The Flint, Mich. Study

The Following Up of Follow Through Students in High Schools

by W.A.T. White & Russell Gersten
University of Oregon

A longitudinal evaluation of former Direct Instruction Follow Through students was conducted in Flint, Michigan. The purpose of the evaluation was to assess any long-term effects of Direct Instruction Follow Through from the end of third grade (when students completed the Follow Through program) to high school. Students from the two Flint Follow Through schools were compared to students from another Flint public elementary school. This comparison school was selected for its equivalence to the Follow Through schools in terms of racial composition and income level (measured by proportion of families receiving some sort of welfare assistance).

Two groups of students were chosen for the analysis—Cohort I and Cohort III; both cohorts were composed of Black students from primarily low-income families. Cohort I included the first group of students to go through the Flint Follow Through program; these students entered kindergarten in fall 1969, or entered first grade in fall 1970 (see Table 1). Cohort III was included in the National Evaluation of Follow Through (Abbott & others, 1979, 1977) funded by the U.S. Office of Education, as well as in the present longitudinal evaluation. Cohort III students began kindergarten in fall 1971 (or began first grade in fall 1972). Eighty-seven Direct Instruction Follow Through students and 39 comparison students were included in Cohort I analyses, and 63 and 43, respectively, in Cohort III analyses.

Overview of Results

Some results—attendance, retention rate, college placement, grade point average—indicate a significant difference between Follow Through and comparison students. Other "data-oriented," grade-achievement scores, incidence of placement in special education—suggest a possible difference. Graduation and drop-out rates, inclusion on honor roll, and college board scores indicate no difference.

Graduation

A high proportion of Flint students received a high school diploma, regardless of Follow Through intervention. Table 2 shows the percentages of Cohort I students scheduled to graduate in June 1985 who graduated or who are still earning credits toward their diplomas. The dropout rates for these groups of students were compared to those of the Flint public schools.

### Table 1

<table>
<thead>
<tr>
<th>Group</th>
<th>Began</th>
<th>Began</th>
<th>Finished</th>
<th>Finished</th>
<th>Finished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort I</td>
<td>Fall 69</td>
<td>Fall 70</td>
<td>Spring 73</td>
<td>Spring 79</td>
<td>Spring 82</td>
</tr>
<tr>
<td>Cohort III</td>
<td>Fall 71</td>
<td>Fall 72</td>
<td>Spring 73</td>
<td>Spring 81</td>
<td>—</td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th>Graduated</th>
<th>Dropped Out</th>
<th>Ret. — Still in School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort</td>
<td>FT</td>
<td>Comparison</td>
</tr>
<tr>
<td></td>
<td>52.1%</td>
<td>53.3%</td>
</tr>
</tbody>
</table>

Current Practices and Methodology

As Hillerich (1982) has recently noted, many teachers are frustrated over the difficulty of teaching their students to spell correctly. Although there are many established facts about how to teach students to spell, few publishers have incorporated the research-based facts into their commercial spelling programs. This study attempted to provide a basis for understanding which spelling programs are most effective. The study is based on a substantial number of words at their grade level, the point at which most publishers tell teachers to begin instruction. Also, most students already knew how to spell a majority of words at the grade level, which combined (1975) and Hintsch (1975) questioned the placement procedures in spellers, suggesting that most spelling tests simply waste student time rather than providing the basis for instruction on new, unfamiliar words.

Word List Format

The manner in which words are often presented in spelling programs may hinder spelling achievement. Words are usually presented in meaningful context (sentences), as a procedure that often distracts rather than facilitates word spelling skill (Paisano & Broom, 1977). Sometimes hard parts within words are emphasized (e.g., cycle, triumph) or words are presented in syllables. According to Horn (1969) these procedures do not aid learning to spell. In addition, Hintsch (1975) notes that many words in elementary spellers are of such low frequency that they are irrelevant for most writing.

### Continued on Page 16

### Continued on Page 14
Dear Sir:
For the past year, Carl Neilsen, a social worker from our special ed. coop, has shared information and programs in Direct Instruction with me. Together we have trained tutors for a peer tutoring program in math and we have seen significant gains after one month. Earlier this year I worked with a small group of third graders with the Spelling Game. The two third grade teachers asked that I train them in the procedure. It is now being effectively carried out with the regular third grade classes.

I’m excited about the possibilities that Direct Instruction opens up for the students in my resource program and look forward to receiving the newsletter and information on seminars.

Gratefully,
Mary C. Vodden
La Grange Park, IL

Dear Editors:
A copy of “Direct Instruction News” was put in my mailbox at school. Thankfully, I didn’t go with my first impulse, which was to “chuck” it in file 13. Instead, I brought it home with me and enjoyed reading it. I plan on keeping it for reference also. If plans go as I hope, I’ll be in Eugene for the Conference in August. That’s looking forward to. I’m near having what educators refer to as “teacher burnout.” Hopefully I can get some inspiration and enjoy the northwest while I’m at it.

Thank you
Nelle Whatley
Tuls, OK

Dr. Loring Brinckerhoff
Association for Direct Instruction
P.O. Box 10252
Eugene, Oregon 97440

Dear Dr. Brinckerhoff:
This letter is written in response to an item that appeared in the Spring, 1983 issue of ADI News. We are calling your attention to the article title “Siegelman—Engelmann—Prophet or Profiteer.” The specific reference we wish to discuss is given below:

Within the area of education, his instructional programs have been assailed as “too highly structured” and “mechanical.” VanEtten and VanBrunt, 1976, p. 13

Since we are the authors named, we were more than slightly surprised to find that we had “assailed” anyone, much less someone with whom we agree philosophically. Since it is clear to us that you did not have the opportunity to read the article cited, we have enclosed a copy for you. We would like to respond to several points:

1. We most clearly, to any objective reader, did not assail Engelmann.
2. Please read carefully. “The teacher who wants to develop language in free-flowing discussion groups, by drawing out each child, will find DISTAR highly mechanical.” We did not say it was mechanical and do not feel that to be the case. We were pointing out, based on different philosophical backgrounds, how different teachers might respond to all three of the materials discussed in this article. That might have been clear had you read the complete article. We were also attempting to accurately describe all three materials cited as examples.

3. We have searched this entire article to find the words “too highly structured.” We seem to have assigned those words to us on your own. We are not pleased with another writer putting words in our mouths and then citing them as belonging to us.

As a director of several resource centers, in three different states, I have purchased thousands of dollars of DISTAR materials. I have used DISTAR as a classroom teacher. I bought it for my teachers as an administrator. I teach it in university classes. I use it as a model for materials development.

We can fully accept that this newsletter is the propaganda instrument for this organization. However, the blatant misinterpretation and inexcusable addition of words that do not appear in the original article, appear to us to be beyond the ethical boundaries of any type of publication. We find it ironic that in defense of a man that needs no defending to these two authors, you have managed to alienate two longtime supporters of both the specific materials and the theory involved.

You can be assured that anything written in this publication in the future, by any author/authors associated with this publication, will be read with more than a slight amount of caution and skepticism. We will be especially interested to read the upcoming articles on how House, et. al., “misanalyzed” the ABT data on Follow Through.

Sincerely,
Glen and Carlene VanEtten
Special Education Department
University of New Mexico

cc: Wes Becker, Editor
Stan Paine, Editor

Dear Van Etten:
I am delighted to reply to the copy of your letter to Brinckerhoff, waiting for a response from Brinckerhoff (which I have not received). I can only say that I agree with the substance of your complaint. However, it is the author’s responsibility to be accurate, not the editor, so I find it a bit difficult to understand your attack on the DI Editors.

Also, you should note that Dr. Brinckerhoff has no connection with the DI News except as an association member. He studied with Engelmann and Carmine some years ago and is now at the University of Idaho.

For your information and others, “the upcoming articles on Ernie House’s article on the Four Through data will be delayed sometime. My writing schedule has different priorities at present, but I will get back to it in time. The chapter I was working on covering that subject got interrupted and I may not get back to it for six months or more. When I do, I want to present the actual data from the ABT reports that demonstrate the fallacies of the House re-analysis.”

Wes Becker

The choice of role descriptors for these areas of teacher competence has it technical implications. The set of possible descriptors comes from the field of music. Although this article does not suggest that the role descriptions of producer, composer, or conductor I seriously considered for adoption, it analogy between education and music should prove useful in understanding the importance of the three teacher roles and the responsibilities inherent in each.

Producing

The producer assumes responsibilities for the total production of a music event. Responsibilities may include comprehending all resources, and the physical setting, and scheduling all event. A primary area of competence is the ability to manage time and resources. Changes in learning requires organizational and management skills in the teacher similar to those of the producer. In the DI model, scheduling time appropriately, arranging physical setting and the necessary physical setting, and insuring adequate learning time are essential to success (Carrine, 1980, pp. 12-13).

Composing

Composing denotes both forming and combining. The verb “compose” means literally to put in place or combine. The particular set of words musical composition then means to combine various sounds, presumably in a predetermined arrangement. The composer must choose the sounds and their relationship based upon the knowledge of music and the rules of combination. Both the music composer and the instructional program designer require a precise knowledge of the discipline including principles and rules of composition. Each must invent original works.

The DI model emphasizes the role the teacher as composer. Carrine and Silbers (1979) list the following areas.
Netting Networking Work

By Elwyn Rees
Worcester College, England

Q. What does the title mean?
A. Just what it says. I came over 800 miles to talk about a new network idea and what happened? Sure they let me talk. They also fixed me up with enough work to keep me busy for the next six months. That’s what happens when you meet up with the fabulous people in the Eugene world of D.I... They’re so nice that the guy says ‘maybe you could send me a copy of that when you have one’. ‘My pleasure’ you reply and mentally write off another two days.

Q. So why do ya do it?
A. Cos I’m a D.I. computer nut, and if you still need to ask the question, well maybe you ain’t going to understand the answer.

Q. No, I understand. But tell me, what kind of network does a guy 800 miles just to talk? That seems kinda rough even if the guy is English.
A. I’m glad you asked that question (it saves me having to rewrite a line of conversation that leads straight to the heart of my favourite subject just now). This network is new. It’s revolutionary, it’s an entirely different concept from anything we’ve had before. It’s in a class of its own, it’s unique... it’s er...

Q. O.K. I can see we’ve got to have this to do the hard way... How many microcomputers do you have in this network?
A. One.

Q. This is going to be a long interview... (Like one each)
A. No.

Q. I quit... what’s the secret?
A. One microcomputer serves up to thirty individual terminals each of which is the same and consists of fresh air and a simple keypad.

Q. No circuitsry in the keyboards, huh?
A. Right on baby (How am I doing with language!).

Q. You’re learning... so how does the computer know who he’s talking to if there’s no identification at the terminal?
A. Easy. Its interface is fitted with a string of buffers (pardon me...information storage units) which are linked to individual keyboards. Any message sent from any keyboard gets left in a storage unit just like dirty shoes outside doors in a hotel corridor...

Q. ...and along comes a jolly little bell-hop and zaps em all in his collection basket knowing where each one came from by the tiny-bit binary number on the cute little doors... Is he an eight, sixteen, or maybe thirty-two bit bellhop?
A. Really madam, I mean... eight actually.

Q. So what happens then? The data’s been scooped up on one scan of the buffers and I guess the latches are grounded to zeroize them for the next cycle.
A. Well, as a matter of fact, that is just what happens.

Q. O.K. Let me guess. There is an array in a reserved part of RAM accessible by a machine code routine... probably in EPROM... how am I doing?
A. You’re learning... but there’s this little chap I met... in Jo Federigo’s last evening... well this morning to be precise (I was conducting some sociological research into the so-called Bourbon syndrome, you understand... well I’m sure he wouldn’t quite understand what you’ve just said. Would you mind if I rephrased it.

Q. Would you like to be my guest?
A. That’s uncommonly civil of you madam... now where was it?

Q. Jo Federigo’s?
A. Madam! Are you trying to compromise my sabbatical?

Q. Are you kidding?
A. Huh, the data that are transferred from the buffers into the computer is entered directly into locations which are available to programming routines written in machine code and stored in special electronic chips called EPROMS which are attached to the computer as physical extensions of the computer circuitry that allow programming capacity to the system without incurring any loss of RAM or Random Access Memory (the area available to the user for storing instructions and data) and offering the attendant advantages of greatly increased speed and recall convenience.

Q. That summarizes my guess... I guess! So you are moving towards a dedicated system, huh?
A. Madam my system already works day and night without a break or rest. What may I ask are you suggesting?

Q. I’m suggesting that the architecture of the system is beginning to reflect the idiosyncratic requirements of a specialized educational application, O.K. but...
A. If you say so.

Q. So describe the system in action. Is there an example you have?
A. Ah... yes indeed. Picture if you will thirty smiling little faces each gazing trustingly into the eyes of their teacher. "You may be interacting when I give you the instruction to do so," she sweetly chortles. "BEEEEEEEEEE... GIN" and they look to the video screen and find their individual display window amongst the split-screen matrix. They turn to each page as directed by their own window displays. First, they are all on the same page, they complete the task and input their responses, the analysis of which is complete before they have scraped the first blob of bubble-gum off the keypads. Pretty soon they are all on different pages if not different sequences through the different pages. At the end of the session thirty idiosyncratic (thank you for that word) pathways have been taken through the test instrument reflecting the idiosyncratic profiles of diagnosis and assessment built into the instrument. And picture, if you will, the fellow at the regional computer centre surveying the empty in-trays and saying "where the hell’s the mountain of incomprehensible data we used to send them back when we were good and ready and the machine was up for a change?"

Q. And that’s it?
A. Are you kidding? There are group-based instructional formats on an interactive basis, there are constructed responses modes, there are monitoring packages as adjuncts to existing instructional packages, there are hypothesis testing on peer reaction by student instrument designers, there are...

Q. Hold it, hold it... O.K. I got the message. The whole thing’s going to be too extensive for you to summarise here and now O.K.?
A. Baby, you can whistle Dixie and spit wooden nickles, but there ain’t noway you’d cover the story from the bottom line.

Q. You’ve been here too long and I guess mixing with the wrong sorts too. Where did you pick up all that junk talk?
A. Noplace, I’ve spent all my time with Carnine and Engelmann and...

Q. You’re mixed up with those twos? I should have figured it... GOOD DAY TO YOU!!!

Ed. Note: Elwyn Rees is Senior Lecturer in Applied Psychology at the Worcester College in England. He is also the Director of a computer consultancy. He visited Professor Doug Carnine recently in order to demonstrate a new network system that is being developed in the U.K. by him and his colleague Roger Cocks. Before leaving Eugene, Elwyn and Doug explored the basis of inter-collegiate collaboration on field testing and development of the new system and plans are now well advanced on this basis. Elwyn and Roger will be returning in the fall for further talks and to bring with them a prototype system for use by faculty at Oregon University.

On July 23rd Elwyn demonstrated the system at the University of Oregon. At a public exhibition of the system, he explained the principle upon which it worked that made it possible for a teacher to use a single microcomputer with an entire class on an interactive basis. He told observers "lateral networking systems depend on the address as a basis for communication. This requirement involves logic, power supplies and other terminal based circuitry. The innovation being demonstrated here has done away with these requirements and relies on a powerful trade-off between a single interface and circuitry within the computer itself. In this way the computer knows to which terminal it is talking by implicitly noting in a scanning sequence, the position occupied by each terminal."
A Test of the Automaticity and Psycholinguistic Models

By Douglas Carnine & Paul Williams, University of Oregon

Abstract
Prior research has produced conflicting findings with regard to psycholinguistic and automaticity models. This study compared the story reading times and errors of subjects who did and did not receive pretraining on a list of 12 unfamiliar words that appeared in a story, and 2 corrections while reading the story. Comparisons were made across three successive readings of the same story. Not surprisingly, subjects in the automaticity group (who had word pretraining) made fewer decoding errors on the unfamiliar words with each successive reading of the story. Of greater interest was the finding that they also made fewer errors on familiar words (which were not corrected). Subjects in the psycholinguistic group, who had received no pretraining or corrections, required less total instructional time, but made more errors on both familiar and unfamiliar words with each successive story reading.

In 1965, Kenneth Goodman published an automaticity and psycholinguistic model, indicating that students who were unable to recognize words that were presented in isolation could recognize the same words when they appeared in the context of a passage. On the basis of these outcomes, Goodman asserted that training children to do things like recognize words in lists and correcting decoding errors in passages were both undesirable and unnecessary. In contrast, LaBerge and Samuels (1974) put forth their automaticity model, which views reading acquisition as a process moving from accuracy to automaticity across several levels: letter features, spelling patterns, words, and finally, sentences. The research surrounding the controversy generated by these two models has been sizable. Samuels (1969), Samuels & Jeffrey, 1967; Weiher, 1970; Shankweiler & Liberman, 1973; Singer, Samuels, & Spiroff, 1974; Carnine, 1977; Ehri & Roberts, 1979; Carnine, 1980).

The present study was conducted in an attempt to examine the seemingly contradictory findings generated by the psycholinguistic and automaticity models. An important extension of prior research was the recording of oral reading errors on familiar words neither included in list training nor targeted for correction. Therefore, replicate prior research, but to look for new indices of the relative merits of the two models.

Method
Subjects: Twenty-six non-handicapped children, ranging in age from 5 to 6 years old, were chosen from the second and third grades of various local schools. The only stipulation for inclusion was that they were reading satisfactorily in their basal reading series. The subjects were randomly assigned to either the automaticity or psycholinguistic group, resulting in thirteen subjects per group.

Materials: After an analysis of the words that were commonly found in the code-emphasis series, a story was composed using 97 words that would be familiar to the children and 12 words that had not been introduced. The story appears below, with the unfamiliar words in italics:

We had a big, brown dog named Sam. Sam liked to run and play and "woof". Sam decided to take a bath. One day, Sam got dusty and we decided to give him a bath. As soon as Sam stepped into the house, we led him to the tub. Sam growled at us to tell us he was angry. When we put him in the tub, he halted at us. When we finished, he was gone in a flash.

Procedure. The dependent variables were time and errors. More specifically, the number of seconds that each subject took to read the story the first time it was recorded. The same measurement was taken for the second and third readings of the same story. This variable served as a measure of comparing the relative efficiency of the two approaches, but was secondary to the analysis of errors.

Two types of decoding errors were measured. First, the number of errors made on words that were unfamiliar (target) was recorded for each of the story readings. Second, the number of errors on non-target (familiar) words was recorded for each reading.

In addition to time and error measurements on story reading, the number of errors that subjects made in the automaticity group when first asked to decode the list was recorded. Finally, the amount of time (in seconds) that the members of the automaticity group took to read the entire list of 12 words within a 25-second mastery criterion was measured.

The experimenter collected error and time data while each individual subject responded to the materials described above. Each subject was taken to either a quiet part of the classroom or to an area outside of the classroom and told that the experimenter would like him/her to read a story aloud. Subjects in the automaticity group were told before reading the story, they would practice some words in a list. These subjects were then presented with a list of unfamiliar words and asked to "read them for me." The experimenter provided no prompting or assistance of any kind until the child had completed his/her first attempt at reading the entire list. Immediately thereafter, automaticity subjects were told, "There are some words in the list that you had a little trouble with. Let's practice them."

This subject was then instructed to begin reading the list again. The experimenter then modeled any hard words that subjects were unable to decode accurately during their second reading of the story. These corrections were the only form of feedback that the subjects were given during the story reading. Errors on familiar words were not corrected.

Results
Means and standard deviation for non-target and target word errors, story time, and total time appear in Table 1. Two-way analyses of variance will repeat measures on the second factor (stories) were conducted on the two error scores. The automaticity subjects were significantly more accurate in their decoding of target words, \( F_{1,21} = 22.43, \ p = .001. \)

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Target Word Errors</th>
<th>Story Time</th>
<th>Total Training Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Automaticity</td>
<td>Psycholinguistic</td>
<td></td>
</tr>
<tr>
<td>Non-Target Word Errors</td>
<td>( X = 1.72 )</td>
<td>( X = 2.79 )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \sigma = 1.33 )</td>
<td>( \sigma = 4.14 )</td>
<td></td>
</tr>
<tr>
<td>Target Word Errors</td>
<td>( X = 1.23 )</td>
<td>( X = 5.59 )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \sigma = 1.33 )</td>
<td>( \sigma = 3.17 )</td>
<td></td>
</tr>
<tr>
<td>Total Story Time</td>
<td>( X = 367.38 )</td>
<td>( X = 503.31 )</td>
<td></td>
</tr>
<tr>
<td>(in seconds)</td>
<td>( \sigma = 120.93 )</td>
<td>( \sigma = 225.53 )</td>
<td></td>
</tr>
<tr>
<td>Total Training Time</td>
<td>( X = 757.22 )</td>
<td>( X = 903.31 )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \sigma = 256.24 )</td>
<td>( \sigma = 225.53 )</td>
<td></td>
</tr>
</tbody>
</table>

A two-tailed t-test of story reading times failed to demonstrate a significant difference between groups, \( t = 0.11, \ p = .91 \) although the mean time taken by the automaticity group was over 10 seconds less that of the psycholinguistic group. A two-tailed t-test of the instructional time (list training and story reading) indicated a significant difference between groups, \( t = 2.68, \ p = .02 \), with the automaticity group taking more total time.

Discussion
The results of this study indicated the although pretraining on unfamiliar words and correcting errors require more instructional time than would be required by the psycholinguistic model, the additional training results in fewer decoding errors. The preferred method might depend on what the teacher considers to be the morion. The idea was to incorporate brief, repetitive oral reading practice, but to look for new indices of the relative merits of the two models.

An additional factor relevant to the selection of an appropriate teaching strategy involves the use of target words as context cues. Accuracy on target words would be greater, but with less accuracy in the psycholinguistic model.
Computers in Education – a DI Perspective

Douglas Carnine

Computers are all the rage, in typical education fashion. In the first breath, people say that "Computers will revolutionize education." In the second breath, "everyone says "The Software is horrible," which makes computers dull and uninteresting. The truth may lie at either extreme or in between. Computers could represent the first significant change in instruction since an adult stood up and spoke, becoming "teacher." On the other hand, poor utilization of the computers (i.e., inferior software) could devalue computers to fad status, and they could ultimately sit on a table in the back of the classroom gathering dust. The purpose of this article and subsequent ones is to argue for intelligent computer-assisted instruction-with software that interests and, in a real sense, teaches students. Computers, especially with video disk capability, could increase teaching power in schools and in homes. Computers are patients; they keep track of student errors and review difficult skills and concepts. Computer-assisted instruction will return to these themes. The present task is to highlight the development work in computer-assisted instruction being done by the authors of the DISTAR® and corrective programs at Oregon. Results in applying Direct Instruction to computers are Marty Siege, who was recently joined by Bob Dixon at the University of Illinois, Sam Miller in Oregon, Alex Maggs in Australia, and Evelyn Rees and Roger Cocks in England. Articles on their work will be forthcoming.

Computer-assisted instruction (CAI) is but one educational application of computers. Computers can also be used for programming, writing, and analyzing data. But even within CAI, software programs can serve a variety of purposes: they can generate practice in new content, simulation of variables that interact in complex ways, and even situations whereby students can create their own lessons for drill, practice, and new teaching. Our work at Oregon encompasses each of these areas. We're developing a drill and practice program on vocabulary or intermediate grade students; instructional programs for analyzing math word problems; programs for constructing and criticizing arguments (reasoning aids); a simulation relating heredity, health habits, and strategies for changing these habits to increase life expectancy; and finally, an authoring language teachers can use to write their own CAI lessons. Describing each of these programs in detail must be left to later articles. However, a few of the more interesting features of each program will be mentioned here.

Learning vocabulary requires practice on new words and review of troublesome words. The appeal of the CAI program is that it constructs a different program for every user, basing any number of words the teacher needs to look. Review spans many days, so words aren't learned and then forgotten. Drill and practice, I believe, can be the application of computer-assisted instruction, but it can pre-empt much frustration for teachers and students.

The reasoning skills program starts by teaching students how to construct valid arguments. This skill not only is important in its own right, but also will give students an important grounding for criticizing arguments, which is taught later in the program. For example, few students realize that an argument that begins with a positively stated premise (e.g., All roses are plants), must continue in one of two ways: (a) placing an even smaller class (e.g., peace roses) within the small class of roses, or (b) placing the larger class of plants within an even larger class (e.g., living things). Here are examples of these two forms:

All roses are plants.
(a) Peace roses are roses.
(b) Peace roses are plants.

All roses are plants.
(b) Plants are living things.

Roses are living things.

This is just one of more than 50 skills students learn for constructing and critiquing arguments.

In teaching students to analyze math word problems, the underlying language skill of classification is stressed. Students learn through graphic portrayals of classes that cats and dogs are in the class of pets. Thus, if the number of cats and the number of dogs is known, the two numbers can be added to determine the number of pets. Conversely, if the number for the larger class, pets, is known, subtraction is needed. Classification also provides a basis for solving three other fundamental types of addition and subtraction problems. Procedures are also taught for analyzing multiplication and division problems, problems with irrelevant but distracting numbers, and problems that require more than one operation to obtain a solution. Studies will come away with a strategy for translating any word problem into a number statement.

Possibly the best computer-assisted instruction is done via simulation. Interactions that are too numerous and intricate to be remembered and processed by a teacher are handled by a computer. For example, the relationships among heredity, disease, health habits, and life styles are complex. Moreover, changes in habits and life style often create stress and require effort to accomplish. The changes, though, can extend a person's life expectancy by 10 or 15 years. In the computer simulation, students use up "willpower points" and deal with the stress inherent in making changes in health habits and life styles. They work quickly in making these changes, extending the life expectancy of a fictitious character, before "life runs out." The health simulation gives students a sense for the dynamics of a healthy life.

The final program is an authoring language for teachers to write their own lessons. Many authoring languages are available, and probably many computer-assisted instruction software programs are available. However, available programs are often difficult to use or don't accomplish their stated goals. (Articles dealing with the evaluation of authoring languages and systems and CAI programs will also be forthcoming.) Some of the most crucial aspects of CAI, like review of missed items, are not incorporated as a necessary part of other authoring systems.

I hope this overview stimulates your interest in the application of Direct Instruction principles to computer-assisted instruction. Computers can do much more than cut the nuts and bolts of drill and practice, but they can also teach sophisticated reasoning and analysis skills and manage intricate interactions so that students can see order within complexity. If you're interested in learning more about these software programs, write Doug Carnine, 3760 Onne, Eugene OR 97403.

1 Video disk capability combines the technology of movies with computers by allowing moving segments or single frames to accompany text on the screen. Students can not only read words and graphics, they can also hear and see photos and moving portrayals of events in science and social studies.

Pseudocognitive Model

Continued from Page 4

improved accuracy on familiar words, which were not corrected, is a less obvious finding. One possible explanation of the story reading/non-target word interaction is that automatically subjects, being more familiar with the target words, would more readily decode non-target words from contextual clues. Pseudocognitive subjects on the other hand, did not have the contextual advantage of knowing how to decode the target words. Students learning particularly difficult words or being exposed to a high density of unfamiliar words could profit from pretraining and corrections, both directly and indirectly. Accuracy on non-target words improves as a direct result of corrections. Accuracy on familiar words improves indirectly as knowledge of the unfamiliar words makes context cues more reliable. This new finding merits further research, possibly with errors being analyzed according to Goodman's model. At this point in time, though, the present findings on unfamiliar words add an interesting dimension to the continuing controversy over models for beginning reading.

References

Thill, L., & Siegel, K. Do beginners learn print words better in context or in isolation? Child Development, 1979, 50, 1355.

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DIRECT INSTRUCTION NEWS, FALL, 1983 5
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 plant arrow to insure correct paper placement. Exercises require only 10-20 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.

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 analyses keys each book's vocabulary with the words of 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.

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 sciences 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 20-50 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 scoreheets: Reproducible certificate.

Speed Spelling

AUTHOR: Judy Prifke
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-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 contains a record of performance and is the one consumable part of the program. Word List Packet contains large-letter words and is reproducible.

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Classroom Management: Strategies for Beginning the Year

By Randy Sprick
Educational Consultant

Ed. Note. This article overlaps to some extent with an earlier column, Teacher-to-Teacher. However, we believe the two descriptions complement and reinforce each other, so we have elected to print them both in this issue.

Successful classroom management consists largely of preventing behavioral problems before they have a chance to occur. Several studies (Emmer, Everson & Anderson, 1980; Everson, 1979; Emmer & Everson, 1980) have shown that the first week of school is a critical time for implementing procedures that will provide structure and a classroom behavior. This article will focus on five procedures that the teacher can use the first week of school to help motivate students and to get appropriate behavior started. The first week is a time to set an early positive tone for the remainder of the year.

1. Establish and Discuss Classroom Rules

Classroom rules should be established prior to conducting any classroom activities. Rules are best discussed immediately that first day of school. Several studies (Emmer, Everson & Anderson, 1980; Everson, Hyder, & Herold, 1978) have shown that the first week of school is a critical time for implementing procedures that will provide structure and a classroom behavior. This article will focus on five procedures that the teacher can use the first week of school to help motivate students and to get appropriate behavior started. The first week is a time to set an early positive tone for the remainder of the year.

a. Always do your best work.

b. Always be on time.

c. Always stay in your seat and stay quietly by yourself.

d. Raise your hand if you need help or have something to say.

After stating the rules, the teacher should give specific information about what each rule means. When talking about conventions, the teacher should explain different situations that might occur and have students identify and discuss examples of cooperation and friendly competition. This type of exercise requires students to think about the classroom rules in terms of their own behavior. The teacher will be teaching students how to take responsibility for themselves.

2. Discuss How the Rules Relate to Each Newly Introduced Classroom Activity

For the first two or three days of school, discuss how the classroom rules relate to the specific activities you have for each activity. Below are examples of the types of discussions a teacher might have.

We are going to be passing out your course and classroom study guides. In a moment, I will ask volunteers to pass out the books. I will call on four people who remember the rule about quietly raising their hands. Others of you will get a turn to help you out later today, or sometime this week. If you don’t get called on, you can help out by following the rule about cooperating. Raise your hand if you can tell me how you can cooperate if you aren’t called on to pass out books.

If no one complains about not being expected to experiment with misbehavior to ample of cooperating. You will be showing me how mature you are. Very patient, very quiet, very cooperative. We, the rest of us will be having a discussion on what to do.

3. Provide Positive Feedback to Students

Once rules are understood, it is critical for the teacher to provide positive feedback to encourage students who are trying to meet expectations. Feedback should be descriptive, and should periodically relate back to the classroom rules. Below are some examples.

• Thank you for quietly raising your hand.
• Everyone in the class listened while I was explaining the social studies assignment. That is cooperation.

4. Give Feedback at the Close of Each Activity

During the first several days of school, each activity by telling students how they did. Did they meet your expectations? If not, let them know what they should have done differently. Don’t single out individuals. The teacher will want to avoid giving attention to students who are having difficulties. However, students need to know if an activity did not go as you had hoped. You need to be clear about the feedback. Simply let the students know that next time you hope things will go better. Ask students what they believe they can do differently. Keep the tone positive so that students have positive expectations for future activities.

5. Use the Positive Practice to Teach Critical Classroom Behaviors

Some classroom activities will be reported on a daily basis. Transition from one reading group to another, lining up at the door, finding pages in a book, and completing assignments are activities that students engage in daily. It is vital that these activities be effective. This is why it takes five minutes for transition to occur between reading groups, a large amount of time for students to get organized. If a teacher has thirty minutes of instructional time, and five minutes of that time is taken up with transition, one-third of the instructional time is lost. If that pattern continues throughout the elementary school year, one year of reading instruction would be devoted to moving from one group to the next by the sixth grade. This kind of inefficiency will also take place throughout the day resulting in a minimal amount of instruction.

A strategy for teaching students to be efficient during routine activities is to reinforce positive behavior. Positive practice means that teachers actually practice routine daily activities until they can complete them efficiently.

The first step in positive practice is for the teacher to state her expectations for the activity. If students fail to perform as expected, have them try the activity again. Continue this procedure until students demonstrate that they can perform the task as required. The teacher should be proactive in using positive practice during the procedure. The teacher’s manner should simply communicate that the task needs to be done. The teacher will not only have mastered the task. The class will practice until they have mastered the task. As soon as the task begins to be mastered, the teacher’s expectations, give praise and then move on to the next task.

The long-term importance of early positive practice of routine activities is illustrated by comparing the ten minutes it might take to practice transitions at the beginning of the year with the loss of time when every transition that occurs during the year takes five minutes or more.

A few individuals may find that their inappropriate behavior during positive practice is a behavior that the entire class must go through on a task. Be sure to focus attention on those students who behave appropriately. This does not work within two to three trials, set up a mild punishing consequence for the inappropriate behavior of students who perform the task as expected.

Conclusion

The five strategies discussed will prevent many of the problems associated with students who can get attention by the rules and by the teacher while misbehaving. These procedures require extra work on the teacher’s part, but only for the first several days of instruction. The long-term benefits will far outweigh the extra work! Good luck and have a good year!

References


DIRECT INSTRUCTION NEWS, FALL, 1993 7
Organizing Your Classroom at the Beginning of the School Year

Another school year is starting and it's time to think about how to set up your classroom. Getting off to a good start will pay off all year long. This article will give you specific suggestions for setting up a schedule for the first few days of school and how to construct those first few days.

Before you write the first day's schedule, you will need to decide what behavior you expect of students at their desks, in groups and when they leave your classroom. You will want to consider how to teach students those expectations so that you can establish a positive classroom atmosphere. Younger students need to be introduced in appropriate classroom behavior as much as they need reading instruction. Older students need to know how you expect them to behave since they have probably experienced a wide range of teacher expectations in previous years. Spend some time now and decide what expectations you have for students in various situations: at their desks, in groups, and outside the classroom. Write these goals down. They will be used to formulate your classroom rules.

When you have your written expectations recorded, begin to think about rules for the various situations. It is important not to overwhelm the students with too many rules. Classroom rules should be stated in a positive manner. Also, rules should be consistent with your style and the vocabulary level of your students. The best time to teach rules is right before a new activity begins. For example, plan to teach seatwork rules at the beginning of a seatwork period. Start the session with two or three positive stated rules:

- Stay in your seat.
- Work quietly.
- Raise your hand if you need help.

Have younger students repeat each rule and then practice the rules for a short time. Ten or fifteen minutes is long enough. During that time, you should praise students for following the rules. Mention the students' names and state specifically what that student is doing that you like. Ignore students who may be talking out or off task. Follow the work time with a reinforcing activity as a reward for those who followed the rules. You will want to review the rules daily for several weeks and periodically thereafter.

For older students, state the rules and have them posted in the room to be reviewed daily for a week or so. The seatwork period can be extended to twenty or thirty minutes. You should praise frequently and follow the work period with a reinforcing activity. (For a more detailed description for setting up seatwork behavior, see Teacher-to-Teacher, Volume 1, Number 3.)

Take some time now to reread your expectations for various situations. Then make a list of all the activities that will happen the first day and the rules you plan to teach for each new situation. At this point do not concern yourself with putting the activities into any particular order (see Table 1).

Concentrate on keeping your rules specific and positive. Remember you will not present all your rules at once. You will teach only those rules which apply to a given situation.

Now begin to think of possible reinforcing activities which can be used the first few days as a reward for learning and following the rules. For example: extra recess, a record, free time, handshakes from the teacher. Take time now to expand the chart just started. Try to list three different rewards in each category. This will give you a wide variety of reinforcing activities from which to choose (see Table 2).

You should now consider possible consequences for a variety of misbehavior during each of your activities. Try to prepare yourself for the unexpected. Your general rule is to ignore minor misbehavior and use that misbehavior as a cue to praise a student who is following the rules. However, you should not let more serious misbehavior go unnoticed. You would not ignore fighting or name-calling. In a calm, yet firm, voice, tell the student to stop and tell him/her that fighting is not permitted in this class. Keep a written (or mental) note of the circumstances and students involved so that you can praise him/her for being cooperative. Your written notes will help you determine if a pattern of misbehavior exists so that you can effectively deal with it as early as possible.

Stop now to expand your chart listing consequences. Be sure to list at least 2 consequences for each category. Be specific (see Table 3).

Upon completing this chart you should clearly understand your expectations, rules to be taught for every situation, possible reinforcers and consequences for behavior. Use the chart to help you draft a letter to parents. The letter should be positive and should open lines of communication between you and the parents. Ask for their support by reviewing the classroom rules with their children at home. Let parents know you value their cooperation and are available if they have questions.

At this point, you are ready to start constructing the first day's schedule. You will need to schedule in mandatory activities such as lunch; P.E., music and so on. You should also schedule in testing time so that you can use the testing results to help set up your initial instructional groups in reading and math. Remember to allow time before each activity to teach the rules for that specific activity. Plan time for a reinforcing activity following the instructional or testing period. It is helpful to start the day with highly structured activity to show students that they are expected to work hard. Recess should be followed by a highly structured activity to show students they are expected to get right back to work upon entering the classroom. A sample first day's schedule could look like that in Table 3.

It may seem that the schedule is too full, but it is better to have overscheduled than to have unstructured time the first few days. You want to convey to your students that the classroom will be a place to work AND that they can have fun if they have worked hard and followed the rules.

After having written your particular schedule, go back and write in what materials are needed for each activity. For example: test materials, pencils, crayons, specific seatwork pages to be used while you are testing individuals. It is a good idea to have more worksheets ready as a back-up for those early finishers. Gather all materials and organize them in the order they will be used. You do not want to be collecting materials while the students sit around with nothing to do. Put your first day's schedule on a clip board so you can have

---

Table 1

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seatwork</td>
<td>Stay in your desk.</td>
</tr>
<tr>
<td></td>
<td>Work quietly.</td>
</tr>
<tr>
<td></td>
<td>Raise your hand if you need help.</td>
</tr>
<tr>
<td>Instructional groups</td>
<td>Listen when the teacher is talking. (Talk only on your turn.)</td>
</tr>
<tr>
<td></td>
<td>Watch the teacher (book or board)</td>
</tr>
<tr>
<td></td>
<td>Try your hardest.</td>
</tr>
<tr>
<td>Activity</td>
<td>Listen when someone else is talking.</td>
</tr>
<tr>
<td></td>
<td>Raise your hand if you want to talk.</td>
</tr>
<tr>
<td>Recess</td>
<td>Line up quietly.</td>
</tr>
<tr>
<td></td>
<td>Walk outside.</td>
</tr>
<tr>
<td></td>
<td>Play cooperatively.</td>
</tr>
<tr>
<td>Lunch</td>
<td>Line up quietly.</td>
</tr>
<tr>
<td></td>
<td>Walk in the hall.</td>
</tr>
<tr>
<td></td>
<td>Talk quietly to the room.</td>
</tr>
<tr>
<td>Activities outside the classroom</td>
<td>Walk quietly to the room.</td>
</tr>
<tr>
<td></td>
<td>Follow that teacher's rules.</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rules</th>
<th>Reinforcing Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seatwork</td>
<td>Stay in your desk.</td>
<td>Five minutes extra recess.</td>
</tr>
<tr>
<td></td>
<td>Work quietly.</td>
<td>Listen to a short story.</td>
</tr>
<tr>
<td></td>
<td>Raise your hand if you need help.</td>
<td>Listen to a record.</td>
</tr>
<tr>
<td>Instructional groups</td>
<td>Talk only on your turn.</td>
<td>Handshakes.</td>
</tr>
<tr>
<td></td>
<td>Watch the teacher.</td>
<td>Riddles.</td>
</tr>
<tr>
<td></td>
<td>Try your hardest.</td>
<td>Two minutes to talk with the teacher.</td>
</tr>
</tbody>
</table>

Table 3

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rules</th>
<th>Possible Reinforcement</th>
<th>Possible Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large group discussion</td>
<td>Listen when someone else is talking.</td>
<td>Extra recess.</td>
<td>If one or two students are talking, praise students who are following rules.</td>
</tr>
<tr>
<td></td>
<td>Raise your hand if you want to talk.</td>
<td>A classroom game.</td>
<td>Remind group of the rules.</td>
</tr>
<tr>
<td></td>
<td>A record or story.</td>
<td></td>
<td>If many students are talking, stop the activity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Explain why you stopped. Go to a structured activity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Try the activity again later.</td>
</tr>
</tbody>
</table>

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8 DIRECT INSTRUCTION NEWS, FALL, 1983
Organizing Your Classroom

Continued from Page 8

It handy to refer to during the day.
Completing all this planning should give you confidence that you are ready to handle the first day. On the first day, meet each student at the door and introduce yourself. Make a chat like that illustrated in Table 5 so that you can record specifics about each child.

In just one or two minutes, you can determine if you have the child’s name spelled correctly; what the student likes to be called; arrangements for the student’s lunch; whether or not the student rides a bus or how the student will be getting home after school; and whether or not the student has school supplies.

After recording the information, have the student go to a desk. Tell the student to start working on the worksheet which is on the desk. Having a worksheet ready and in place for the students gives them something to do while you are meeting the other students. It also helps convey your expectation that school is a place to work. This is also an opportunity for you to begin praising hard workers.

At the scheduled time, start the first structured activity listed on your schedule. Stick to the schedule as much as possible, always remembering to teach or review the rules for that specific activity. End the day by praising what the students have liked. Be specific by mentioning exactly what behaviors pleased you. Be encouraging by saying that you know it is hard to learn new rules and by assuring the students that you know they can do it. Remind the class what to do when they arrive the next day. For example, “Tomorrow, hang up your coat and get started on the worksheet which will be on your desk.”

Dismiss the students individually starting with the ones who have been listening quietly. Praise them for being quiet and check your chart to see that each gets on the right bus or meets the person walking them home.

After school, make the needed adjustments in the schedule for the next day. You should be able to switch to your permanent schedule by the second week of school.

I hope that by getting your year off to a good start you will have your best year yet.

Table 4

First Day Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td>Students arrive.</td>
</tr>
<tr>
<td>8:30</td>
<td>Introduce Myself.</td>
</tr>
<tr>
<td>8:30-8:45</td>
<td>Teach rules for seatwork (testing).</td>
</tr>
<tr>
<td>8:45</td>
<td>Testing — large group *</td>
</tr>
<tr>
<td>9:10</td>
<td>Teach rules for going to P.E.</td>
</tr>
<tr>
<td>9:15</td>
<td>Students go to P.E.</td>
</tr>
<tr>
<td>9:45</td>
<td>Review rules for seatwork (testing)</td>
</tr>
<tr>
<td>9:50</td>
<td>Testing — large group</td>
</tr>
<tr>
<td>10:10</td>
<td>Teach rules for going to recess</td>
</tr>
<tr>
<td>10:30</td>
<td>Recess</td>
</tr>
<tr>
<td>10:30-10:35</td>
<td>Review rules for seatwork</td>
</tr>
<tr>
<td>10:35</td>
<td>Individual testing *</td>
</tr>
<tr>
<td>11:00</td>
<td>Reinforcing Activity or seatwork page *</td>
</tr>
<tr>
<td>11:15</td>
<td>Get acquainted activity (specify which one)</td>
</tr>
<tr>
<td>11:30</td>
<td>Teach rules for going to lunch.</td>
</tr>
<tr>
<td>11:45-12:30</td>
<td>Lunch &amp; recess</td>
</tr>
<tr>
<td>12:30-12:35</td>
<td>Review rules for seatwork (testing)</td>
</tr>
<tr>
<td>12:35</td>
<td>Testing *</td>
</tr>
<tr>
<td>1:00</td>
<td>Teach rules for large group instruction.</td>
</tr>
<tr>
<td>1:05</td>
<td>Social Studies lesson *</td>
</tr>
<tr>
<td>1:20</td>
<td>Review recess rules</td>
</tr>
<tr>
<td>1:45</td>
<td>Recess</td>
</tr>
<tr>
<td>1:45-1:50</td>
<td>Review rules for going to another classroom</td>
</tr>
<tr>
<td>1:50-2:15</td>
<td>All school assembly</td>
</tr>
<tr>
<td>2:15-2:30</td>
<td>Review day’s events. Remind students of rules.</td>
</tr>
<tr>
<td>2:30</td>
<td>Dismiss</td>
</tr>
</tbody>
</table>

* Indicates where materials should be listed.

Table 5

Student Details Chart

| Name | Nickname | Lunch | After school | Supplies |

Getting Hired

I have recently participated in the screening and interviewing process for a number of public school positions. In this article I will first describe some of the factors screening committees consider important when they reviewed applications. Through the process, I realized that many excellent direct instruction-trained applicants may never reach the interview stage because of an inadequate application. Second, I would like to share some suggestions about what applicants might do in the interview setting.

To those of you who have had considerable experience applying and interviewing for teaching positions, my observations and suggestions may give you a few additional suggestions. On the other hand, this information may prove much more useful to those of you without much job-seeking experience, which includes recent graduates and a large number of us who do not change jobs frequently.

First steps first. You must be able to sell yourself on paper. You will not make it past the screening stage for a public school position unless your application is complete, thorough, and received before the application deadline.

A personal letter to someone in the district, usually the superintendent, describing why you are interested and qualified for the position is always impressive, but not essential. For those of you with a strong direct instruction background, it is important that you show your experience with a wide range of curricula. Screening committees will be more impressed with: (1) your public school experience (practicums do not count and should be de-emphasized unless that’s all you have), (2) the variety in types of students you have worked with, and (3) the full range of curricula you have used. (Unfortunately, screening committees appear to be more interested in breadth than depth. Therefore, you do not want to emphasize how good you are in just direct instruction.)

If you can also share something of your internal mental picture of the job, this can often work strongly to your advantage with a selection committee.

For letters of recommendation, it is sure to include at least one from your most recently held position. If you are applying for a teaching position, a good reference from the building principal is a must. He or she should emphasize how well you work with not only children but the staff and parents. It is also valuable to have a recommendation from another teacher and/or parent of a child you have taught. It’s better to have a few well selected recommendations than a plethora. Unfortunately, most applicants’ recommendations these days are so “glowingly positive” that they don’t tell much. The best letters of recommendation I have read are easy to read (i.e., they list your outstanding qualifications) and describe the full range of your communication abilities.

Administrators’ Briefing

by Linda Carnine

They should not be too short, implying the person recommending you did not want to take the time to write much on your behalf, or that the recommendation should be personal. (From the standpoint of a recommendation writer, it is helpful if you tell the person what experiences and qualifications you would like to have highlighted in his/her letter. It’s difficult to write a good recommendation without some guidelines.)

Personal contact with the school district is usually valuable during the screening process. If nothing else, call the district office to determine whether all your papers have arrived. Also inquire about the job, if any questions arise from the position notice. The more you can “customize” your application for the particular job for which you are applying, the better. If you do not make it past the screening process and you don’t know why, I recommend calling an administrator in the district to find out. Candidates rarely ask for this information, but would be well advised to do so. Often your application may be superior, but there are others who you were not considered which you would never have known about otherwise. (This suggestion also applies to the interview, if you are not offered the job.)

The following suggestions are for the interview stage. One friend of ours said he always brings himself up to top physical condition before interviewing, does lots of jogging and fitness training, etc. This may sound silly, but there is something to it. Interviews can be very grueling from my observation. You want to look vibrant during the interview if you possibly can. Your physical appearance is most important in creating an image, as is your body language during the interview. Being too relaxed and sitting back in a “power” position is not advisable. Also try to control any nervous tics you may have by starting picking your fingers, fiddling with objects, speaking too fast, or saying “ya know” frequently. Eye contact is also important during the interview, as well as humor, and showing others that you’re human. Try to answer each of the questions asked and seek clarification if you are not certain what is being asked. Use questions as an entry into more about yourself and your qualifications. An interviewee who answers a question terse- ly leaves the whole interview process at a dead end. You want to find a compromise between talking too much (non-stop) and not talking enough. Keep in mind you are trying to sell yourself and your experience and convince those interviewing you are the perfect match for this position.

You may be expected to discuss your long-range plans and goals in the interview. This type of question may not be asked, but it often is. Having alternate plans is not frowned upon, but in course, those interviewing you are interested in your long-term commitment.

Continued on Page 13
Report by T.H. Bell's Commission on Education

Part II – Findings and Recommendations

(Continued from Summer '83 Issue)

Findings

We conclude that deficits in educational performance are in large part the result of disrup-
tions in the way the educational process itself is often conducted. The findings that follow, culled from a much more extensive list, reflect four important aspects of the educational process: content, expectations, time, and teaching.

Findings Regarding Content

By far, the single most obvious of the "knots" of education, the curriculum. Because of our concern about the total curriculum, the Commission reviewed the contents of courses high school students take in 1983-84, and the requirements for graduation in 1979-80. On the basis of these analyses we conclude:

- Secondary school curricula have been homogenized, designed primarily to accommodate the needs of a small majority of students than they no longer have a central purpose. In effect, we have a one-size-fits-all curriculum in which all students must be able to achieve the same ends, regardless of their aptitudes, interests, or future plans. In short, the very spirit of excellence and the深度 of knowledge reflected in a coursework may well be sacrificed for the sake of uniformity. As a result, any real meaning to our curriculum is that it be meaningful and relevant to the needs of all students, and thus that it be flexible and adaptable to the individual needs of each student.

- A high school state-by-state survey of high-school diploma-seeking students revealed that only six states require that all students be graduated by the end of the eight grades, but none requires students to take the courses. Thirty-five states require only one year of science for a diploma.

- California's school for individual classroom teachers found that even some of the elementary school students in the third grade do not receive adequate instruction, and that their instruction is often repetitive and of little value to their development.

- In most schools, the teaching of study skills is neglected. Instead, the emphasis is on teaching the basics that are required for high school and college preparation, without significant consideration of college or university curricula.

- The main problem with the overall curriculum is that it is not flexible enough to meet the needs of all students.

- The core curriculum problem is that students are not given enough time to develop their interests and abilities.

- The core curriculum is too narrow and does not provide enough opportunities for students to develop their own interests and abilities.

- The core curriculum is too rigid and does not allow enough flexibility for students to develop their own interests and abilities.

- The core curriculum is too narrow and does not provide enough opportunities for students to develop their own interests and abilities.

Findings Regarding Teaching

The Commission found that the most effective teachers are those who are able to teach their students to understand the subject matter they are teaching. These teachers are able to explain the material in a way that is meaningful to their students, and they are able to help their students to develop their own understanding of the subject matter. In addition, these teachers are able to motivate their students to learn, and they are able to create a positive classroom environment.

Findings Regarding Time

Evidence presented by the Commission demonstrates three disturbing facts about the use of time in American schools:

- Students spend too much time in school.
- Students spend too little time in school.
- Students do not have enough time to learn.

Recommendations

In light of the urgent need for improvement, both immediate and long range, the Commission has made the following recommendations:

- The Commission recommends that the school day be shortened to 6 hours, with students free during the remainder of the day.
- The Commission recommends that the school day be extended to 8 hours, with students free for other activities during the remainder of the day.
- The Commission recommends that teachers be provided with additional training to help them better understand the needs of their students.
- The Commission recommends that parents be involved in the decision-making process to help ensure that the needs of their students are met.

Recommendations for Implementation

The Commission recommends that:

- The teaching of English in high school should be integrated into the general curriculum.
- The teaching of mathematics in high school should be integrated into the general curriculum.
- The teaching of science in high school should be integrated into the general curriculum.
- The teaching of social studies in high school should be integrated into the general curriculum.
- The teaching of foreign languages in high school should be integrated into the general curriculum.
Achieving Excellence in Education

America Can Do It

Despite the obstacles and difficulties that inhibit the pursuit of superior educational attainment, we believe we can achieve it with the belief in our own abilities that we have as Americans. The American people are able to set our sights on higher goals and to make remarkable success.

In the nineteenth century the United States led the world in research and training that developed our nation's natural resources and the rich agricultural bounty of the American farm. From the late 1800s through mid-twentieth century, American schools provided the educational background for the success of the Industrial Revolution and to provide the means of creating good cities with their prosperity.

In the early part of this century and continuing to this very day, our schools have shown their vast improvements and their children to productivity and society. Similarly, the nation's black colleges have provided opportunity and undergraduate education to the vast majority of college-educated black Americans.

More recently, our institutions of higher education have provided the education and skilled teachers who helped us transcend the boundaries of our planet. In the last 20 years, the schools have been a major vehicle for expanded social opportunity, and now graduate 75 percent of our young people.

The United States is one of the most educated nations in the world. In 1980, the U.S. Census Bureau conducted a national survey of Americans of college age enrolled in higher education. The survey found that 70 percent of high school graduates were enrolled in college. Of those students, and more students are enrolling in them.

The importance of a post that gives every reason to believe that we will succeed.

A Word to Parents and Students

The task of achieving the success of our recomendations is a shared responsibility. Both schools and parents are in the education system. Obviously, faculty members and administrators, along with policymakers and the mass media, will play a crucial role in the reform process. Everyone has a role to play in the reform process.

To Parents:

You know that you cannot confidently launch your children into the future without recognizing the strong character and well-educated in the use of language, science, and mathematics. They must possess a deep respect for the environment, and for the material and cultural values. Even these skills alone, obviously, faculty members and administrators, along with policymakers and the mass media, will play a crucial role in the reform process.

Your role is in view of what you expect your children to honor and emulate. Moreover, you bear a responsibility to participate actively in your children's education. You should encourage your children to write more than the barest of imperatives.

But your right to a proper education for your children is more critical than ever at this time. The personal and professional needs of the children of the future are more significant. This is a time for all the children of the world, and their parents, to recognize the need for a proper education.

To Students:

You are the children of the future. You are the children of the world, and their parents, to recognize the need for a proper education. And you are expected to provide this education to all children in the world, and to make your contribution to the continuing learning in your own life. Finally, help your children understand that excellence in education cannot be achieved without individual and collective effort, and that the demand for excellence cannot be applied to an individual without the demand for excellence.

Continued on Page 15
GENERALIZED COMPLIANCE TRAINING:
A Direct Instruction Program for Managing
Severe Behavior Problems
Siegfried Engelmann
Geoffrey Colvin

Generalized Compliance Training gives you a complete, step-by-step program for teaching students who are truly noncompliant. Variations of the program are appropriate for noncompliant learners of all ages and virtually all levels of intellectual functioning.

The book is divided into three sections. Section I presents basic background information on the program and on the noncompliant learner. Section II deals with specific details of the generalized compliance training program. Section III shows how the program can be modified to be used with learners of varying abilities, and how to work with parents. The book ends with a review of the data that has been collected on the techniques used in the program.

248 pages, 6 x 9, 1983 ISBN 0936104-31-7 #0375 $18.00

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Conducting DI Training Sessions

by Marilyn Sprick and Randy Sprick, Educational Consultants, Corvallis, Oregon

This article provides general guidelines to help experienced DI teachers plan and present a Direct Instruction training session. If a large number of teachers is to be trained, it is preferable to contract for training by an outside consultant. A large DI adoption means that training will include a mixture of enthusiastic, neutral, and reluctant teachers. An outside consultant can provide services for every child. The teacher is the critical variable in whether the instruction works well in the hands of each teacher. There is no substitute for the combination of intelligent teaching and logical programs.

Avoid trying to "sell" participants on the benefits of the DI approach. Your presentation and instructions will be geared to providing information and tools to a group of professionals. You must respect the teachers as professionals and trust them to decide for themselves whether to add DI for their students.

Recognize the relevance of questions提出的 by your presentation, and be specific in your explanations. For example, a trainer could adopt a teaching plan for a group of teachers for the simple reason that they are the only effective way to teach. A more acceptable explanation includes why the instruction is included as a teaching skill. You need to be more specific in your explanations. For example, a trainer could adopt a teaching plan for a group of teachers for the simple reason that they are the only effective way to teach. A more acceptable explanation includes why the instruction is included as a teaching skill. You need to be more specific in your explanations.

Always respond calmly and logically rather than emotionally. If you provide modifying and maintaining professionalism, you will encourage participants to see the logic behind the DI programs and teaching skills.

Designing a Training Session

Your DI training session should include: (1) program content, (2) program rationale (3) format practice and information on DI teaching skills.

Specific Program Content

The following basic information on the specific program you will be training on is the first 13 to 15 of the presentation. This section should include the following content:

1. Target population (approximate grade level and instructional level of the program)
2. Skills required to enter the program (placement test)
3. Skills and equivalent skill levels at the end of the program (use program samples)
4. The relationship between skills taught in the direct instruction program and other materials currently being used
5. The teaching advantages in the program
6. Time requirements (time per day, time per week, projected number of lessons per year based on student mastery)
7. Components of each daily lesson
8. Number of students per group
9. Scheduling instructions

Program Rationale

The total time spent on program variation will depend on the amount of background participation you have in your program. The program will be spent on program rationale. Using the program you are training on, illustrate the benefit of each skill (as identified in the present study). If teachers are native to DS, these basic underlying concepts will need to be stressed.

1. All students can successfully learn the skills taught in a direct instruction program, though some students will be better at it than others.
2. Program organization and sequencing can make learning new and complex skills relatively easy to learn. You may wish to compare other programs and how we often lose a percentage of the students.
3. Teaching is more than presenting. It involves a teacher interacting with students until mastery is achieved.
4. Teaching involves motivating students.

Format Practice and Direct Instruction

Throughout the remainder of your training session you will be training teachers to run specific programs found in the program you are using. Focus first on formats that are the most common throughout the program. Specifically, Spelling Through Morphology, the "Word and Spelling Instruction" is in 80 percent of the lessons. Participants need to be very firm on the format. After training on the most common formats, move to formats that will be the most difficult for teachers to learn on their own.

At the end of your presentation, you will have a new format, put it into perspective with the rest of the program. How does it relate to other formats already learned? How do all of the formats work together to build more complex skills?

Using the first format practice by telling participants that these nontraditional teaching skills require practice in isolation. These formats will include new motor skills and coordination. The procedures will feel awkward at first, but with practice they will become second nature.

While conducting format training, follow the model-lead-test pattern. Show that the entire format should be run. Demonstrate part of the format, and lead the participants through. As the participants receive feedback, they will grow. When the group is able to run that part of the format smoothly, they will go on to the next part. Follow the model-lead-test pattern. Combine the format parts, and follow the same process until the group demonstrates competency in running the entire format. As time allows, have participants practice in pairs, move through the group, taking note of problems. Practice again with the entire group, clearing up any difficulties you have noted during the pair practice. Practice until the group meets criterion.

Throughout, format practice, introduce the basic DI teaching skills. The authors of this article typically focus on the seven teaching skills listed below:

1. Following format steps
2. Using signals
3. 100% Response
4. Corrections
5. 100% Criterion
6. 60% Criterion
7. Reinforcement

First introduce the importance of following format steps. These two skills will be practiced with the first format you introduce. In addition, you can discuss why these skills are critical for participants to understand why they are necessary in effective direct instruction. For example, if teachers use signals but fail to get all students to respond without mimicking others in the group, the teacher will simply be going through the motions without the intended results to the procedure. If teachers fail to understand why a procedure is used, they cannot be expected to keep using the procedure. The end result is that students will not experience the kind of success that is built into the programs.

As you teach new formats, add the remaining teaching skills in one at a time. Throughout the workshop day, the seven teaching skills will be introduced and explained with new formats. Discussion and practice of teaching skills will give your session variety and a change of pace. Adding the teaching skills in the day will help prevent teachers from becoming overwhelmed by the number of things to remember. Practicing skills in a cumulative manner will provide a plan for obtaining and reviewing teaching skills that have already been introduced.

Conclusion

It is imperative that you work from a well-organized outline, below is a sample of how the day might be broken into the components discussed above.

Specific Program Content

Program Rationale

Teaching Skill: Format

Review Teaching Skills: Formats and Signals

Teaching Skill: Practice

Teaching Skill: Practice and Review

100% Criterion

100% Practice

100% Response

100% Practice

Contact Information:

DIRECT INSTRUCTION NEWS, FALL 1983

Getting Hired

Continued from Page 9

to continued employment with them. Any interest in professional growth that is compatible with this is sought. But mostly those interviewing are interested in staying with you if they find the job a good fit, of course, it is just a one-year position.

There are many excellent direct- instruction-related job candidates who should be getting teaching positions that are opening up. It is hoped that information and suggestions mentioned here regarding applications and interviews will ensure that teachers will get the jobs they deserve, and don’t lose out to candidates who are less qualified, but better sales people.
Spelling -- Continued from Page 1

proper vowel combination, Beers, et al. (1979) found that children's spelling errors were primarily transpositions, which make most errors because they overgeneralize rules (usually phonics based).

Cornell (1978) suggests that teachers and publishers alike create many problems for students because they do not understand the basic difference between reading and spelling instruction. Reading is a decoding process in which the learner has a "tangible" symbol to interpret; spelling is an encoding process in which the learner must translate spoken sounds into symbols.

Teaching spelling is further complicated by the fact that the English language contains 1800 homophones (or homonyms) (Cornell, 1978). Forgetting to use the correct spelling for words that sound alike but are spelled differently, such as blue/bleu or there/their/they're. To spell these words correctly, the student must know all possible spellings and must pair the appropriate spelling with the word as it is used in context. Many spelling programs; however, focus on the meanings of these words rather than on spelling accuracy (Sayles, 1969).

Workbook Procedure

A relatively recent trend in spelling workbook has been an increased emphasis on language arts skills (Graves, 1979). Language arts exercises include homonyms, synonyms, handwriting, capitalization, punctuation, etc. Cohen (1969) analyzed the relative cost of spelling tests from the 1956-61 period and found the following percentages within these programs as follows:

Affixes & inflections ............ 24% Language arts skills ............ 20% Syllabication ................ 8% Phonics skills ................ 6% Word meanings ................. 15%

Affixes and inflections included prefixes, suffixes, base or root words and word pronunciations. While some of these activities are spelling related, they in fact constitute a de-emphasis on spelling per se.

Cohen also described the fact that textbooks appear to have no discernible organization for presenting exercises. For example, a lesson in a text one day might be on spelling; the next day might be on handwriting and capitalization exercises. The next day the lesson might emphasize spelling and the next, reading, etc. Cohen found that many activities, especially language arts skills, did not improve vocabulary, even hindered—students' spelling skills.

When Graves (1979) reanalyzed tests from the 1971-73 period, he discovered two primary changes. Author's had decreased phonics instruction to 20% in the workbook, but had increased language arts skills to 34%.

Research has indicated that the typical spelling textbooks do not improve students' spelling achievement after grade 4. Hamliton, Larssen, and McNutt (1974) investigated the effectiveness of the three most commonly used basal spellers and concluded that students not using a textbook made no different students' spelling ability after the 4th grade. Although these authors do not relate the described language arts/enrichment exercises in these texts to the lack of spelling enrichment, they do question whether educators should be using these texts with older elementary students.

Testing and Correction Procedures

A typical classroom procedure utilized by many teachers is to require that students complete workbook exercises on Monday through Thursday and then take a dictated test on Friday. This study-test procedure has been shown to be ineffective generally in improving students' spelling skills (Bryant, Dramen & Getttinger, 1961; Keith, Axelson, Anderson, Hathaway, Wood & Fitzgerald, 1974; Schoeppensteiner, 1962).

Teachers and textbooks frequently include independent "word copying" within daily instruction and as a correction procedure when students make errors. This practice has been found to enhance students' spelling (Graves, 1979). Word copying does not insist that students produce the word on their own. This practice does not allow students to determine which words to test.

After testing, the students work on those words whose spellings do not know and then are retested. The research literature suggests that this method is superior to the traditional spelling test method (Christine & Hollingsworth, 1966; Sheldon, Lashinger, Troike & Mercer, 1976). The teacher would best meet the low-performing students' needs by presenting only one or two words daily—three or four per day (Bryant, et al., 1976).

Word Lists and the Test-Study-Test Method

The test-study-test method offers one possible solution to the problem of increasing spelling achievement and retention. This method is used to determine which words to teach. After testing, the students work on those words whose spellings do not know and then are retested. The research literature suggests that this method is superior to the traditional spelling test method (Christine & Hollingsworth, 1966; Sheldon, Lashinger, Troike & Mercer, 1976). The teacher would best meet the low-performing students' needs by presenting only one or two words daily—three or four per day (Bryant, et al., 1976).

For example, the student could be given the word "spelling" and spell the spelling for the suffixes -ing, -er, and -ed, the teacher could include exercises with words which the student is taught on the test, and suffix to test rule generalization. The worksheet should include positive examples (e.g., the words "working" and "runnin'), negative examples (e.g., the rule does not apply to "run"), and a random order (Engelmann & Carnine, 1976). The students' performance on this worksheet provides information to the teacher about whether to move forward to new material or not.

Corrective Procedures, Reinforcement, and Cumulative Review

Corrective feedback is important in all learning situations. Error corrections are the single most important factor in spelling improvement (Dobbs, 1970; White et al., 1979). The most successful teacher correction procedure in spelling is to check and correct errors as the students finish the word. The method has been found to be superior to just giving the teacher the spelling orally or visually (Kohn & Schroeder, 1971; Sheldon, et al., 1976).

With lower-performing students, correct, reinforcing error corrections can increase students' increased spelling skills. These students benefit most when the teacher verbally praises correct responses and corrects errors. In other words, these students are correcting all errors in the manner described above (Cullen, Dickson, Eaves-Dawson & Shapiro, 1980).

In some situations, especially when teaching older or handicapped students, verbal praise may not be reinforcing (McGee, 1960; Ferraldehyde de Scollo & McDiargill, 1978). One study (Lovitt, Guppy & Blattner, 1966) used free-time contingencies to increase students' spelling skills. Whenever the students achieved 100% on daily spelling tests, they were excused from workbook exercises that afternoon and given a choice of free-time activities. The number of students achieving perfect papers rose.

Continued on Page 15
from an average of 4 per day to 25 per
day (out of 33 fourth graders) after the
free-time contingency was introduced.
Cumulative records revealed that this
strategy, once again, served to integrate
learning is integrated with old learning (rather than interfering with it). Teachers also noted that
weekly work, especially important, especially
including old words most like the
new words being learned (Dwyer et al.,
1979; Englemann & Carnine, 1982).

Time-on-Task and Direct Instruction
Strategies
Several researchers have identified
basic handicaps in teaching procedures
which are essential to keeping all students actively engaged in learning. 

1. Teachers should establish
work-time rules and implement them the first day of school. 

2. Teachers should continuously
monitor all student work, providing
regular feedback on perfor-
mance.

3. Teachers should work with
groups rather than individual students
to increase teacher-student contact time.

4. Teachers should maintain
direct eye contact with students as much as possible.

5. Teachers should use reinforcement
clarifications in a strategic manner (i.e., reinforce students showing
desired behavior) so that behavior is
appropriate.

6. Teachers should be organized so
that time spent with students is devoted
to academic learning.

With good organization, spelling
lessons can be covered in 20
minutes.

The Direct Instruction strategies
developed by Siegfried Engelmann (see Englemann & Carnine, 1982) are
shown ID spelling programs (Corrective
Spelling Through Morphographs and Master
Spelling Through Corrective
Spelling Through Morphographs

program design: (1) specifying objec-
tives, (2) defining problem solving strategies, (3) developing teaching pro-
cedures, (4) selecting examples, (5) providing practice, and (6) sequencing skills acquisition.

The teacher must use basic elements
(words, scripts) of the program to
be effective with students. Direct Instruction "compositions" are commercially available in many
areas. Although these scripted programs provide excellent models of composi-
tion, the teacher will often be required to
develop or adapt scripts for unique tasks or
to meet the unique needs of
individuals. Teachers will need to develop
and micro-teaching to assure responsibility for this important role.

Conducting
The verb "to conduct" includes the following denotations: (1) to lead, (2) to direct, (3) to manage, and (4) to control.
Each definition has different connota-
tions, but conducting implies "supervis-
ing" by using one's executive skills
knowledge, wisdom, etc." (Webster's

Achieving Excellence

1. Conducting, in its finest com-
atu-which is a derivative of "time-better"---a skill
which can be mastered by "children of
kindergarten age" (Green, 1964).

2. Conducting requires leadership,
management, and performance skills.

3. As with the conductor's role, the cues,

4. Conducting is associated with the
cues, prompts, and signals of a DI teacher are

5. But too often, this role is not
considered a vital or "professional" one for DI teachers. 

6. The purpose of the Direct Instruction
students.

7. The Direct Instruction programs are
more than twice the gains with traditional pro-
gram designs. These DI programs go a long
way in correcting the deficiencies of
current spelling programs. In summary, while there are many problems with spelling materials, available
teachers, there are steps the teacher can take to improve spelling
instruction for all students.

Ed. Note: In the next issue, Marie Col-
lines will continue her analysis of effec-
tive spelling procedures by focusing on
the structure and properties of the Master Spelling Series and the
Corrective Spelling Through Morphographs.
students are quite low for an inner city area (6.1% for Follow Through vs. 2.8% for comparison). This small difference is not significant.

College Plans
Many Cohort I students were in a position to consider some form of higher education. Former Direct Instruction Follow Through students had a greater tendency to make college plans than comparison students. Twenty-six Follow Through students (31.7%) were making plans for future education as of June 1981, compared to six (10.7%) comparison students. Of Follow Through students, 20 had been accepted to four-year colleges and 10 to junior colleges, four were waiting to hear about acceptance from four-year colleges and two from junior colleges. Four comparison students had been accepted at, and two were waiting to hear from four-year colleges. The Follow Through students appear to be more open to a college education.

High School Achievement
Achievement was measured in three ways: (1) scores on standardized achievement tests, (2) grade point average (GPAs), and (3) inclusion in Honor Roll.

The SRA achievement tests, administered in the ninth grade, covered the areas of Reading, Math, and Language Arts. Table 3 shows differences between Follow Through and comparison students in high school achievement scores and GPA. On each achievement test, the mean standard score for each group was converted to a percentile. Statistically significant differences are marked by ‘*’. In both cohorts Follow Through scores are higher in GPA and Reading. When both cohorts are combined into one analysis, GPA and Reading are significant at the .05 and .01 levels, respectively, using a one-tailed test.

In general, Follow Through students performed at a higher level than comparison students in Cohort III. No differences are noted for Cohort I. It is quite likely the program was better implemented for Cohort III students. Teachers had two extra years to learn the model. The ninth grade results for Cohort III Follow Through students are at the national median in Math, six years after the conclusion of the program.

Their Reading scores are similar to their third grade standardized achievement test scores, at the .04th percentile. Direct Instruction students’ achievement is significantly higher than the comparison students on both third and ninth grade tests in Cohort III.

Honor Roll data are similar for Follow Through and comparison students. In Cohort I, 12.2% of the Follow Through and 11.1% of the comparison students qualified for the Honor Roll. In Cohort III, 17.2% of the Follow Through and 10.0% of the comparison students qualified.

Progress Through School
Ease of students’ progress toward high school graduation can be reflected by the incidence of students retained at the same grade for more than one year, as of students placed in some form of special education program—as well by attendance data.

A student was rated as an attendance problem if that student had been absent for over 10 days during school years 1981-82. By this standard, in Cohorts I and III, Follow Through students had an edge in attendance data. Table 4 also shows that Direct Instruction students were retained less than the comparison students. Almost twice as many comparison students receive special education help for academic deficits at some point in their school careers, although these differences are not statistically significant. When data for Cohorts I and III are combined, Good Attendance is significant beyond the .001 level. Never Retained is significant at the .01 level, and Placed in Special Ed. approaches significance (p = .12).

References

Acknowledgements
The authors wish to thank Wanda Hardin for all the follow up and data collection, and Karen Williams and Dan Davis for their constant support.

Table 3

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<th>Cohort-Grp</th>
<th>GPA</th>
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<th>Math</th>
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<td></td>
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<td>N %le</td>
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<td>74 29th</td>
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<td>Cohort III</td>
<td>FT</td>
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<td>51 34th</td>
<td>51 50th*</td>
<td>51 35th*</td>
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<td>Comp.</td>
<td>39</td>
<td>1.55</td>
<td>28 23th</td>
<td>28</td>
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Table 4

<table>
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<th>Cohort-Grp</th>
<th>Good Attendance</th>
<th>Never Retained</th>
<th>Placed in Special Ed.</th>
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<td>Cohort I</td>
<td>N</td>
<td>82 75.6%*</td>
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<td>36 47.2%</td>
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<td>38 67.2%</td>
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Approaching statistically significant difference (p = .10)
Statistically significant difference (p = .05)

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