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 — Thaddeus Lott; Classroom Teaching, Secondary Level — Pepe Quintero; School Administration and Supervision — Lorraine Killian; and Teacher Training and Research — Galen Alessi.

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

Thaddeus Lott, the principal at Wesley Elementary School in Houston, Texas, has received the highest honor for his work in the first year of direct instruction. 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...
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 TMKs." We strongly object to the prominent use of the label "TMKs." Special educators, citizen advocates, and handicapped people themselves are working very hard to alter language usage that addresses handicapped individuals as "the retarded," "EMDs," "TMRs." 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 strive to model 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, individuals, 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 you know, the blame for the title change is the culprit. (I was 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 "TMKs" 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 Payne
Editors

Distant 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 1 or 2? What problems have your students had as you taught the programs to them? We are planning to revise DISTAR Arithmetic, Levels 1 and 2, and want to know what specific difficulties your students have had with the programs. The revision will try to smooth out those rough spots, but we need your help in identifying those rough spots.

The best problem description submitted will win a $30.00 prize. Second prize is $15; third prize is $10. Help make DISTAR Arithmetic a stronger success for us and for all of your students can ignore it. Send 1-2 page descriptions of problems you have discovered and/o suggestions you want to make to:

Doug Curnine
Follow Through/University of Oregon
Eugene, OR 97403

We are interested in publishing dissenting opinions about direct instruction as a regular feature of the News. Dissenters 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, you would like to hear from you. Or if you have colleagues with alternative viewpoints 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 dissections 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 materials and programs? If you were given the choice of topics which 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 us make this publication all that you want it to be. Address your ideas or articles to:

Editors
DI News
Box 10252
Eugene, OR 97403

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:

Teresa A. Woolley
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 Teachers team-teaching situation, (K-3), self-contained and departmentalized situations, direct instruction, learning styles-right-left brain, computer programs, etc. Send credentials: Oregon, California, Hawaii, Multi-endorsements.

Contact: Dawn Al-Khali, 5741 S.E. McNary Rd., Milwaukie, OR 97222 (tel. 1-503-459-7358) Permanent address: 10023 S.E. Pardee St., Portland, OR 97226 (tel. 1-503-760-2184 can leave message).
Logo Contest

Ten entries were received from competing students in the "Design a Logo Contest." Balloting on logo selection began at the recent Direct Instruction Conference in Eugene when attendees cast their ballots. 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, send your name (for verification purposes only), and send it to:

ADI/Logo Designs
P.O. Box 10523
Eugene, OR 97440

(Voting restricted to ADI members only, please.) Have you heard 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 designs 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.

Excellence Awards
(Continued from Page 1)

state have training in direct instruction before. It can be examined in a variety of ways to see how effective it is in terms of pupil's ability to learn. The four people chosen as recipients of Excellence in Education Awards this year comprise a group which is awesome in its talent and its commitment. But they only represent the cream of the crop. We know there are others who are of the same caliber. 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 commitment they have shown to excellence in education for all students. Next spring, when we issue the call for nominees for these awards, we shall 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 commitment and their success, just as we are in knowing the dedication of this year's recipients.

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 Fellow Through Model on the high school careers of its graduates. The study is being conducted by Russell Gersten of the DI Fellow through staff at the University of Oregon.

High school performance measures are being collected on students who completed three years of DI Fellow Through experience in one of seven original Fellow 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 Fellow Through students over the control group on several important measures: 1) a larger proportion of DI Fellow Through students graduated from high school; 2) fewer FT students dropped out of school; 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. More detailed results of the study, including findings from the other six sites, will be provided in a future issue of the News.

High School Follow-up of DI Fellow 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 Fellow Through Model on the high school careers of its graduates. The study is being conducted by Russell Gersten of the DI Fellow through staff at the University of Oregon.

High school performance measures are being collected on students who completed three years of DI Fellow Through experience in one of seven original Fellow 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 Fellow Through students over the control group on several important measures: 1) a larger proportion of DI Fellow Through students graduated from high school; 2) fewer FT students dropped out of school; 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. More detailed results of the study, including findings from the other six sites, will be provided in a future issue of the News.

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.

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 fry rating all other children functioning at a similar level as the Down's Syndrome child in reading and/or math achievements. In class A (5-year-olds), 24 children were identified; in class B (3-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 program. DISTAR Arithmetic I was used in classes A and B as the sole method for math instruction.

Pretest Posttest (percentiles)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Class</th>
<th>Pretest Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-year-olds</td>
<td>A &amp; B (N = 31)</td>
<td>23rd 50th</td>
</tr>
</tbody>
</table>

RESULTS ON KEYMAH

<table>
<thead>
<tr>
<th>Grade Equiv.</th>
<th>A &amp; B (N = 31)</th>
<th>1.15 1.65</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-year-olds</td>
<td>A &amp; B (N = 31)</td>
<td>1.15 1.65</td>
</tr>
</tbody>
</table>

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)."
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 what 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 different curricular areas, additional attention has been given to the way instructional details are handled. The concern is for the "how" part of each component 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 inappropriately 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 her 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 this skill. She has met the general criterion and is now presented with a generalization test to see if she can button new pairs of clothes 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 misbuttoning what she has been taught during instruction, but that what she has learned is dysfunctional. She has learned a way of buttoning that is efficient for the large buttons used in training, but which is inappropriate to use 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 succeeds 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 presents the "old" response topography which is associated with the "old" variation of the task but which is a distorted and dysfunctional response with this new task.

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 or it may be 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 buttons 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 example.

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 attempt to teach 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) Simple 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 of 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 T1 and the most difficult being T9. The response topography indexed as R1 is functional across all examples (instances) of the task. Response topography R2, however, is functional only with the first two examples of the task, R9 will not produce the desired effect if it is used at task T9, T10 or T11. Response distortion occurs when, as a function of receiving training only with task variations T1 through T9, the learner acquires the ability to perform successfully by using R2. Following training, the learner is presented with novel variations of the task which range in difficulty from T1 to T11. With task variations T1, T2, T10 and T11 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 the required response topography R1.

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 emphasise 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 Cole
Whitaker 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 think it is time to observe the students on the playground. Do you see any students acting aggressively, excluding others, not joining in play? If you see students exhibiting either of these behaviors, you still have a chance to set up a ground management system in this column, I will describe a process for developing one version of a system.

It is a version which the other teachers and I have found useful with the students at our school, but this will be a work in progress. If you feel you need to make whatever modifications in it you feel are necessary to fit your students. Before I do that, though, I want to state some words of caution.

First, all staff involved in playground duty must agree to use the system. Otherwise, there is little chance the system will be successful. The system needs 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, they will be more consistent. As a result, the playground, will be a fun and safe place for all students. The benefits are 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 create 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 the fun. Be sure the rules you come up with fit the behaviors your group wishes to change.

In the second planning session, develop a work-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, 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-year prizes are found 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 teachers on recess duty. The clipboard rules should be few in number, short and specific so that they can be easily taught. 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 month.

5. A person is selected to record the daily Super Playground Players' names on 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 the 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 should 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 referrals 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...
Piaget and Instruction

By Siegfried Engelman

[Continued From Page 1]

not engage in neural surgery, cannot manipulate the data that children handle and cannot directly change the operations of the learner's brain.

Yet, how does the child only by manipulating environmental events. In other words, the teacher works strictly by the text. How does the teacher's ability to 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 shows how to do it, the description is either pointless, or empty, or nothing more than rhetoric.

Yet, this judgment about the description implies what the teacher should do? A description that tells the teacher precisely what to do, but the teacher knows what to do and does not, or cannot do. That's all the teacher needs to know. It's all the help that's needed. A description that tells the teacher precisely what the child needs, and what the teacher needs to do to get the child to do what the teacher needs the child to do, is useless. The teacher needs a description that tells the teacher precisely what the child needs, but does not tell the teacher how to do it. The teacher needs a description that tells the teacher precisely what the child needs, but does not tell the teacher how to do it.

When we return to the latest 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 declare that the child is 1.5 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 at the same age to a series of statements of things that we should work on.

So the minor 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 is the basis for the present discussion? 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" before they are over six years old. This conclusion is based on specific items that are used in the Piagetian 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 is 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 the place? Virtually all the kids in the preschool could answer the question correctly, demonstrating that they had learned, in some forms, much earlier than Piaget thought. A theory is supposed to describe what the learner does. A Piagetian/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? It shows that the child is incapable of performing a mental operation that permits the child to see that 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 answer must be the same. This operation applies only to water that is transferred from one vessel to another, but to all classes of objects that have a standard number of parts and is "deformed" in some way. For instance, a clay ball can be made larger, and then decreased by a complementary change in the "length" of the object, 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-transferring problem, the clay-ball problem, and all similar problems. But Piaget's tests are often months and months separating the time between the child's mastery of the water transfer and the mastery of the clay-ball problem. This time interval suggests that the learning is "diffuse," or "delicate." Piaget suggests. It also casts serious doubt on the existence of a single "concrete operation."

Furthermore, Piaget's argument is not logical. For a concrete operation to consider the compensating changes of an object that changes shape, the child must understand that the objects are not fixed but that the object are fixed parts that cannot expand or contract. We can take a balloon and add water to it, but the balloon becomes smaller in width, but it also becomes smaller in height. Why? The child cannot apply the compensation formula to air, or the volume of a deformable object, unlike water and clay balls. So the child cannot apply the compensation formula to air, or the volume of a deformable object. The child who know this fact unless the child knows that air is compressible? If we go a step further, it's clear that the problem is: How does the child know that the compensation formula applies to air, and that volume of a deformable object is that being deformed in shape, exactly where does the compensation formula fit in?

To answer this question, we tested a group of newly-emerged-neverers (Engelman, 1967). These children had recently passed all the traditional Plagian tests of conservation of substance. We presented them with a new method. We presented the children with a grid of objects, side by side. One was narrow and one was wide. A handle at the bottom of the wide and narrow glass. The handle was stripped up and down, so that it looked like a glass being filled with juice or being spilt out of the air. The idea was to test the all the children poured it into glass. The subjects manipulated the handle for the wide and the narrow glass. Among the 12 subjects, not one subject made the level of the wide glass the same as 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 would be. Therefore, the compensation formula is 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 don'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 provocative explanation (and one that is consistent with Piaget) is that the child lacks some general mental operations that are necessary to handle the test.

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

On Continued Page 7
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 parental buy-in for all the conditions that real student needs. 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 that 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 assistance superintendent 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 children the basic skills. The Program and the Mathematics Modules are used developmentally and remediational. The instruction of science was taught. 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 necessary throughout the program to determine 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 achievement that were realized by direct instruction students after eight months of instruction were 1-4 grade equivalent, while gains in all grade levels 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.

Many have focused on 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 concept of many students, as well. To assess this, the Satisfaction 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 results of the SOS was administered to one hundred twenty-nine children in kindergarten through grade and the interested teacher rated 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 included self-concept — Children with high scores view themselves positively and attribute to themselves qualities of happiness, self-worth and general self-confidence. They see themselves as being valued by peers, families, and teachers.

The lowest scores were given for those who were 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 therefore 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. With the perceptions of the groups on five school success indices: 1) school climate, 2) student behavior, 3) student success, 4) parent satisfaction with school, and 5) academic focus of the school. Taken together, these indices — of achievement, of attitudes, and of consumer satisfaction with the total school environment — provide the district with an overall evaluation of our efforts to provide a sound education for the students of Garden Hills. Although it is not perfect, the authors recommend this multi-dimensional, evaluation approach to any school staff planning to implement a new instructional program. The school staff, then, must gather further detail on their opinions regarding school operations. Information gathered to explain why changes were made then used to make program revisions.

Taken together, these indices — of achievement, of attitudes, and of consumer satisfaction with the total school environment — provide the district with an overall evaluation of our efforts to provide a sound education for the students of Garden Hills. Although it is not perfect, the authors recommend this multi-dimensional, evaluation approach to any school staff planning to implement a new instructional program. The school staff, then, must gather further detail on their opinions regarding school operations. Information gathered to explain why changes were made then used to make program revisions.

Piaget (Continued From Page 6)
on specific rules and on information (as opposed to general mental operations) (Engelmann, 1971). For this experiment, I first selected the same group of children that Piaget suggested were necessary for a child to "develop." Piaget stated that children must observe one of the objects as he said: they must manipulate real objects; he said that they must have a good deal of instruction 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 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 sitting or floating in water, for instance.) During instruction, no process was ever demonstrated — merely the results of the test were very interesting. No child passed the change conservation of speed (because I could not demonstrate speed without showing examples of things moving, and according to Piaget, 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 tests on 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 were the objects of non-natural size but the smaller ball floated in mercury, the larger one would also; they also figured out that the smaller ball floated (without ever picking up the vessels that contained water and mercury). If the balls are heavier than water but not as heavy as mercury, the whole ball would sink. (Weighing test was the last test and the children had to test several objects to see what the results were.)

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 cube into two parts — a long one and a short one. The tester then asks whether the larger part will float in water, whether the smaller part will float, and whether the whole cube will float. At the end of the test, the girl said that the parts and the whole would sink. Then suddenly, the girl reversed her position and read the predictions 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 vase and pointed out that while the tester was cutting the candle, a small piece flew off and landed in the water. She said, "If that piece floats, the whole candle will float and any part of it will float." If only one child could do this — and this does not function as a rule of instruction, that child would thoroughly discredit Piaget's explanation of what causes children to be "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 in other areas is somehow indicative of their general intelligence. 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 asserting that all children are capable of enough exposure to the stars. A child who learns poorly has not had enough exposure. To test this, we ask how many more stars 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. Then what is that fact that the child failed the test is not at all related to whether a child has had enough exposure to the stars. The fact that the child failed the test is not at all related to whether a child has had enough exposure to the stars. The fact that the child failed the test is not related to whether a child has had enough exposure to the stars. The fact that the child failed the test is not related to whether a child has had enough exposure to the stars. The fact that the child failed the test is not related to whether a child has had enough exposure to the stars.

References
Engelmann, S. The Piagetian approach to instruction In Green, D.R., Ford, M.P., and Flavell, J. (Eds.), Direct Instruction and Placing. CA: California Test Bureau, 1979, 112-120.
Summary of DI Teacher

By Stan Paine

1. Setting Up for Instruction
   A. Organizing and preparing for instruction. 
   B. Use small-group instruction. 
      Rationale: Small groups are more efficient than one-on-one; more managed 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).
   C. Use aides (when budget permits). 
      Rationale: Increased person-power translates to more teaching/tutoring time per student, thus to higher student achievement according to the literature on teaching effectiveness summarized by Rosenthal and Rubin.
   D. Provide ongoing 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 the success of the program. 

2. Group and regroup 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. 
   B. For an entire classroom, limit the number of groups to 3 or 4. 
   C. Each trained adult in the classroom teaches groups, during which all parts of the class are seen. 
   D. Students not in groups at any time complete such activities of the day. 
   E. Group placements are made on the basis of progress tests related to the instructional program. 
      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.

3. Structuring the use of time (scheduling and managing time). 
   A. Schedule the most important activities earlier in the day. 
   B. Maximize the amount of time allocated for the most important activities for lower performing students. 
   C. Schedule the most important activities earlier in the day. 
      (a) Teach only 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 the most important activities earlier in the day. 

4. Conducting the ADI Annual Meeting
   A. 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 waste time.

5. Signaling students' responses 
   A. Obtaining union (choral) responses — everyone answers together in "one voice" as a choice does when singing: 
      (1) Use the right signal. 
      (a) Choose a general signal which is comfortable for you to use and effective in triggering union responses such as: (1) finger snap;
      (2) finger or pencil tap; (3) hand clap; (4) hand on desk; (5) two general signals — for when you are holding or not holding a visual display and some other intensity.
      (b) Use the signal which is appropriate to the task: (1) general signal; (2) point and touch signal; (3) "sound-it-out" (looping signal); (4) contextual also a stop/stay signal; (5) "it's going" signal.

2. Use signals in the following sequence: 
   A. Give the instruction or task direction (or ask the task question).
   B. Provide thinking time if necessary (usually 1-2"), depending on the task. 
   C. Say "get ready"; "get ready"; "get ready"; or "you are ready," unless you use a change in voice inflection.
   D. Pause for one second. 
   E. Execute the physical signal. 
      Rationale: When all students in their group answer together on most of the questions which the teacher asks, each student has many opportunities each lesson to practice the skills being taught than if signal; (2) pause and use a change in voice inflection; (3) "it's going" signal.

3. Correct signal errors. 
   A. When a student "leads" signal answers early; "jumps signal," say "wait for my signal," and repeat the task, as appropriate. 
   B. When a student "follows" answers late; lag behind, say, "Answer as soon as you are ready;" 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 from all group members on all union response tasks. 
      Rationale: All students must participate in union if each is
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. 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.
   b. 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.
   c. Provide delayed consequences related games (challengers, "fooler games," etc.) periodically either as reinforcers or as "change-up" activities to recover the pact or enthusiasm of a lesson.
Rationale. Praise and other forms of positive feedback greatly facilitate student performances in small group instruction.
B. 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.
   c. 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:
   a. Diagnose errors.
      i. 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.

V. V pacing of Instruction
A. Facilitate pacing before the lesson begins:
   a. Know lesson content and presentation techniques.
   b. Have materials ready and in place for easy access.
B. Facilitate pacing during the lesson:
   a. Talk in a "spirited" manner (quickly) with variety in vocal intonation.
   b. Minimize inter-response time between student response and next teacher direction and inter-task time between different types of tasks.
Rationale. Rapid or "spirited" pacing is important because it enhances students' levels of attention to task and reduces their errors. In addition, high rates of task completion permit more content to be covered. These effects relate to student achievement. *This overview was discussed, in part, from D. Carnine and J. Silbert, Direct Instruction, Columbus: Charles E. Merrill, 1969.

DIRECT INSTRUCTION NEWS, AUTUMN, 1968 9
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-frequency combinations, and design features such as the slant arrow to ensure 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.

449) Cursive Writing Program Teacher Presentation Book 25.00
441) Cursive Writing Program Student Workbook (1 ea.) 4.00
442) 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 the basal reading program 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. Supplemen-
ary worksheets.

444) I Love Library Books Teacher Presentation Book 25.00
445) I Love Library Books Student Workbook (1 ea.) 4.00
446) 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, presenting key facts and relationships. The series is written in response to the problem that students are often too 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 reproducible and contain 25 topics, including the solar system, the respiratory system, continents, oceans, and the internal combustion engine. Reproducible scoresheets. Reproducible certificate.

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

Speed Spelling

AUTHOR: Judy Pfiff-Knott

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

DESCRIPTION: Speed Spelling is an individualized, phonetic 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 95 lessons teaches word reading, word writing, and sentence writing, and contains instructional objectives and detailed directions.

ADMINISTRATION: Teachers, students, aides, or other professionals in English may act as tutors.

COMPONENTS: Manual includes: Placement test. Cycling tests. 95 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.

253) Speed Spelling Kit, manual, 20 Student Books, plus Word List Packet 74.95
254) Speed Spelling Student Books (pkg. of 25) 9.40

Send for our free catalog.

C.C. PUBLICATIONS, INC.
P.O. Box 23999, Tigard, Oregon 97223-0106

TO ORDER, WRITE OR CALL

TOLL FREE
1-800-547-4800
(Oregon residents call 1-644-8480)
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 a series of studies which have employed true experimental design. 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 or 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, Homer, 

nman, 1979; Bateman & Carnine, 1977; Stephens & Rosenberg, 1981; Reith, Holgrove, & Semmel, 1982; Gersten & Vagg, 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 reports reviewed thus far have included experimental and quasi-experimental work, summative evaluations of entire programs, and the effectiveness, and fine-trimmed evaluations of the importance of one instructional component within an entire program. The subjects range from those with mild academic deficits to the severely handi-

Evaluation research is a relatively new venture in education (Cooley & Lohness, 1980). In this educational arena, where the focus is individualization of educational programs and the wariness of standardized tests often create strong resistance to typical evaluation design (Kennedy, Note 1), As I confront these issues on both the content of the studies and methodological issues in the field of evaluation research, I have found that many established studies to be reviewed evaluate the effects of Direct Instruction reading and arithmetic programs in special educational handicapping conditions. Studies are organized according to type of evaluation and the nature of the studies. The results are presented in such a way as to highlight conceptual problems and technical difficulties encountered by the evaluators in establishing evaluation designs as to share the results.

DIRECTIONS TO LEARNER 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. Server, Shapiro, and Shapiro (1973) deemed 63 kindergarteners as "high risk" on the basis of "observed differences 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 questions of two reading tasks 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.

Language Instruction for the Moderately Retarded

Mags and Morath (1976) investigated the effects of Distar Language (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 Distar 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 and control groups were compared on a battery of tests. Whether concepts learned purely by verbal instruction and the printed page (as opposed to instruction 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 role learning.

This field study documented that much of the intelligent behavior assessed on 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 the overall standards for this series 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 teacher in the teacher's manuals was supplemented with a monitoring system developed by the staff involved in the 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
Learning Through Feedback

A SYSTEMATIC APPROACH FOR IMPROVING ACADEMIC PERFORMANCE

Ron Van Houten

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: 1) measuring academic behavior, 2) providing academic feedback, 3) enhancing...
Feedback (Continued From Page 12)

feedback through public posting of results, which can be constructive. Feedback, 3 examples of successful feedback applications across various subject areas and a grade level, illustrate some of the effective ways to provide feedback. In addition, the book includes a list of resources, websites, and related procedures and related authors and subtopics. Each chapter has a summary, and Chapter 4 has study questions and practice exercises. The book is research-based and procedurally-oriented. This means that the reader should be able to read the procedures, then implement a successful feedback system in their home classroom. In describing the correct use of feedback, wattloon 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 prerequisite.

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

Reviewed by Stan Paine

References:
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 computational 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 range 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 (e.g., 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 "hitting," 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, coats, 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 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 generalizable 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.

References
Dear Ziggy:

One of the biggest problems that I have in teaching direct instructional 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 (or 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 answer? What’s the answer? (Signal), or “Rhyme with at.” Get readyyyyyyyyyyyyyyyyyyyyyyy. (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...

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.

LOGO CONTEST ENTRY NO. 6

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. Review 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.
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 (1983) Direct Instruction Conference held in Eugene, August 16-20. According to the feedback we received, this was the best DI Conference 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, especially 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 and revised for 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. AID representatives were on hand throughout the week to promote membership. By the end of the week, membership had risen to 660, up from approximately 330 at the same time one year ago. New memberships, along with the sale of DI materials and Conference proceeds, should begin to sustain 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 Kilborn, a teacher at Wesley Elementary School in Houston, Texas, and winner of this year’s AID Award for Excellence in Education as an elementary level classroom teacher. Lorraine presented a moving account of how she changed from teaching subjects do first graders to good teaching with good teaching and a commitment to success. The closing session featured the presentation of the First Annual AID 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 principal 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 put the Association on even better. We hope to hear from you regarding your ideas and we hope to see you there with your colleagues.

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 DI sponsored conferences and 20% discount on publications).
b) Regular membership... $15/year (includes DI News and a 20% discount on all DI sponsored items and events).
c) Sustaining membership... $30 or more/year (helps to insure our survival).
d) DI News subscription only... $5/year.

AII 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 various training/consultation available from DI 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:
1. I WISH TO BECOME AN ASSOCIATION MEMBER. ENROLL ME AS:
☐ A. STUDENT MEMBER ($7 ANNUALLY)
☐ B. MEMBER ($15 ANNUALLY)
☐ C. SUSTAINING MEMBER ($30 OR MORE INITIALLY)
☐ D. 2. I WISH TO RECEIVE THE NEWS ONLY. A CHECK FOR $5 IS ENCLOSED.

NAME:
MAILING ADDRESS:

It’s The Hilton For ’83
Ninth Annual
DI Conference
August 8-12, 1983
at the Eugene Hilton Hotel
and Conference Center
Plan your Oregon Vacation and
Study Session Now.

Theory of Instruction
By Siegried Engelmann
Is Available Now
NON-MEMBERS $25
MEMBERS $20
(ADD $1 FOR SHIPPING COSTS)
DI Reading or DI Mathematics
NON-MEMBERS $20
MEMBERS $16
(ADD $1 FOR SHIPPING COSTS FOR EACH BOOK)
ORDER FROM: Association for Direct Instruction
P.O. Box 10252
Eugene, Oregon 97440