidelity.

4. Group and re-group students homogeneously for instruction.

a. Group size depends on student ability level:
6-10 students/group for average & high performers
3-5 students/group for lower performers
1-3 students/group for very low performers or for tutorial/"firm-up" activities

b. For an entire classroom, limit the number of groups to 3 or 4.

c. Each trained adult in the classroom teaches groups during most or all of the entire academic program of the day.

d. Students not in group at any given time complete seatwork activities at their desks.

e. Group placements are made on the basis of placement and progress tests related to the instructional programs.

Rationale. Homogeneous grouping allows higher performing students to progress more rapidly and lower performing students to receive extra practice. Periodic regrouping is necessary because placement tests only reveal student skills at the beginning of the program, not how quickly each student will learn new skills. Groups for lower students are smaller to allow closer monitoring.

5. Structuring the use of time (scheduling instruction and managing time).

a. Schedule the most important activities early in the day. Reschedule important activities later in the day if schedule is disrupted. Academic activities have priority over non-academic ones; teach at least one lesson a day in each subject to each student.

b. Maximize the amount of time allocated for the most important activities for lower performing students.

c. Schedule tutorial "firm-up" time each day for extra practice in whatever area it is most needed.

d. Maximize use and effectiveness of time available for instruction.

• Establish contingencies for school attendance and punctuality.

• Start and stop lessons on time by using a timer and by cueing students for an impending transition.

• Minimize transition times.

• Use all available time by beginning the next lesson or by having appropriate academic filler activities available at all times to use when lessons end early, when students are waiting in line, etc.

• Maximize the time the student spends on-task or engaged (involved) during instruction.

• Use rapid pacing to increase content covered.

Rationale: Highly efficient use of time is *critical* for lower performing students; available time which slips by cannot be made up. Unless time is tightly controlled, the skill and achievement gaps between average and lower performing students widen as time goes by. Lower performing students need to be taught *more*, not less, yet they have no more time than other students in which to catch up.

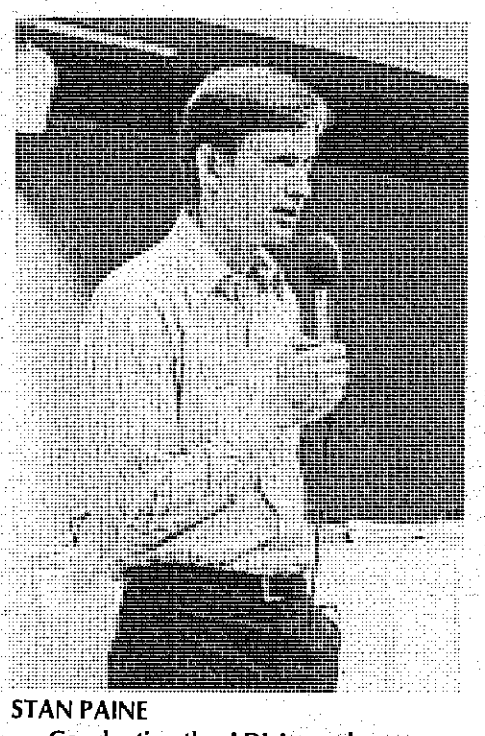
6. Arrange seating in the group.

a. Sit in a corner facing the center of the room.

b. Arrange student chairs in a semi-circle or in two short rows within touching distance of the teacher.

c. Put lowest performing students directly in front of you (front, middle).

Rationale: Controlled seating arrangements allow the teacher to better monitor, correct, and reinforce students in the group and to better manage the behavior of students who are at their desks while the teacher is conducting a group lesson; they also minimize visual distractions for students in the group. Seating the lowest performing students in front of you will ensure that their behavior is monitored about twice as often as that of the rest of the students as you scan the group.



STAN PAINE
Conducting the ADI Annual Meeting

B. Preparing for the lesson:

1. Study the formats before the school day begins.

Rationale. It is important to study the content and the sequence of the lesson in advance so that it can be taught smoothly and precisely. This should be done outside of class time to avoid taking instructional time away from students.

2. Prepare the materials before the school day begins for both group instructional and seatwork activities.

Rationale. It is important to have all materials prepared and in place for quick access to maximize pacing and minimize disruptions and waiting time.

II. **Signaling Students' Responses**

A. Obtaining unison (choral) responses — everyone answers together in "one voice" as a choir does when singing:

1. Use the right signal.

a. Choose a general signal which is comfortable for you to use and effective in triggering unison responses such as: (1) finger snap; (2) finger or pencil tap, hand clap; (4) hand dr you might need to ado two general signals — for when you are holdi and referring to a visu display and one when are not.
Change of voice inflect can be used when stud are thoroughly signal trained.

b. Use the signal which is propriate to the task: (general signal; (2) poin and touch signal; (3) "sound-it-out" (looping signal; (4) continuous v stop stop signals; (5) "g it-going" signal.

2. Use signals in the followin sequence:

a. Give the instruction or task direction (or ask th task question).

b. Provide thinking time il necessary (usually 1-2", depending on the task).

c. Say "ready" or "get ready," unless you use a change in voice inflectic

d. Pause for one second.

e. Execute the physical signal.

Rationale. When all studer in the group answer togeth on most of the questions which the teacher asks, eac student has many more op portunities each lesson to practice the skills being taught than they would if a questions were addressed t individual students. The us of unison responding also assures that each student is relying on his/her own skil for an answer and not mer mimicking someone else's answer, as is likely when some students answer first and others lag behind by a split-second. Thus, it requir that each student actually learn what is being taught, rather than learning to de-pend on another student fo the information.

3. Correct signal errors.

a. When a student "leads" signal (answers early; "jumps signal"), say "Wa for my signal," and repea the task, as appropriate.

b. When a student "follows' (answers late; lags behind), say, "Answer as soon as I signal," and repeat the task, as appropriate.

c. When a student fails to answer, say, "I have to hear everyone," and repeat the task, as appropriate.

B. Ensure 100% participation fror all group members on all unisc response tasks.

Rationale. *All* students must participate in unison if each is

'esentation Procedures

to learn the skills being taught.

C. Signal for individual turns (optional).

Rationale. This is not essential, but is probably a good idea if student is not fully trained to answer on signal; it probably facilitates responding on cue on group response tasks.

I Monitoring Student Responses

A. Monitor student responses in the group:

1. Scan the group to ensure that everyone is participating.
2. Watch their mouths and listen to what they say.
   a. Ensure that all students are on signal
   b. Discriminate whether all students are correct or whether an error has been made
3. Use individual turns to monitor the skill level of students.
   a. Give 1-3 individual turns at the end of each task sequence (each student need not receive an individual turn after each task).
   b. Give about twice as many individual turns to lower performing students as to other students.
4. Collecting individualized, written data on skills which students have mastered to date.
   a. Chart student performance on periodic mastery tests for feedback purposes.
   b. Use this feedback to provide remediation or for regrouping.

Rationale. Careful monitoring of student responses is essential to ensure that all students participate, that all are on signal, and that errors are corrected. Further, it has been demonstrated that careful monitoring, in the form of frequent eye contact, has a modest impact on correct responding and a significant impact on attending behavior (Carnine and Fink, 78-2,b).

B. Monitor the behavior of seatwork students while you are teaching a group.

1. Scan the room to ensure that students at their desks are continuing to work.
2. Ensure that when students must request assistance, that they do so in a non-disruptive manner.

Rationale. Unless the behavior is monitored or they have already mastered the skill of working independently, seatwork students will not usually be able to continue working for the entire length of a group instruction lesson without wasting considerable time and/or becoming disruptive. Intermittent monitoring can avoid these potential problems without detracting from the flow of the group lesson.

I V Consequating Student Responses

A. Maintain responding:

a. Reinforce correct answers (mostly) and hard work, improvement, etc., through praise and other social reinforcers primarily, but through points or other more powerful reinforcers if necessary.
Make these reinforcers both brief and non-disruptive to avoid interfering with the flow of the group.
Award these reinforcers at the end of a task or end of a page in the lesson to avoid disrupting a chain or sequence of related responses.
b. Provide academically-related games (challengers, "fooler games," etc.) periodically either as reinforcers or as "change-up" activities to recover the pace or enthusiasm of a lesson.

Rationale. Praise and other forms of positive feedback greatly facilitate student performances in small group instruction.

2. Maintain responding in seatwork.
   a. Periodically call out praise statements for the task-directedness of students who are at their desks while you are teaching the group; do this in such a way as to minimize its disruptive effects on both the group and the seatworkers.
   b. Provide a non-disruptive means for seatworkers to request assistance when this becomes necessary.
   Tape cards to their desks which they can use to signal their need for help; acknowledge their use of the cards.
   Provide "sure-fire" work folders they can turn to when they get stuck until you are free to help them; praise them for "working while they wait."

Rationale. Periodic praise to seatworkers during small-group instruction increases their appropriate behavior during seatwork activities, yet does not necessarily detract from the teacher's attention to group members or impede pacing of the group lesson (Paine, Rosellini, and Quintero, in preparation).

B. Diagnosing and Correcting Errors:

1. Diagnose errors.
   a. First determine whether the error is due to a skill deficiency or to inattentiveness.
   If student was looking away or engaging in a competing behavior during instruction, error likely due to inattentiveness.
   If they appear to be attending, error may be due to a skill deficiency.
   b. If error apparently is due to a skill deficiency, look for recurrent error patterns to pinpoint the skill deficit.

Rationale. Diagnosing errors is important since the apparent cause of an error will determine the type of correction procedure used to remediate it.

2. Correct errors (Note; Do corrections with the entire group even though the error might have been made by only one student.).
   a. Stop students immediately.
   b. Praise one or more students who responded correctly to avoid having students make errors to gain attention.
   c. Model (demonstrate) the response for the students.
   d. Lead the students through the response (answer with them) if necessary.
   e. Test the students on the response (have them answer by themselves in unison without the teacher).
   f. Alternate between the missed item and related items.
   g. Provide delayed test (test after several tasks and minutes have intervened).
   h, If error is made on a response chain or sequence, return to the beginning of the chain until the students can perform the entire sequence without errors.
   i. Keep a written record of which responses are missed.
   j. Review previously missed responses at the beginning of the next lesson.

Rationale: Correcting errors is absolutely *critical* when working on academic objectives. No other consequation procedure will succeed in remediating academic errors. Research has shown that the use of correction procedures produces very substantial increases in students' accuracy of responding.

V . Teaching to Criterion

A. Continue to work on a skill long enough to enable the students to meet a high criterion of performance:

1. Spend sufficient time on the skill.
2. Provide sufficient repetitions on the skill, especially when they are intermixed with distractor items requiring students to make a discrimination.
3. Direct instruction to the lowest performers in the group.

Rationale. Since different students learn at different rates (even with homogeneously arranged instructional groups) it is important to spend sufficient time on a skill to enable *all* students to master it. Discontinuing instruction on a skill before criterion is reached will likely produce difficulties for the students on subsequent skills or later in time.

B. Actively *teach* through to criterion on the skill:

1. Holding firm on the high criterion set and not lowering it.
2. Continuing periodically to praise success and hard work, to correct all errors, and to *repeat until firm.*
3. Use individual turns (most of which are directed to the lowest performing students in the group) to assess student skills.

Rationale. When teachers correct all errors, praise periodically, and repeat until firm, without lowering the criterion, students quickly reach a high level of performance and maintain it thereafter. Criterion teaching, though sometimes requiring many corrected repetitions initially, is a very efficient procedure in the long run.

V I Pacing of Instruction

A. Facilitate pacing before the lesson begins:

1. Know lesson content and presentation techniques.
2. Have materials ready and in place for easy access.

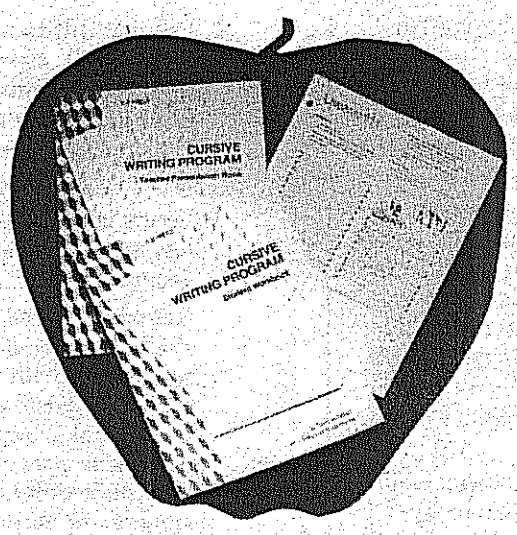
B. Facilitate pacing during the lesson.

1. Talk in a "spirited" manner (quickly) with variety in vocal intonation.
2. Minimize inter-response (time between student response and next teacher direction) and inter-task (time between different types of tasks) times.

Rationale. Rapid or "spirited" pacing is important because it enhances students' levels of attention to task and reduces their errors. In addition, higher rates of task completion permit more content to be covered. These effects relate to student achivement.

[1] This overview was distilled, in part, from D. Carnine and J. Silbert, *Direct Instruction Reading*, Columbus: Charles E. Merrill, 1979.

APPLES FOR TEACHER



Cursive Writing Program

AUTHORS Samuel Miller, Siegfried Engelmann

RANGE Third and fourth grade students or older students poor in cursive skills.

DESCRIPTION The ***Cursive Writing Program*** is a 140 lesson direct instruction program that teaches how to form the various letters, create words, write sentences, and write faster and more accurately. Special features include a simplified orthography, emphasis on high-letter combinations, and design features such as the slant arrow to insure correct paper placement. Exercises require only 15–20 minutes of daily work.

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

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

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

I Love Library Books

AUTHORS Janice Jensen, Siegfried Engelmann

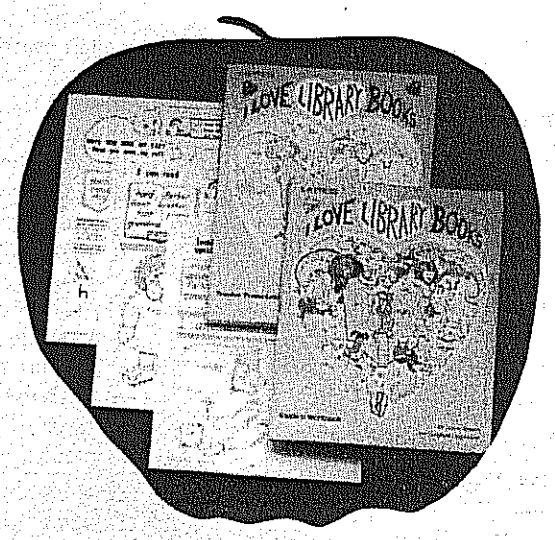
RANGE Students with first grade reading skills.

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

ADMINISTRATION Either the librarian or teacher may administer this program.

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

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



Your World of Facts

AUTHORS Siegfried Engelmann, Karen Davis, Gary Davis

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

DESCRIPTION ***Your World of Facts*** is designed to supplement science and social studies programs, preteaching key facts and relationships. The series was written in response to the problem that students are often so concerned with the vocabulary of science and social studies texts that they fail to understand the concepts. Simple charts and pictures present each set of facts, and a game format provides impetus and practice. The 40 lessons require 45–50 minutes each, but only 15 minutes of teacher-directed time.

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

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

Speed Spelling

AUTHOR Judy Proff-Witt

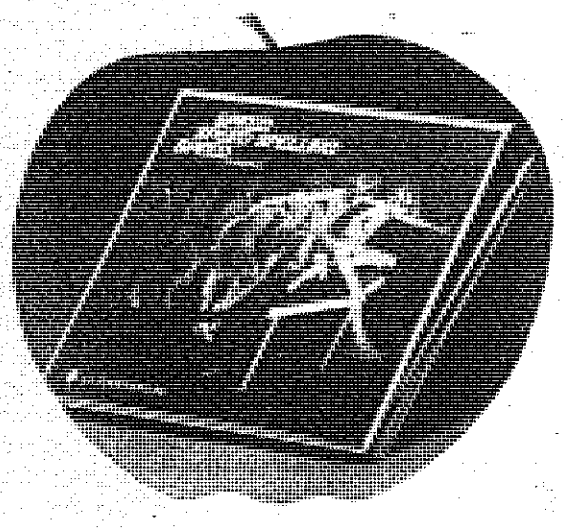
RANGE Learning disabled and retarded children who have not mastered grade school spelling skills.

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

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

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

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



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DI In Special Ed:

A Review of Evaluation Research (Part I)

By Russell Gersten, University of Oregon

Editor's Note: This article is the first part of a two part series reviewing DI research with special education students. In this part, Gersten introduces the series and reviews studies which have employed true experimental designs. In the next issue, he will primarily summarize studies which have used quasi-experimental designs and will identify future areas of research in direct instruction. Gersten is Director of Evaluation for the DI Follow Through Project in Eugene.)

The last five years have witnessed a growing realization that many of the principles and concepts of direct instruction have immediate relevance for special education (Bellamy, Horner, & Inman, 1979; Bateman & Carnine, 1977; Stephens & Rosenshine, 1981; Reith, Polsgrove, & Semmel, 1982; Gersten & Maggs, in press).

This series reviews the small but growing empirical support of the use of Direct Instruction programs and teaching procedures with special populations. The research conducted thus far has included experimental and quasi-experimental work, summative evaluations of an entire program's effectiveness, and fine-trained evaluations of the importance of one instructional component within an entire program. The subjects range from those with mild academic deficits to the severely handicapped.

Evaluation research is a relatively new venture in education (Cooley & Lohnes, 1976), particularly in special education where the focus on individualization of educational programs and the wariness of standardized tests often create strong resistance to typical evaluation designs (Kennedy, Note 1). As I confronted the wide range of studies and documentation activities, it seemed as important to highlight conceptual problems and technical difficulties encountered by the investigators in establishing evaluation designs as to share the results.

Consequently, this series focuses on both the content of the studies and methodological issues in the field of evaluation research. The published studies to be reviewed evaluate the effects of Direct Instruction reading and language programs on a wide range of handicapping conditions. Studies are organized according to type of evaluation design utilized, rather than by population served. This is done so that the reader can understand the unique benefits — and drawbacks — associated with each type of design. For each study reviewed, the major findings are presented, along with an analysis of methodological problems and measurement issues inherent in the design. Where possible, suggestions for future research are offered. This first part of the series deals with studies which have used true experimental designs.

Experimental Designs

The strongest evaluation design is one in which students are randomly assigned to one of two or more educational programs, and the mean performance of the groups on a battery of academic measures is compared to determine whether one performs at a significantly different level from the other(s). For this type of study to offer any valuable information, the tests used must be valid, reliable, and sensitive to the goals of the instructional programs (House, Glass, McLean, & Walker, 1978). Also, it is extremely important that the researcher monitor to what extent the new program (in this case, Direct Instruction) is really being implemented in the experimental

RUSSELL GERSTEN

classes (Gall, 1977; Charters & Jones, 1973). There should also be some monitoring of the comparison classrooms (Becker, Gersten, & Carnine, Note 2) to insure that these classes are not using the experimental teaching method. If all these conditions are met, and if the sample size is large enough (usually at least 15 children per condition), one can be reasonably sure that differences between the samples on the post-tests are due to the educational program.

Yet there are many factors mitigating against this type of design, such as refusal of parents and school personnel to randomly assign students to instructional programs, attrition of students, and difficulties in finding tests sensitive to the instructional program. Despite these obstacles, three such experimental studies have been conducted with Direct Instruction and handicapped learners; they will be discussed in some detail.

Beginning Reading Instruction with High Risk Students

The first randomized experiment conducted in this field was an investigation of three instructional procedures for "high risk" first graders in a suburban community. Serwer, Shapiro, and Shapiro (1973) deemed 62 kindergarteners as "high risk" on the basis of "observed difference between potential and achievement with due regard in both those areas to the verbal, performance and visual motor dimensions" (p. 242). Screening was based on teacher questionnaires, two reading tests, and two IQ tests. Note that over 20 percent of the suburban students were targeted as "high risk," though typical estimates of students needing some special education services are in the range of 10 to 12 percent.

Students were randomly assigned to one of four remediation groups — Direct Instruction (30 minutes a day of Distar Reading), Indirect Instruction (use of perceptual motor activites for 30 minutes a day, based on the work of Kephart (1964)), both treatments Combined (15 minutes a day of each treatment), or Control (no special treatment). All students received the remedial treatment *in addition to their regular first grade reading program.* Another anomaly is that students were tested midyear on a variety of auditory-visual, fine motor, and gross motor tests, and were then given "prescriptions." For the remainder of the year, "The Direct [Instruction] group combined the Distar program . . . [with training in] . . . deficit modalities as diagnosed by using letter forms and sounds and word forms and sounds." The use of modality training is clearly *not* part of the Direct Instruction approach (see Bateman, 1979). In this study, the Direct method does not adhere to many principles of Direct Instruction, and the results may be confounded by the unspecified reading programs that the students received an additional hour per day. It is also unclear exactly what features of each method were included in the Combined Treatment. The special features of each treatment were not specified, and the degree to which the features were actually carried out was not mentioned.

The only significant findings were: Students in the Kephart program performed significantly higher on two non-academic tests of motor skills (Locomotor Balance, Eye-hand Coordination) related to the goals of the Kephart program. They also performed significantly higher on two academically oriented tests (Handwriting, Math) that were not an emphasis of any treatment used in the study. Students in the Direct group performed significantly better on one of the reading tests, the *Wrong Endings* subtest of the Gates-McKillop.

It is unclear what to make of this study. Despite the myriad of tests administered and statistical tests performed, few significant results were found. In fact, the few significant findings could be due merely to chance. The large standard deviations on many of the measures would seem to indicate that the tests rarely assess the goals of the programs and/or that the population is very heterogeneous.

This flawed study exemplifies the importance of: a) offering as clear a definition of the target population as possible, b) carefully defining and implementing the educational treatments, c) measuring fidelity of implementation of each educational program, and d) selection of tests that meet the objectives of the programs. These issues surface to varying degrees in all the studies discussed below.

Language Instruction for the Moderately Retarded

Maggs and Morath (1976) investigated the effects of Distar Language I (a beginning level Direct Instruction language program) on moderately to severely retarded children in a state institution. Twenty-eight students, ages 6 to 14, with Stanford Binet IQ's between 20 and 45, were randomly assigned to either a Direct Instruction group (one hour per day of Distar Language I coupled with precision teaching procedures) or a comparison group (one hour per day with the Peabody Language Kit supplemented by teacher-generated language programs). The program lasted two full years. At the conclusion of the program, the experimental group scored significantly higher on the Stanford Binet; the mean gain in "mental age" for this group was 22½ months. Since the students were in the program for the 24 months, this approximated normal intellectual growth rates. The control group gained only 7½ mental age months in the 24 months of the program.

Children were also tested on a series of cognitive tasks based on the experimental work of Piaget and Bruner. The authors used these tasks to explore whether concepts learned purely by verbal instruction and the printed page (as in Distar) would transfer to a situation in which the concepts had to be demonstrated by manipulating three-dimensional, concrete objects. The results showed a significantly better post-test performance by the experimental subjects, indicating their skills generalized beyond mere rote learning.

This field study documented that much of the intelligent behavior assessed in tests like the Stanford Binet can be taught through extensive systematic instruction, even to moderate and severely retarded children. A flaw in this study is that no measures of fidelity of implementation were included. Children in the Maggs and Morath (1976) study for two years approached the normal level of growth. This point will be returned to when quasi-experimental designs are discussed in the second part of this series, to appear in the next issue of the *News*.

Teaching Reading to Learning Disabled Students

Lloyd et al. (1980, 1981) randomly assigned 23 learning disabled students in the intermediate grades to one of three different classrooms. The two experimental classes utilized remedial Direct Instruction programs in reading (Engelmann et al., 1978) to teach word attack skills and reading comprehension. The teaching techniques described in the teacher's manuals were supplemented with a monitoring system devised by the staff, involving specific probe sheets for academic skill areas. Arithmetic was taught with a traditional basal series.

Students in the comparison classroom received individual and small group in-

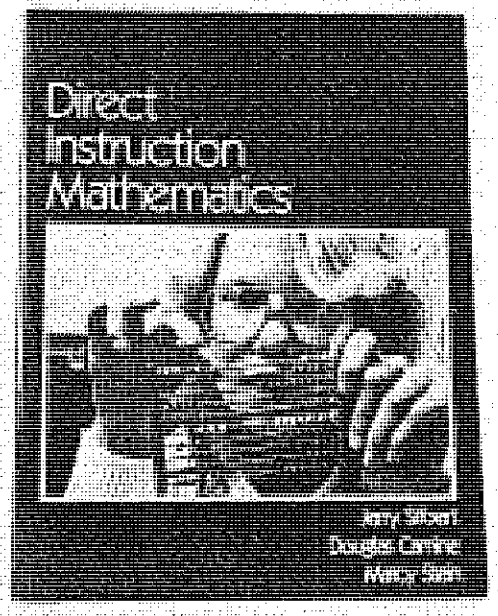
Continued on Page 13

Direct Instruction Mathematics

By Jerry Silbert
Douglas Carnine
Marcy Stein

Columbus: Charles E. Merrill
Publishing Company, 1981.
(492 pp./$22.95)*

*[Note: This book may be ordered from the Association for Direct Instruction for $16.00 ($20.00 non-members), plus $1 for shipping and handling. Address order to: ADI, Box 10252, Eugene, OR 97440.]



To an individual already converted to its assumptions and methods, *Direct Instruction Mathematics* will inevitably take its place beside *Direct Instruction Reading* as an often consulted, rapidly worn addition to a professional teaching library. To the neophyte, the text provides a challenging, but accessible, introduction to direct instruction in a key curricular application.

Direct Instruction Mathematics is divided into two main sections: a perspectives section and a skills and concepts section. The perspective section describes clearly and succinctly what direct instruction is, how mathematics instruction might be organized, and which topics are covered in a basic mathematics curriculum. These initial chapters discuss three sets of variables that teachers and/or textbook authors must address carefully and intelligently if they want to teach all children well. These variables include elements of instructional design (objectives, strategies, sequencing, formats, examples, practice), presentation techniques (signals, pacing, correcting, monitoring, diagnosing, and remediating), and organization of instruction (program selection, program modification, program evaluation). Although the first three chapters constitute a small part of the total book, they provide the reader with a cohesive conceptual framework for the rest of the text. It is imperative, expecially for those new to direct instruction, to renew this larger perspective while reading the text so that later chapters are understood as systematic applications of a well-defined point of view, not as a series of disparate math lessons.

The second part of the text, skills and concepts, translates direct instruction theory into teaching routines for specific skill areas. As the authors note in their preface, this second part is "the heart of the book." What is refreshing and valuable from a teacher-trainer's point of view is that this part of the book presents detailed procedures for introducing a skill area, explicit teaching formats, strategies for correcting errors, and suggestions for remediating error patterns. Individual chapters focus on the following topics: vocabulary and language skills, symbol identification and place value, addition, subtraction, multiplication, division, facts, problem solving, fractions, decimals, percent, measurement, geometry, and study skills. Each chapter includes a lucid scope and sequence accompanied by examples of possible items for informal assessment. Chapters conclude with brief but helpful discussions of research related to teaching the specific area.

Direct Instruction Mathematics is eminently well suited for a math methods course in either regular or special education. As a text to prepare teachers to work with students in mainstreaming settings, it is also extremely valuable (much more useful than general texts with a few helpful hints for teaching math to the slow learner). A misguided, but probable, reaction to the book which may hinder its widespread adoption in teacher training may be that it is too narrowly focused. Although this singlemindedness is the *beauty* of the book for those who appreciate direct instruction, it could disturb those who prefer a smorgasboard approach. A related problem with the book's adoption in special education may be that it takes a full academic quarter to incorporate the text in a manner which leads to mastery at even a minimum competency level. I allow an entire semester for covering the material. Unfortunately, many special education programs devote only one course to teaching methods, and this one course must cover all the basic subjects. Neither of these organizational difficulties detracts from the potential effectiveness of *Direct Instruction Mathematics* in methods courses; they merely comment on the state of the art in teacher training.

The text seems to work best with students who have had prior experience with commercial direct instruction materials. This makes sense, since the commercial materials have been carefully and systematically developed to incorporate sound design principles. If they have used these materials successfully, students approach the math text with a positive and productive idea of how the theory looks in day-to-day translation. Students wihtout prior direct instruction experience are sometimes so overwhelmed by the novelty of the approach that they overfocus on individual aspects, like signalling, and miss the more elegant issues, such as the elements of instructional design.

Two activities are helpful in overcoming students' lack of previous experience with direct instruction materials. The first is to devote substantial amounts of time to practicing the actual teaching formats. Facility in this skill develops best when it is shaped gradually, beginning with a strong teacher model, and followed by slowly increasing responsibility for instructional decisionmaking on the students' part. A myopic view of direct instruction teaching procedures is greatly alleviated with success in teaching formats. The second activity is to expose students to a wide variety of basal and supplementary math materials used in schools currently. By comparing these programs with the recommended procedures from the text, students become much more sophisticated in their understanding and appreciation of direct instruction. A final activity, which probably represents the highest level of understanding of the text, is to have students modify existing math programs. The text provides clear, helpful guidelines for this process. Still, as more than one of the students in my classes has commented during a program modification exercise, "This takes so much time and it is so difficult. Wouldn't it be easier to use commercial direct instruction materials?" Secretly rejoicing that they had seen the light, I invariably respond, "By all means, *yes*... when it is possible." Possible? What does that mean? "Possible" includes all those mysterious rites which surround educational organizations: textbook approval, budget allotment, principal perogative, etc.

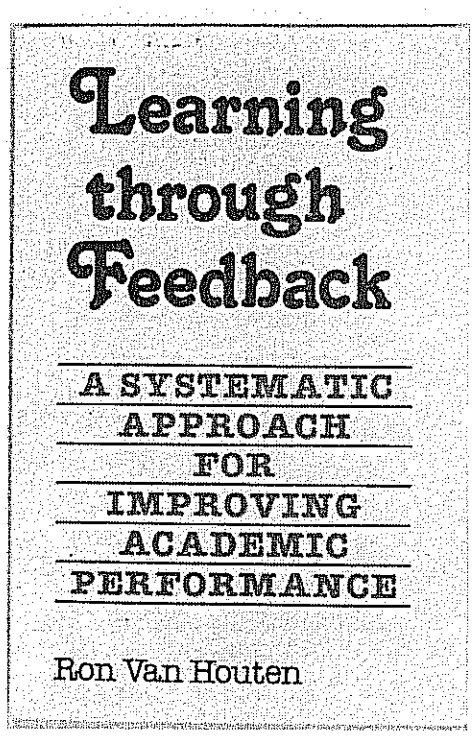
I often wonder how those students fare for whom it is not "possible" to use

Continued on Page 13

Learning Through Feedback

by Ron Van Houten
New York: Human Sciences Press
1980 (182 pp./$9.95)

Learning through Feedback is, in thi reviewer's opinion, one of the mos valuable sourcebooks for teachers an other school professionals to appear i recent years. Although it would pro bably be categorized by many a another book on classroom manage ment, it is much more. This book doe not deal directly with student conduct i the classroom. Instead, it focuses o their academic performance. By doin so, it goes far beyond the typical goals o behavior management — to get student behaving appropriately — and strive instead to help them achieve maximally Van Houten's feedback systems *are* motivational devices, but they are directed toward student achievemen rather than merely to student deport ment.



The book is dedicated, "To Children", and this is appropriate, since the theme of the book is to help children become better in the academic arena than they or their teachers previously thought possible. In this sense, the book is very humanistic.

Learning through Feedback contains six chapters dealing, in order, with: 1) measuring academic behavior, 2) providing academic feedback, 3) enhancing

Continued on Page 13

Research Review

(Continued From Page 1)

truction in various academic areas reading, language arts, math, spelling) as well as training in psychological processes believed to be related to learning. The program was considered representative of traditional special education programs for the learning disabled at the time. Students in both experimental and comparison classes were in a full day program.

Students were assessed on: (a) the Wide Range Achievement Test (Jastak & Jastak, 1965), which measures word recognition and arithmetic (computation); (b) the Gilmore Oral Reading Test (Gilmore & Gilmore, 1968); and (c) the Slosson Intelligence Test (Slosson, 1963), which assesses general language competence and comprehension.

Results indicated statistically significant differences favoring the experimental group in measures of both word recognition and comprehension. The difference in decoding accuracy was significant, $t_{(21)} = 1.68$, $p < .05$. The magnitude of effect was .64 pooled SD units. Significant effects were also found on the Gilmore Accuracy Index and Comprehension Index and the Slosson Intelligence Test. On the other hand, the difference in WRAT arithmetic was clearly non-significant; $t_{(21)} = .658$. Since no Direct Instruction math program was implemented, this offers further confirmation of the effectiveness of the Direct Instruction programs (Campbell & Fiske, 1959).

This study documents the efficacy of Direct Instruction reading programs in decoding and comprehension. It is one of the few experimental studies to use learning disabled students, and the only study to examine the effectiveness of the newly developed comprehension programs. On the technical side, this is one of the best designed special education research studies — with its use of random assignment of children to treatment, the broad range of measures used, its relatively clear definition of the handicapped, and its assessment of performance in both target (reading) and non-target (arithmetic) academic areas. Lloyd et al.'s (1981) use of improvised "standard" scores on the Gilmore is a bit questionable, since there is considerable controversy concerning the use of grade equivalent scores (Horst, Tallmadge, & Wood, 1975) and mental age-to-chronological age ratios (Matarazzo, 1972). Yet, since they used identical scoring procedures for both experimental and comparison groups, there is no reason to assume the procedure systematically biased the results.

Two issues raised by the authors deserve further elaboration and discussion. Though the experimental group consistently surpassed the comparison group, one year of Direct Instruction reading was *not* sufficient to bring those students to a "normal" level of performance. (That would represent mean standard scores of 100 on the measures). In fact, there is evidence of a small drop in measured IQ for the two experimental classrooms — from 90.4 to 87.1 for one group and 87.5 to 85.6 for the other. But this drop is appreciably less than the drop for the comparison group. The drop may be artifactual — students were pre-tested on the WISC, which contains performance and language items, and post-tested on the Slosson, which is primarily verbal and hence may underestimate scores of language deficient students. As the authors state, "these data do not argue that... the procedures cured learning disabilities (in ten months), but they do indicate a direction that clearly merits further research" (p. 31).

A methodological issue that needs to be further pursued with a more finegrained analysis is exactly what the instructional program was like. It is described as "a hybrid behavioral model" using both behavioral principles of programming and direct instruction curricula and teaching techniques. But the study mentions no check on the fidelity of treatment — are the programs implemented as the authors intended, and if not, do the changes that are part of the "hybrid behavioral model" help or hinder student performance? The explanatory observational studies of Leinhardt, Zigmond, and Cooley (1981) offer a methodology for beginning to look at these issues.

In summary, my search turned up three true experimental studies investigating the use of Direct Instruction with special education students. While each triggers at least one methodological questions, all support — to one degree or another — the use of Direct Instruction programs and procedures with handicapped populations. In the next issue, we will look at several studies which have used quasi-experimental research designs and consider their contributions to the practice of using DI in special education.

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Feedback

(Continued From Page 12)

feedback through public posting of results, 4) using praise in conjuction with feedback, 5) examples of successful feedback applications across subject areas and grade levels, and 6) questions commonly asked about feedback systems. In addition, the book includes a list of references dealing with feedback and related procedures and both author and subject indices. All chapters have concise summaries, and Chapters 1-4 have study questions and practice exercises.

The book is research-based and procedurally-oriented. This means that the reader should be able to review the procedures, then implement a successful feedback system in his/her classroom. In describing the correct use feedback, Van Houten underscores the importance of reviewing regularly the scores which are posted and of *not* initiating a feedback system in a given skill area until instruction to mastery has been provided on the skill prerequisites.

Feedback is an effective, inexpensive, and positive way to motivate student performance in academic areas. It is time-efficient, highly flexible, and widely applicable to various subject areas and skill levels. It is more naturalistic and easier to use than token systems. It has the potential to capitalize on small increments of success and turn them into impressive improvements. In short, feedback has much to recommend it, and I know of no better source for using it effectively than *Learning through Feedback*. This book could make the difference between "another year come and gone" and one of the most productive and satisfying years that you and your students have ever had.

Reviewed by Stan Paine

DI MATH

(Continued From Page 12)

commercial direct instruction material. Do they implement bits and pieces of an approach? Do they at least provide more practice than is normally provided in commercial materials? Or, perhaps, they are blessed with colleagues who cooperate with them in modifying the existing curriculum. Whatever the answer, I am confident that I could have made no better choice of a text for their methods course. *Direct Instruction Mathematics* is not only a superb text; it is an excellent model for the teaching profession.

Philip Dommes, Ph.D.
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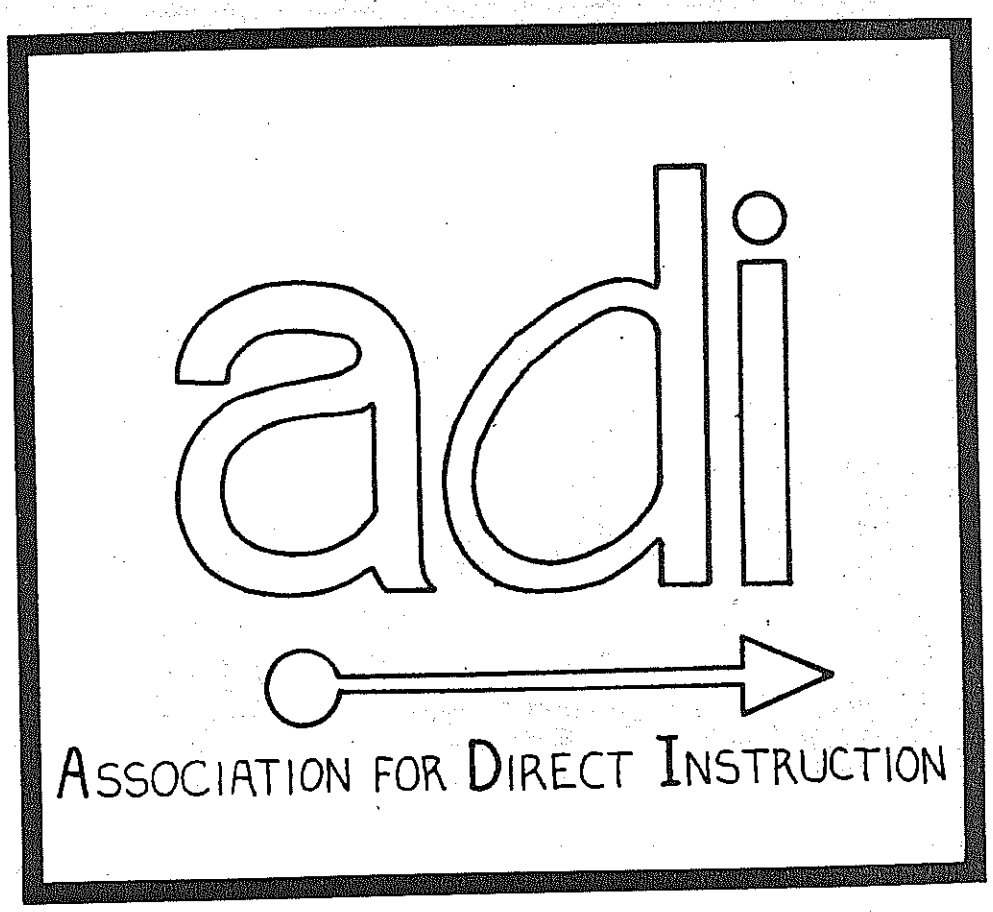
LOGO CONTEST ENTRY NO. 4



Response Distortion (Continued From Page 4)

Response Distortions With Severely Handicapped Students

Response distortions are of particular importance in the education of severely handicapped students. The content of curricula for severely handicapped students is shifting to emphasize more complex responses. Especially for secondary severely handicapped students, there is a move away from traditional academic objectives and those based on longitudinal skill sequences to objectives that reflect performance demands of adult functioning (Wilcox & Bellamy, 1982). Instead of teaching traditional arithmetic, grocery shopping might be the instructional goal; instead of working on isolated motor skills, bicycle riding as a leisure activity might be the target for an individual student; instead of learning to sort blue and red blocks in a "pre-vocational" program, dishwashing in a local cafeteria may be trained. Typically, these skills encompass complex motor behaviors over a wide variety of settings (i.e. shopping at different stores for different items, washing different sets of dishes). Since not all of the possible variations can be taught, a decision needs to be made regarding the selection and sequencing of teaching examples. We are learning that the Direct Instruction rules associated with selecting and sequencing training examples to avoid concept errors are equally important to avoid errors of response distortion.

Teaching to Avoid Response Distortion: Our Best Guess

Good teaching leads to the efficient acquisition of a target response that can be performed across a range of naturally occurring situations. This goal is the focus of the current surge of applied research on "generalization". It is the life-blood of Direct Instruction (Engelmann & Carnine, 1982). Teaching which initially avoids response distortion errors will exemplify Direct Instruction.

To avoid response distortion, begin by selecting the instructional universe across which the target response is to be performed (c.f. Engelmann & Carnine, 1982, or Horner, Sprague, & Wilcox, 1982, for rules associated with selecting the instructional universe). The instructional universe defines the full range of situations in which the target task is to be performed. As a next step, define the range of variation (or changes in topography) required by the target response across the instances that make up the instructional universe. If the task is buttoning, and the instructional universe is all clothes in the student's wardrobe, then the teacher should examine the range of different response demands required by the shirts, coat, pants, etc. The third step is to select training examples of the target response, or an approximation (e.g. big buttons), which the student can perform successfully. Then select additional examples of the most precise, hardest examples of the task. Conduct training with *both* easy and hard examples presented in the same session. This will allow the student to experience success, yet will continually present him/her with examples that can only be completed with a non-distorted topography. The student will learn the skill with a response topography that is functional across the full range of situations in the instructional universe.

To date we have used the above guidelines to teach a wide range of vocational, community living and leisure skills to severely handicapped high school and elementary students. The approach is effective. In situations where an easy-to-hard teaching format had resulted in half the students learning a distorted response, the DI approach resulted in no response distortion. At present, however, we have only anecdotal results to support the development or avoidance of response distortion. No research has compared the efficiency of easy-to-hard instruction with instruction that concurrently presents easy and hard examples. It is possible that extended training with only difficult examples may be an even more efficient method of teaching complex responses (Engelmann & Carnine, 1982). At present, however, two points are clear: (a) response distortion is a problem that *will* be faced by teachers of severely handicapped students, and (b) the Direct Instruction rules for selecting and sequencing teaching examples appear to be a valuable strategy for avoiding this error pattern.

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ABA Conf. 1983

The Ninth Annual Convention of t Association for Behavior Analysis w be held at the Hyatt Regency Hotel Milwaukee, Wisconsin, May 26-2 1983. A special feature of the Conve tion for direct instruction followers w be a series of activities sponsored by t ABA Special Interest Group on Dire Instruction.

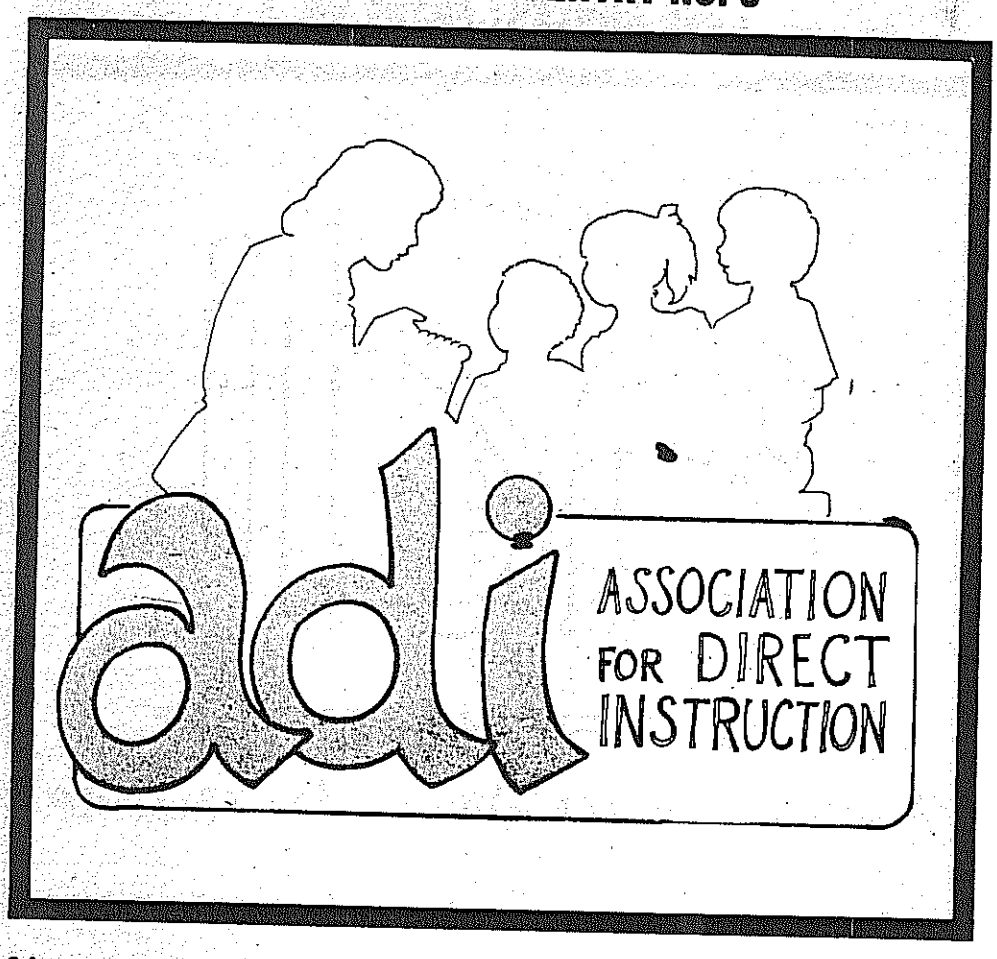
Last year, the DI Special Intere Group offered an extended symposiur an invited address, a workshop, a I poster board session (an informal settir for communicating research findings and a special interest group meeting (t discuss a variety of direct instructio issues). We expect to sponsor a simila slate of activities at this year's Conver tion.

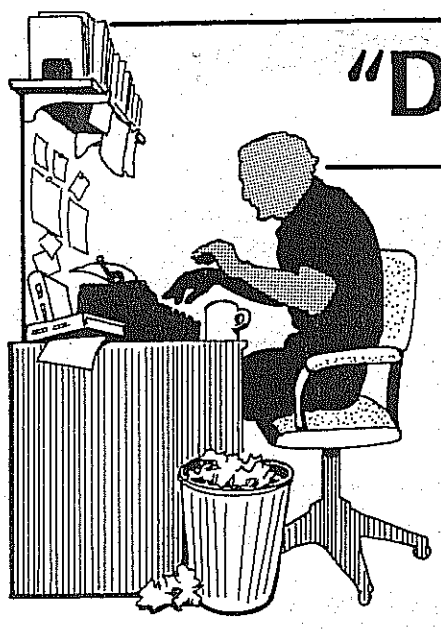
If you have ideas for topics, speakers or activities which might be of interest t a direct instruction audience (teachers administrators; university researchers professors, and students) — or if yo have a presentation you would like t submit for consideration in one of thes formats — please send them, by Octobe 20, to:

Dr. Stan Paine, Coordinator
ABA Special Interest Group on D
Follow Through/Education
University of Oregon
Eugene, OR 97403

If you would like to discuss your ideas for presentations, please feel free to call me at (503) 686-3555. I hope to see many of you at the Convention.

LOGO CONTEST ENTRY NO. 5





"Dear Ziggy"

Dear Ziggy:

One of the biggest problems that I have in teaching direct instruction programs is pacing my presentation. Sometimes I think I go too fast for the group and hurry the children into mistakes. Sometimes, it feels as though I am dragging too slowly. What guides are there for figuring out how fast to signal the children to respond when I work with a group?

Ziggy Says:

Use data. The procedure is simple. Use a signal and present individual turns (on various tasks) to the children in the group. Note the amount of time that each student requires in responding. If children do not respond on time to your signal, you're presenting the signal too fast. Slow it down so that nearly all the children can follow it. Use the time interval that is appropriate for all but the very slowest child in the group.

The simplest way to slow your signal is to drag out the last part of your question or instruction: What's the answerrrrrrrrrrrr? (Signal), or "Rhyme with at. Get readyyyyyyyyyyyyyyyy. (Signal).

Remember if the kids can't keep up with your signal on individual turns, they can't keep up on group turns. Use the time interval that they require on individual turns as a basis for pacing your group-turn signals.

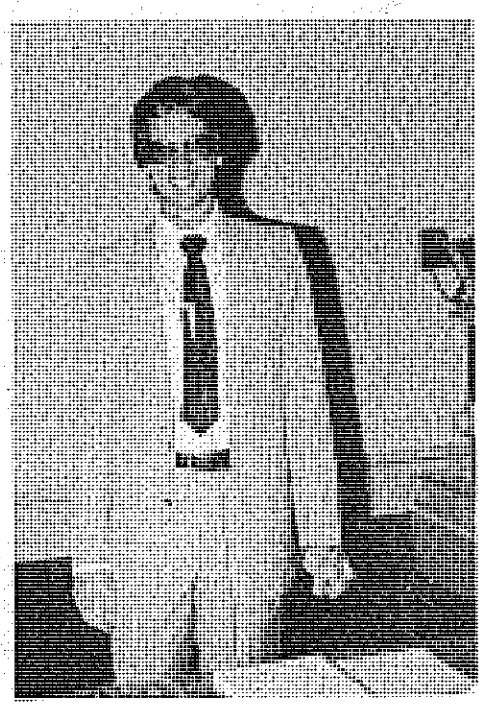
Good question. Next . . .

DI AUSTRALIA

Holds Sydney Conference

Doug and Linda Carnine and Wes Becker from Oregon were the guest presenters at the third Australian DI Association Conference held in Sydney at the Catholic College of Education (Mount Saint Mary Campus) August 31 to September 3. There were about 90 teachers, administrators, and college professors attending, coming from as far away as Western Australia and New Zealand.

The Conference focused on the application of *Theory of Instruction* (Engelmann and Carnine's new book) to *DI Reading* and *DI Math*, and on teaching skills for major DI programs. Also featured was a DI approach to teaching micro-computer programming. This approach was illustrated at the Conference with hands-on experience, using TRS-80 machines. The computer session was led by Amanda Gelder and Alex Maggs. Other major presenters at the Conference were Joe Moore, president of ADI-Australia, Robyn Maggs, Kerry Stirling, and Jenny Whipp.



DOUG CARNINE
Presenting in Sydney

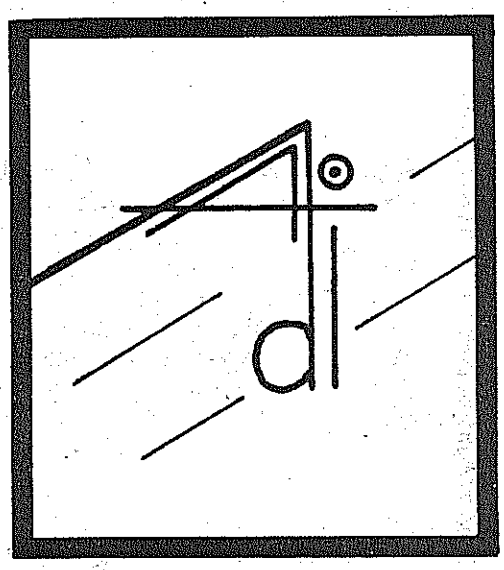
SNDNEY CONFERENCE STAFF (from left): Dagmar Neal, Kerry Stirling, Alex Maggs, Joe Moore, Peggy Brown, Wes Becker, Robyn Maggs, and Phill Morath.

Teacher to Teacher

(Continued From Page 5

playground system. At that time, make any adjustments in the plan that are necessary. Bear in mind that it is usually not possible to make the perfect plan the first time around. Don't be afraid to point out shortcomings in the system. But don't stop there. Revise the plan until it works. If you use a fair and consistent recess management plan, you will find that the playground can be a rewarding place for everyone—even for the staff. Good luck, and have a good recess.

LOGO CONTEST ENTRY NO. 6



Eighth Annual DI Conference In Review

The setting was distinguished, the training was timely, the weather was perfect, and the recreational opportunities seemingly were limitless. These were the hallmarks of the Eighth Annual (1982) Direct Instruction Conference held in Eugene, August 16-20. According to the feedback we received, this was one of the best DI Conferences yet.

The Conference was held this year at the new Eugene Hilton Hotel and Convention Center. Although Conference goers had grown accustomed to area high schools as settings for the seven previous Conferences, they seemed to make the adjustment to the luxurious new facilities quite well. Efforts are now underway to secure the Convention Center facilities for next year's Conference, after a suggestion to move back to a high school in order to ensure the best Conference dates was met by a chorus of "boos."

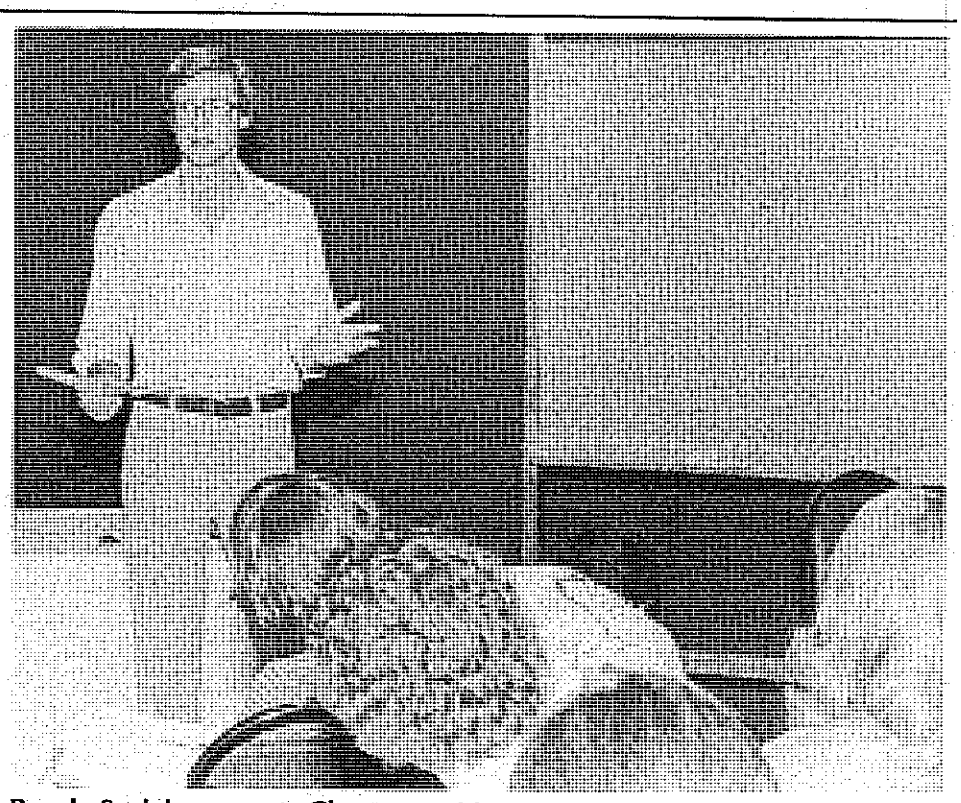
A total of 325 people attended the Conference. This figure is comparable to attendance in recent years and is considered very good, expecially given the tight budgets under which many school systems (and families) are now operating. Four new sessions were offered this year, along with a large number of sessions which had been offered previously. Conference offerings will be reviewed again prior to next year's event. If you have suggestions for new sessions which you would like to see offered next year, please let us know.

This year's Conference was sponsored for the first time by the Association for Direct Instruction. ADI representatives were on hand throughout the week to promote membership. By the end of the week, membership had risen to 680, up from approximately 320 at the same time one year ago. New memberships, along with the sale of DI materials and Conference proceeds, should begin to put the Association on a more solid financial base.

Conference highlights included the Annual Meeting on Thursday and Friday's closing session. The meeting featured a keynote address by Lorraine Killion, a teacher at Wesley Elementary School in Houston, Texas, and winner of this year's ADI Award for Excellence in Education as an elementary level classroom teacher. Lorraine presented a moving account of what can be done with low-performing students when good programs are coupled with good teaching and a committment to success. The closing session featured the presentation of the First Annual ADI Excellence in Education Awards (see story elsewhere in this issue) and closing comments by Zig Engelmann, the creator of Direct Instruction, and Thaddeus Lott, the pricipal at Houston's Wesley Elementary, who has received national attention for his educational leadership.

The strong consensus of those attending the Conference was that it was a good one. With your suggestions and our efforts, next year's Conference can be even better. We hope to hear from you regarding your ideas and we hope to see you there with your colleagues.

(Note: Watch for details of the 9th Annual [1983] DI Conference in the Spring, 1983, issue of the *Direct Instruction News.*)



Randy Sprick presents Classroom Management at Eugene Direct Instruction Conference

Join the ASSOCIATION

Membership covers the period from September 1 through August 31.

OPTIONS:

a. Student membership... $7/year (includes DI News and a 40% discount on ADI sponsored conferences and 20% discount on publications).

b. Regular membership... $15/year (includes DI News and a 20% discount on all ADI sponsored items and events).

c. Sustaining membership... $30 or more/year (helps to insure our survival).

d. DI News subscription only... $5/year.

ADI sponsored products and events include books and other materials published or marketed by the Association (DI Reading, DI Mathematics, Theory of Instruction, the Annual Direct Instruction Training Conference, and on-site training/consultation available from ADI staff or contractors.

The Direct Instruction News is published four times a year (Fall, Winter, Spring, Summer).

To join the association, clip out this form and mail it in.

ASSOCIATION FOR DIRECT INSTRUCTION

CHECK ONE P.O. BOX 10252, Eugene, Oregon 97440

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