

ADI NEWS

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The Flint, Mich. Study

The Follow 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 (Abt Assoc., 1976, 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.²

Overview of Results

Some results—attendance, retention rate, college plans, grade point average—indicate a significant difference between Follow Through and comparison students. Other data—ninth 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 1982 who graduated or who are still earning credits toward their diplomas. The dropout rates for these

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— TEACHING SPELLING — Current Practices and Effective Instruction

by Maria Collins
University of Oregon

This article reviews current practices in spelling instruction and examines the ways in which this instruction might be improved.



MARIA COLLINS

Current Practices and Methods³

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 (Hinrichs, 1975). Several common practices in current vogue may actually serve to hinder teachers in their efforts to teach spelling. These practices are reviewed under the following headings:

1. Placement procedures
2. Word list format
3. Instructional procedures
4. Workbook characteristics
5. Testing and correction procedures

Placement procedures for spelling programs fairly often lead to students being taught what they already know. Manolakes (1975) investigated students' word-spelling knowledge and found that most students already knew how to spell

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 next grade level. Both Manolakes (1975) and Hinrichs (1975) questioned the placement procedures in spellers, suggesting that most spelling texts 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), a procedure that often distracts rather than facilitates word spelling skill (Fitzsimmons & Loomer, 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, Hinrichs (1975) notes that many words in elementary spellers are of such low frequency that they are irrelevant for most writing.

Instructional Procedures

Many spelling programs direct the classroom teacher to instruct students in a phonics-based manner, but this can pose problems. Several researchers have examined the role of phonics in spelling (Beers, Beers, & Grant, 1977; Graham & Miller, 1979; Horn, 1969; Johnson, Langford, & Quorn, 1981; Yee, 1969). A particular problem with this approach seems to be that spelling programs frequently incorporate reading rules that are irrelevant for spelling (Graham & Miller, 1979).

A common reading rule used to teach the spelling of double vowel words such as mean is "When two vowels are together, the first one says its name" (Yee, 1969). When students try to apply this rule to spell ea in mean, they have no clue as to which vowel combination to select for spelling the "e" sound. They could select ee (as in seem), eo (as in people), or ei (as in seize). The rule does not teach them how to choose the ap-

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Table 1 Groups of Follow Through and Comparison Students in Longitudinal Evaluation						
Group	Began K	Began 1st	Finished 3rd	Finished 9th	Finished High School	
Cohort I	Fall 69	Fall 70	Spring 73	Spring 79	Spring 82	
Cohort III	Fall 71	Fall 72	Spring 75	Spring 81	—	

Table 2 Graduation Status						
Cohort	Graduated		Dropped Out		Ret.—Still in School	
	FT	Comparison	FT	Comparison	FT	Comparison
I	56.1%	58.3%	6.1%	2.8%	37.8%	38.9%



Letters to the Editors

Dear Sir:

For the past year, Carl Neilsen, a social worker from our special ed. co-op, 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 Lou Sullivan
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 I'm looking forward to. I'm near having what educators refer now to as "teacher burn out." Hopefully I can get new inspiration plus enjoy the northwest while I'm at it.

Thank you
Nellie Whatley
Tulsa, 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 "Siegfried 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 VanEtten, 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 *objectively* describe all three materials cited as examples.

3. We have searched the entire article to find the words "too highly structured." You 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 overall philosophy.

You can be assured that anything written in this publication in the future, or by any editor/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 have delayed replying 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 Carnine some four years ago and is now at the University of Wisconsin.

For your information and others, "the upcoming articles on Ernie House's attack on the Follow 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

Roles For Direct Instruction:

Reducing, Composing, and Conducting

Thomas D. McFarland and
Stephen W. Ragan
Lewis-Clark State College
Lewiston, ID

Teachers who select the Direct Instruction (DI) model assume one or more roles which have not been traditionally required of the classroom teacher. Historically, teaching roles have involved everything from washing windows to whittling pen nib (Blackhurst and Berdine, 1981). Fortunately, some of these roles have been eliminated, and more emphasis has been given to management, curricula, and instruction. The emergence of competency-based education has directed attention to specifying essential curricula and instructional roles. Three areas of competency involve: (1) classroom organization, (2) program design and (3) instructional presentation (Carnine and Silbert, 1979).

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

Producing

The producer assumes responsibility for the total production of a music event. Responsibilities may include coordinating all resources, arranging the physical setting, and scheduling the event. A primary area of competence is the ability to organize.

Producing 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 the physical setting and the necessary materials, and insuring adequate learning time are essential to success (Carnine and Silbert, 1979, pp. 12-14).

Composing

Composing denotes both forming a combination and creating. The verb "compose" means literally to put in place or combine, various elements. To compose music would then mean to combine various sounds, presumably in a purposeful arrangement (Etler, 1974, 170). 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 professional knowledge of the discipline including principles and rules of composition. Each must invent original works.

The DI model emphasizes the role of the teacher as composer. Carnine and Silbert (1979) list the following areas

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Netting Networking Work

By Elwyn Rees
Worcester College, England

Q. What does the title mean?

A. Just what it says. I came over 8000 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 when 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 drags a guy 8000 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 contrive 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're going to have to do this 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 circuitry 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 out 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 collecting basket knowing where each one came from by the itsy-bitsy number on the cute little ol' 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, hu?

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 I?

Q. Jo Federigo's?

A. Madam! Are you trying to compromise my sabbatical?

Q. Are you kidding?

A. Hu... 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 thus adding 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, hu?

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 specialised educational application... O.K?

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 begin interacting when I give you the instruction to do so," she sweetly chortles. "BEEEEEEEE... 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 analyses 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 no way 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 two!!!! 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 21st 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 "hitherto networking systems have operated 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. The present study compared the story reading times and errors of subjects who did and did not receive: (1) 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 article on the 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, 1967; Samuels & Jeffrey, 1967; Weber, 1970; Shankweiler & Lieberman, 1972; Singer, Samuels, & Spiroff, 1974; Carnine, 1977; Ehri & Roberts, 1979; Carnine, 1980).

The present study was conducted in an attempt to examine the seemingly contradictory finding 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 corrections. The idea was to not merely 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 6 to 8 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 67 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 *hated* 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 *lead* him to the tub. Sam *woofed* at us to tell us he was *angry*. When we put him in the tub, he *howled* 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 was recorded. The same measurement was taken for the second and third readings of the same story. This variable served as a means 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 that 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." The 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 readings. 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 with repeat measures on the second factor (stories) were conducted on the two error scores. The automaticity subject were significantly more accurate in their decoding of target words, $F_{(1,24)} = 22.43, p = .001$.

The analysis of non-target word demonstrated no significant difference between groups, indicated that these words were equally familiar to subject in either group, as expected, $F_{(1,24)} = .82$. A highly significant interaction between story reading (first, second, and third) and non-target word errors, $F_{(2,48)} = 6.81, p = .01$, was evident, however. A plot of non-target word error mean per group for each of the story reading shows that while automaticity subject' non-target word decoding accuracy improved across stories, the subjects in the psycholinguistic group got progressively less accurate. (See Figure 1.)

A two-tailed t-test of story reading times failed to demonstrate a significant difference between groups, $t = .91$ although the mean time taken by the automaticity group was over 100 seconds less than 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 that 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 more critical outcome of reading instruction. Specifically, the automaticity approach would seem to emphasize accuracy during the teaching of unfamiliar words while the psycholinguistic approach requires less teaching time, but with more decoding errors. The former approach would cover less material, but with more accuracy (important in the automaticity model) while the latter would cover more material, but with less accuracy (possibly acceptable to the psycholinguistic model).

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 expected to improve as a function of corrections. However, the

Table 1
Means and Standard Deviations for Non-Target and Target Word Errors, Story Time and Total Time

	Automaticity	Psycholinguistic
Non Target Word Errors	$\bar{X} = 1.72$ $\sigma = 1.33$	$\bar{X} = 2.79$ $\sigma = 4.14$
Target Word Errors	$\bar{X} = 1.23$ $\sigma = 1.33$	$\bar{X} = 5.59$ $\sigma = 3.17$
Total Story Time (in seconds)	$\bar{X} = 367.38$ $\sigma = 120.93$	$\bar{X} = 503.31$ $\sigma = 225.53$
Total Training Time	$\bar{X} = 757.23$ $\sigma = 256.31$	$\bar{X} = 503.31$ $\sigma = 225.53$

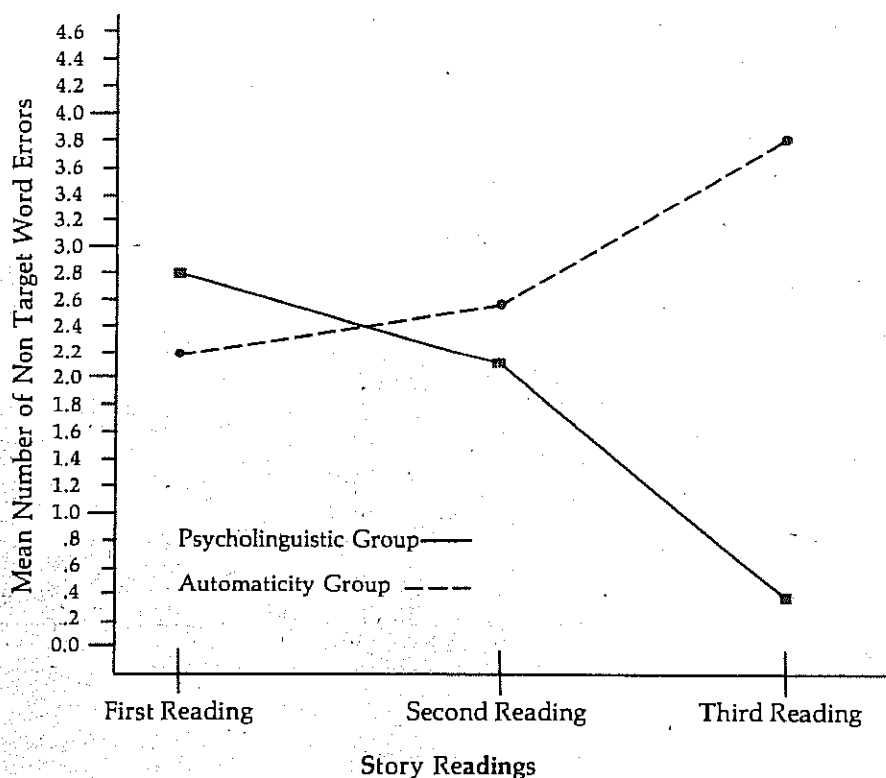


Figure 1

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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 tiresome. 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 relegate 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.¹ Computers will make individualized instruction affordable. Computers are patient; they keep track of student errors and review difficult skills and concepts. Subsequent articles 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. (Pioneers in applying Direct Instruction to computers are Marty Siegel, who was recently joined by Bob Dixon at the University of Illinois, Sam Miller in Oregon, Alex Maggs in Australia, and Elwyn Reece 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 provide drill and practice, instruction on new content, simulations of variables that interact in complex ways, and even a means whereby teachers 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 critiquing arguments (reasoning skills); 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 vocabulary program is that it constructs a different program for every user, based on only those words the user needs to learn. Review spans many days, so words aren't learned and then forgotten. Drill and practice may be the least exciting 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 critiquing 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 con-

tinue 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.
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, just as 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 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 Onyx, Eugene OR 97405.

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

Psycholinguistic 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 automaticity subjects, being more facile with the target words, would more readily decode difficult non-target words from contextual cues. Psycholinguistic 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 new words improves as a direct result of corrections. Accuracy on familiar words improves indirectly as knowledge of the unfamiliar words makes context cues more useable. This new finding merits further research, possibly with errors being analyzed according to Goodman's miscue system. At this point in time, though, the present findings on familiar words add an interesting dimension to the continuing controversy over models for beginning reading.

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STUDY STRATEGIES A Metacognitive Approach

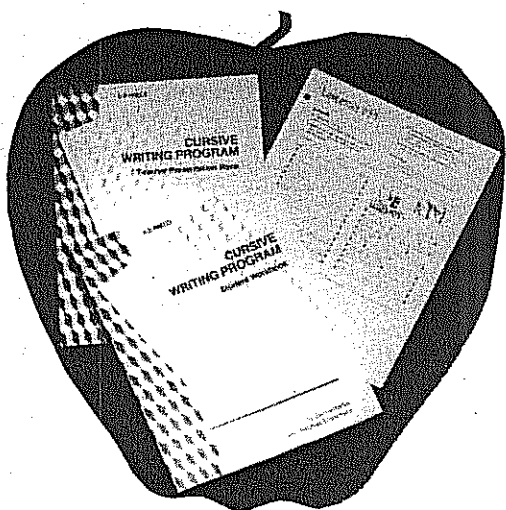
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APPLES FOR TEACHER



Cursive Writing Program

AUTHORS Samuel Miller, Siegfried Engelmann

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

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

15-20 minutes of daily work.

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

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

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I Love Library Books

AUTHORS Janice Jensen, Siegfried Engelmann

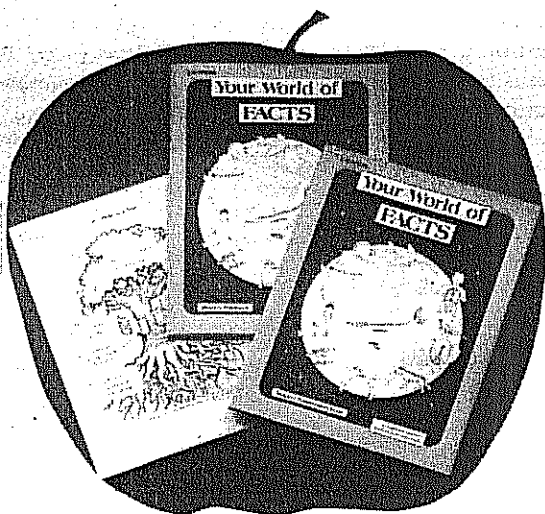
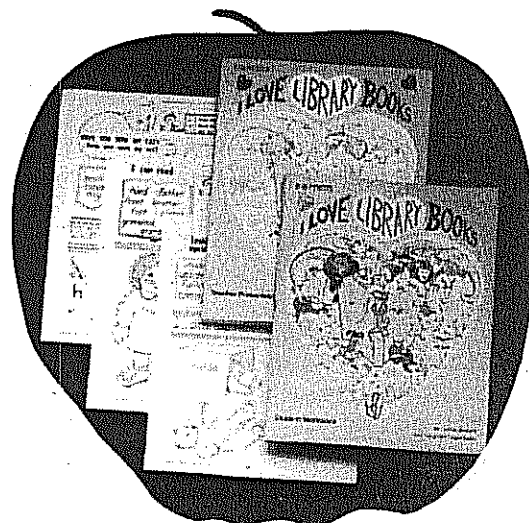
RANGE Students with first grade reading skills.

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

ADMINISTRATION Either the librarian or teacher may administer this program.

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

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Your World of Facts

AUTHORS Siegfried Engelmann, Karen Davis, Gary Davis

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

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

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

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

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Speed Spelling

AUTHOR Judy Proff-Witt

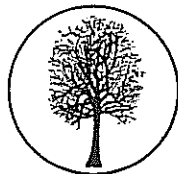
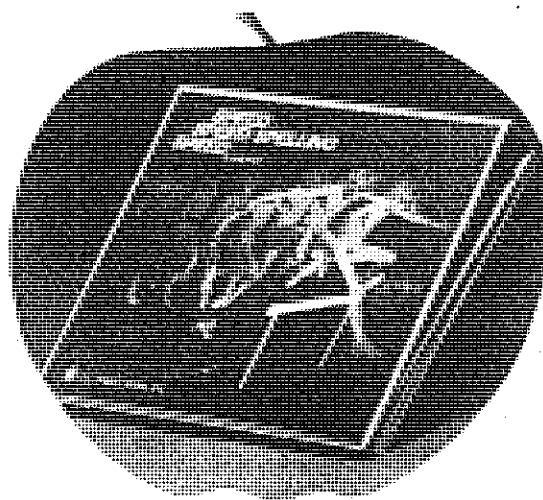
RANGE Learning disabled and retarded children who have not mastered grade school spelling skills.

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

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

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

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Classroom Management:

Strategies for Beginning the Year

By Randy Sprick
Educational Consultant
Author, *The Solution Book:
A Guide to Classroom Discipline*

Ed. Note. This article overlaps to some extent that by Jane Dougall in her 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 (Good & Brophy, 1978). Several studies (Emmer, Evertson & Anderson, 1980; Evertson & Anderson, 1979; Emmer & Evertson, 1980) have shown that the first week of school is a critical time for implementing procedures that will affect student participation and classroom behavior. This article will focus on five procedures that the teacher can use during the first week of school to help motivate students and to get appropriate behavior started. The first week of school can easily set a 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 after the teacher has introduced himself on the first day of school. An early introduction of classroom rules means that students will have a clear understanding of the teacher's expectations. This reduces the need for students to experiment and reduces the need for teacher reprimands. It also allows the teacher to begin developing positive interactions with her students. From the first day, students will learn that they can easily get the teacher's attention by following the rules.

Classroom rules should be stated as positive expectations. Avoid the "don'ts". A rule that states, "Cooperate with other people in the class", implies that the teacher expects cooperation. "Don't hit other people", implies that the teacher expects hitting. Below is a sample set of positively stated rules.

1. Always do your best work.
2. Cooperate with others.
3. During independent work times, stay in your seat and work quietly by yourself.
4. 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 communicates. When talking about cooperation, the teacher should provide different situations that might occur and have students identify and discuss examples of cooperating and failing to cooperate. This type of exercise requires students to think of 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 to three days of school, discuss how the classroom rules relate to the specific expectations 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 science and social studies books. In a moment, I will ask volunteers to pass out the books. I will only call on four people who remember the rule about quietly raising their hands. Others of you will get a turn to help 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 called on that will be a great example of cooperating. You will be showing me how mature you are. While the four people are passing out books, the rest of us will be having a discussion on _____. How can you follow our rules during the discussion?

Yes, listening quietly to others will be showing cooperation. Raising your hand and waiting for your turn will also show us that you understand our rules. If you raise your hand and wait for your turn, it will be easier to make sure that everyone gets a turn to participate. All of the things you have mentioned will help us have a fun and interesting discussion.

During the next half hour, you will do a math paper. You need to follow the rule about doing your best because the problems on this paper will help me decide where we should begin in the math book.

What is the rule about independent work?

Yes, it says that you should stay in your seat and work quietly by yourself. What should you do if you need help? Yes, you need to remember to raise your hand if you have something to say or if you need help. Who can tell me what you should do if you break your pencil? Should you get up to sharpen it? (No, the rule says to stay in your seat.) How can you get permission to sharpen your pencil?

These discussions may seem to waste a lot of teaching time; however, the time will be well worth it. The goal of these discussions is to prevent problems by giving students clear information about how the individual teacher expects the activity to be conducted. Without this information, some of the students will try to experiment with misbehavior to see whether it is acceptable. The discussions should be used for each new activity of the school year. This includes such activities as walking down the hall, finding the page in a book, turning in completed work, and how students should enter the room when they come in from recess.

The above examples are for the elementary level, but these types of discussions on behavioral expectations are just as important at the secondary level. Types of behavior that should be discussed at the secondary level include how to come into the room, behavior during discussions, behavior during any

laboratory type activities, behavior during independent work, and how students will be excused at the end of the class period.

3. Provide Positive Feedback to Students

Once rules are understood, it is critical for the teacher to provide positive feedback and attention to 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!
- For the last five minutes, every person in the class has been quietly working on the math paper. It is nice to see that everyone is doing their best.

Positive feedback should be very frequent during the first several days of school. This demonstrates to students that the teacher is more interested in their success than in their failure. This feedback provides many repetitions of the classroom rules without having to nag students. After the first several days of school, the teacher can begin to gradually reduce the amount of praise as long as behavior remains appropriate and highly motivated. If the motivation deteriorates, or misbehavior begins to increase, the teacher should increase the amount of contingent feedback to students for the efforts in following the rules.

4. Give Feedback at the Close of Each Activity

During the first several days of school, end each activity by telling students how they did. Did they meet your expectations? If not, let them know what they should have done differently. Do not single out individuals. The teacher will want to avoid giving attention to students who misbehave. However, students need to know if an activity did not go as you had hoped. Avoid preaching during the discussion. Simply let the students know that next time you hope things will go better. Ask students what they could have done differently. Keep the tone positive so that students have positive expectations for future activities.

If students meet your expectations, it is important for them to know it. Teachers often assume that students will continue to do well for the rest of the year. However, if students do not know that they were successful, some will begin experimenting with less desirable behavior. Closing a successful activity with positive feedback will not eliminate student testing, but it will motivate most students to take pride in their ability to demonstrate mature and productive behavior.

5. Use Positive Practice to Teach Critical Classroom Behaviors

Some classroom activities will be repeated on a daily basis. Transition from one reading group to another, lin-

ing up at the door, finding pages in a book, and putting names and dates on assignments are activities that students engage in daily. It is vital that these activities run as efficiently as possible. If it takes five minutes for transition to occur between reading groups, a large amount of instructional time is wasted each day. If a teacher has thirty minutes of instructional time, and five minutes of that time is spent in transition, one-sixth of the instructional time is lost. If that pattern continues throughout the elementary grades, 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 positive practice. Positive practice means that students 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 not be punitive during the procedure. The teacher's manner should simply communicate that the task needs to be completed in a certain way. The class will practice until they have demonstrated mastery. As soon as the task is performed according to the teacher's expectations, give praise and then move on to the next task.

The long-term importance of early positive practice of actual procedures 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 through the year takes five minutes or more.

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

Conclusion

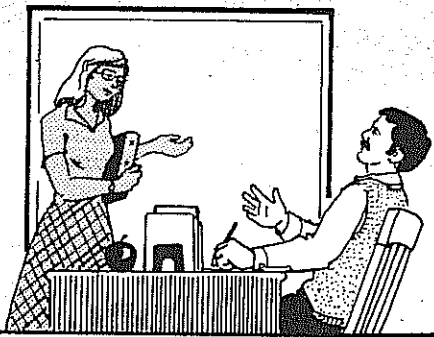
The five strategies discussed will prevent most problems. They will illustrate to students that they can get attention more readily by following the rules than by testing the teacher with misbehavior. These procedures require extra work on the teacher's part, but only for the first several days of instruction. The long-term benefits will far outweigh the extra work! Good luck and have a good year!

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Teacher to Teacher

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



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 want 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 instructed 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 positively 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 or looking around. 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. My 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 namecalling. 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 a 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 4.

It may seem that the schedule is too full, but it is better to have overplanned than to have unstructured time the first few days. You want to convey to your students that the classroom is 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

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

Table 2

Activity	Rules	Reinforcing Activities
Seatwork	Stay in your desk. Work quietly. Raise your hand if you need help.	Five minutes extra recess. Listen to a short story. Listen to a record.
Instructional groups	Talk only on your turn. Watch the teacher. Try your hardest.	Hand shakes. Riddles Two minutes to talk with the teacher.

Table 3

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

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 chart 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 you 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

8:15 - 8:30	Students arrive. *
8:30 - 8:45	Introduce Myself. Teach rules for seatwork (testing).
8:45 - 9:10	Testing — large group *
9:10 - 9:15	Teach rules for going to P.E.
9:15 - 9:45	Students go to P.E.
9:45 - 9:50	Review rules for seatwork (testing)
9:50 - 10:10	Testing — large group
10:10 - 10:15	Teach rules for going to recess
10:15 - 10:30	Recess
10:30 - 10:35	Review rules for seatwork
10:35 - 11:00	Individual testing *
11:00 - 11:15	Reinforcing Activity or seatwork page *
11:15 - 11:30	Get acquainted activity (specify which one)
11:30 - 11:45	Teach rules for going to lunch. Wash for lunch.
11:45 - 12:30	Lunch & recess
12:30 - 12:35	Review rules for seatwork (testing)
12:35 - 1:00	Testing *
1:00 - 1:05	Teach rules for large group instruction.
1:05 - 1:25	Social Studies lesson *
1:25 - 1:30	Review recess rules
1:30 - 1:45	Recess
1:45 - 1:50	Review rules for going to another classroom.
1:50 - 2:15	All school assembly
2:15 - 2:30	Review day's events. Remind students of rules.
2:30	Dismiss

* Indicates where materials should be listed.

Table 5
Student Details Chart

Name	Nickname	Lunch	After school	Supplies
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Administrator's Briefing

by Linda Carnine

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 considered 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 itself. 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 personal interests outside of the job, this can often work strongly to your advantage with a selection committee. For letters of recommendation, be 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.

They should not be too short, implying the person recommending you did not want to take the time to write much on your behalf. Secondly, 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 seek out this information, but would be well advised to do so. Often your application may be superb, but there are other reasons why you were not considered which you would never have known about otherwise. (This suggestion also applies after 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 alot 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 habits you may have such as 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 entrée to tell more about yourself and your qualifications. An interviewee who answers a question tersely 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 that 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 alternative plans is not frowned upon, but of course, those interviewing you are interested in your long-term commitment

Continued on Page 13

A Nation at Risk: The Imperative for Educational Reform

Part II – Findings and Recommendations

(Continued from Summer '83 Issue)

Findings

We conclude that declines in educational performance are in large part the result of disturbing inadequacies 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 content we mean the very "stuff" of education, the curriculum. Because of our concern about the curriculum, the Commission examined patterns of courses high-school students took in 1964-69 compared with course patterns in 1976-81. On the basis of these analyses we conclude:

►Secondary-school curricula have been homogenized, diluted, and diffused to the point that they no longer have a central purpose. In effect, we have a cafeteria-style curriculum in which the appetizers and desserts can easily be mistaken for the main courses. Students have migrated from vocational and college-preparatory programs to "general track" courses in large numbers. The proportion of students taking a general program of study has increased from 12 per cent in 1964 to 42 per cent in 1979.

►This curricular smorgasbord, combined with extensive student choice, explains a great deal about where we find ourselves today. We offer intermediate algebra, but only 31 per cent of our recent high-school graduates complete it; we offer French I, but only 13 per cent complete it; and we offer geography, but only 16 per cent complete it. Calculus is available in schools enrolling about 60 per cent of all students, but only 6 per cent of all students complete it.

►Twenty-five per cent of the credits earned by general-track high-school students are in physical and health education, work experience outside the school, remedial English and mathematics, and personal service and development courses, such as training for adulthood and marriage.

Findings Regarding Expectations

We define expectations in terms of the level of knowledge, abilities, and skills school and college graduates should possess. They also refer to the time, hard work, behavior, self-discipline, and motivation that are essential for high student achievement. Such expectations are expressed to students in several different ways:

►By grades, which reflect the degree to which students demonstrate their mastery of subject matter;

►Through high-school and college graduation requirements, which tell students which subjects are most important;

►By the presence or absence of rigorous examinations requiring students to demonstrate their mastery of content and skill before receiving a diploma or a degree;

►By college admissions requirements, which reinforce high-school standards; and

►By the difficulty of the subject matter students confront in their texts and assigned readings.

Our analyses in each of these areas indicate notable deficiencies:

►The amount of homework for high-school seniors has decreased (two-thirds report less than one hour a night) and grades have risen as average student achievement has been declining.

►In many other industrialized nations, courses in mathematics (other than arithmetic or general mathematics), biology, chemistry, physics, and geography start in grade six and are required of all students. The time spent on these subjects, based on class hours, is about three times that spent by even the most science-oriented U.S. students, i.e., those who select four years of science and mathematics in secondary school.

►A 1980 state-by-state survey of high-school-diploma requirements reveals that only eight states require high schools to offer foreign-language instruction, but none requires students to take the courses. Thirty-five states require only one year of mathematics, and 36 require only one year of science for a diploma.

►In 13 states, 50 per cent or more of the units required for high-school graduation may be electives chosen by the student. Given this freedom to choose the substance of half or more of their education, many students opt for less-demanding personal-service courses, such as bachelor-living.

►"Minimum competency" examinations (now required in 37 states) fall short of what is needed, as the "minimum" tends to become the "maximum," thus lowering educational standards for all.

►One-fifth of all four-year public colleges in the United States must accept every high-school graduate within the state regardless of program followed or grades, thereby serving notice to high-school students that they can expect to attend college even if they do not follow a demanding course of study in high school or perform well.

►About 23 per cent of our more selective colleges and universities reported that their general level of selectivity declined during the 1970's, and 29 per cent reported reducing the number of specific high-school courses required for admission (usually by dropping foreign-language requirements, which are now specified as a condition for admission by only one-fifth of our institutions of higher education).

►Too few experienced teachers and scholars are involved in writing textbooks. During the past decade or so a large number of texts have been "written down" by their publishers to ever-lower reading levels in response to perceived market demands.

►A recent study by Education Products Information Exchange revealed that a majority of students were able to master 80 per cent of the material in some of their subject-matter texts before they had even opened the books. Many books do not challenge the students to whom they are assigned.

►Expenditures for textbooks and other instructional materials have declined by 50 per cent over the past 17 years. While some recommend a level of spending on texts of between 5 and 10 per cent of the operating costs of schools, the budgets for basal texts and related materials have been dropping during the past decade and a half to only 0.7 per cent today.

Findings Regarding Time

Evidence presented to the Commission demonstrates three disturbing facts about the use that American schools and students make of time: (1) compared to other nations, American students spend much less time on school work; (2) time spent in the classroom and on homework is often used ineffectively; and (3) schools are not doing enough to help students develop either the study skills required to use time well or the willingness to spend more time on school work.

►In England and other industrialized countries, it is not unusual for academic high-school students to spend eight hours a day at school, 220 days per year. In the United States, by contrast, the typical school day lasts six hours and the school year is 180 days.

►In many schools, the time spent learning how to cook and drive counts as much toward a high-school diploma as the time spent studying mathematics, English, chemistry, U.S. history, or biology.

►A study of the school week in the United States found that some schools provided students only 17 hours of academic instruction during the week, and the average school provided about 22.

Members of the Commission

Robert V. Haderlein, immediate past president, National School Boards Association (Girard, Kan.).

Gerald Holton, professor of physics and professor of the history of science, Harvard University.

Annette Y. Kirk, Kirk Associates (Mecosta, Mich.).

Margaret S. Marston, member, Virginia State Board of Education.

Albert H. Quie, former governor of Minnesota.

Francisco D. Sanchez, Jr., superintendent, Albuquerque public schools.

Glenn T. Seaborg, professor of chemistry and 1951 Nobel Laureate in chemistry, University of California at Berkeley.

Jay Sommer, national teacher of the year, 1981-82, foreign-language department, New Rochelle High School (New Rochelle, N.Y.).

Richard Wallace, principal, Lutheran High School East (Cleveland Heights, Ohio).

David P. Gardner, president, University of Utah, and president-elect, University of California.

Yvonne W. Larsen, immediate past president, San Diego City School Board, *vice-chairman*.

William O. Baker, former chairman of the board, Bell Telephone Laboratories (Murray Hill, N.J.).

Anne Campbell, former Nebraska commissioner of education.

Emeral A. Crosby, principal, Northern High School (Detroit).

Charles A. Foster, Jr., immediate past president, Foundation for Teaching Economics (San Francisco).

Norman C. Francis, president, Xavier University of Louisiana.

A. Bartlett Giamatti, president, Yale University.

Shirley Gordon, president, Highline Community College.

►A California study of individual classrooms found that because of poor management of classroom time, some elementary students received only one-fifth of the instruction others received in reading comprehension.

►In most schools, the teaching of study skills is haphazard and unplanned. Consequently, many students complete high school and enter college without disciplined and systematic study habits.

Findings Regarding Teaching

The Commission found that not enough of the academically able students are being attracted to teaching; that teacher-preparation programs need substantial improvement; that the professional working life of teachers is on the whole unacceptable; and that a serious shortage of teachers exists in key fields.

►Too many teachers are being drawn from the bottom quarter of graduating high-school and college students.

►The teacher-preparation curriculum is weighted heavily with courses in "educational methods" at the expense of courses in subjects to be taught. A survey of 1,350 institutions training teachers indicated that 41 per cent of the time of elementary-school-teacher candidates is spent in education courses, which reduces the amount of time available for subject-matter courses.

►The average salary after 12 years of teaching is only \$17,000 per year, and many teachers are required to supplement their income with part-time and summer employment. In addition, individual teachers have little influence in such critical professional decisions as, for example, textbook selection.

►Despite widespread publicity about an overpopulation of teachers, severe shortages of certain kinds of teachers exist: in the fields* of mathematics, science, and foreign languages; and among specialists in education for gifted and talented, language minority and handicapped students.

►The shortage of teachers in mathematics and science is particularly severe. A 1981 survey of 45 states revealed shortages of mathematics teachers in 43 states, critical shortages of earth-sciences teachers in 33 states, and of physics teachers everywhere.

►Half of the newly employed mathematics, science, and English teachers are not qualified to teach these subjects; fewer than one-third of U.S. high schools offer physics taught by qualified teachers.

Recommendations

In light of the urgent need for improvement, both immediate and long term, this Commission has agreed on a set of recommendations that the American people can begin to act on now, that can be implemented over the next several years, and that promise lasting reform. The topics are familiar; there is little mystery about what we believe must be done. Many schools, districts, and states are already giving serious and constructive attention to these matters, even though their plans may differ from our recommendations in some details.

We wish to note that we refer to public, private, and parochial schools and colleges alike. All are valuable national resources. Examples of actions similar to those recommended below can be found in each of them.

We must emphasize that the variety of student aspirations, abilities, and preparation requires that appropriate content be available to satisfy diverse needs. Attention must be directed to both the

nature of the content available and to the needs of particular learners.

The most gifted students, for example, may need a curriculum enriched and accelerated beyond even the needs of other students of high ability. Similarly, educationally disadvantaged students may require special curriculum materials, smaller classes, or individual tutoring to help them master the material presented.

Nevertheless, there remains a common expectation: We must demand the best effort and performance from all students, whether they are gifted or less able, affluent or disadvantaged, whether destined for college, the farm, or industry.

Our recommendations are based on the beliefs that everyone can learn, that everyone is born with an *urge* to learn which can be nurtured, that a solid high-school education is within the reach of virtually all, and that lifelong learning will equip people with the skills required for new careers and for citizenship.

Recommendation A: Content

We recommend that state and local high-school graduation requirements be strengthened and that, at a minimum, all students seeking a diploma be required to lay the foundation in the Five New Basics by taking the following curriculum during their four years of high school:

- Four years of English;
- Three years of mathematics;
- Three years of science;
- Three years of social studies; and
- One-half year of computer science.

For the college-bound, two years of foreign language in high school are strongly recommended in addition to those taken earlier.

Whatever the student's educational or work objectives, knowledge of the New Basics is the foundation of success for the after-school years and, therefore, forms the core of the modern curriculum. A high level of shared education in these basics, together with work in the fine and performing arts and foreign languages, constitutes the mind and spirit of our culture. The following Implementing Recommendations are intended as illustrative descriptions. They are included here to clarify what we mean by the essentials of a strong curriculum.

Implementing Recommendations

1. The teaching of *English* in high school should equip graduates to: (a) comprehend, interpret, evaluate, and use what they read; (b) write well-organized, effective papers; (c) listen effectively and discuss ideas intelligently; and (d) know our literary heritage and how it enhances imagination and ethical understanding, and how it relates to the customs, ideas, and values of today's life and culture.

2. The teaching of *mathematics* in high school should equip graduates to: (a) understand geometric and algebraic concepts; (b) understand elementary probability and statistics; (c) apply mathematics in everyday situations, and (d) estimate, approximate, measure, and test the accuracy of the calculations. In addition to the traditional sequence of studies available for college-bound students, new, equally demanding mathematics curricula need to be developed for those who do not plan to continue their formal education immediately.

3. The teaching of *science* in high school should provide graduates with an introduction to: (a) the concepts, laws, and processes of the physical and biological sciences; (b) the methods of scientific in-

Achieving Excellence in Education

quiry and reasoning; (c) the application of scientific knowledge to everyday life; and (d) the social and environmental implications of scientific and technological development. Science courses must be revised and updated for both the college-bound and those not intending to go to college. An example of such work is the American Chemical Society's "Chemistry in the Community" program.

4. The teaching of *social studies* in high school should be designed to: (a) enable students to fix their places and possibilities within the larger social and cultural structure; (b) understand the broad sweep of both ancient and contemporary ideas that have shaped our world; (c) understand the fundamentals of how our economic system works and how our political system functions; and (d) grasp the difference between free and repressive societies. An understanding of each of these areas is requisite to the informed and committed exercise of citizenship in our free society.

5. The teaching of *computer science* in high school should equip graduates to: (a) understand the computer as an information, computation, and communication device; (b) use the computer in the study of the other basics and for personal and work-related purposes; and (c) understand the world of computers, electronics, and related technologies.

In addition to the New Basics, other important curriculum matters must be addressed.

6. Achieving proficiency in a *foreign language* ordinarily requires from four to six years of study and should, therefore, be started in the elementary grades. We believe it is desirable that students achieve such proficiency because study of a foreign language introduces students to non-English-speaking cultures, heightens awareness and comprehension of one's native tongue, and serves the nation's needs in commerce, diplomacy, defense, and education.

7. The high-school curriculum should also provide students with programs requiring rigorous effort in subjects that advance students' personal, educational, and occupational goals, such as the fine and performing arts and vocational education. These areas complement the New Basics, and they should demand the same level of performance as the basics.

8. The curriculum in the crucial eight grades leading to the high-school years should be specifically designed to provide a sound base for study in those and later years in such areas as English language development and writing, computational and problem-solving skills, science, social studies, foreign language, and the arts. These years should foster an enthusiasm for learning and the development of the individual's gifts and talents.

9. We encourage the continuation of efforts by groups such as the American Chemical Society, the American association for the Advancement of Science, the Modern Language Association, and the National Councils of Teachers of English and Teachers of Mathematics, to revise, update, improve, and make available new and more diverse curricular materials. We applaud the consortia of educators and scientific, industrial and scholarly societies that cooperate to improve the school curriculum.

Recommendation B: Standards and Expectations

We recommend that schools, colleges, and universities adopt more rigorous and measurable standards, and higher expectations, for academic performance and student conduct, and that four-year colleges and universities raise their requirements for admission. This will help students do their best educationally with challenging materials in an environment that supports learning and authentic accomplishment.

Implementing Recommendations

1. Grades should be indicators of academic achievement so they can be relied on as evidence of a student's readiness for further study.

2. Four-year colleges and universities should raise their admissions requirements and advise all potential applicants of the standards for admission in terms of specific courses required, performance in these areas, and levels of achievement on standardized achievement tests in each of the five basics and, where applicable, foreign languages.

3. Standardized tests of achievement (not to be confused with aptitude tests) should be administered at major transition points from one level of schooling to another and particularly from high school to college or work. The purposes of these tests would be to: (a) certify the student's credentials; (b) identify the need for remedial intervention; and (c) identify the opportunity for advanced or accelerated work. The tests should be administered as part of a nationwide (but not

federal) system of state and local standardized tests. This system should include other diagnostic procedures that assist teachers and students to evaluate student progress.

4. Textbooks and other tools of learning and teaching should be upgraded and updated to assure more rigorous content. We call upon university scientists, scholars, and members of professional societies, in collaboration with master teachers, to help in this task, as they did in the post-Sputnik era. They should assist willing publishers in developing the products or publish their own alternatives where there are persistent inadequacies.

5. In considering textbooks for adoption, states and school districts should: (a) evaluate texts and other materials on their ability to present rigorous and challenging material clearly; and (b) require publishers to furnish evaluation data on the material's effectiveness.

6. Because no textbook in any subject can be geared to the needs of all students, funds should be made available to support text development in "thin-market" areas, such as those for disadvantaged students, the learning disabled, and the gifted and talented.

7. To assure quality, all publishers should furnish evidence of the quality and appropriateness of textbooks, based on results from field trials and credible evaluations. In view of the enormous numbers and varieties of texts available, more widespread consumer information services for purchasers are badly needed.

8. New instructional materials should reflect the most current applications of technology in appropriate curriculum areas, the best scholarship in each discipline, and research in learning and teaching.

Recommendation C: Time

We recommend that significantly more time be devoted to learning the New Basics. This will require more effective use of the existing school day, a longer school day, or a lengthened school year.

Implementing Recommendations

1. Students in high schools should be assigned for more homework than is now the case.

2. Instruction in effective study and work skills, which are essential if school and independent time is to be used efficiently, should be introduced in the early grades and continued throughout the student's schooling.

3. School districts and state legislatures should strongly consider seven-hour school days, as well as a 200- to 220-day school year.

4. The time available for learning should be expanded through better classroom management and organization of the school day. If necessary, additional time should be found to meet the special needs of slow learners, the gifted, and others who need more instructional diversity than can be accommodated during a conventional school day or school year.

5. The burden on teachers for maintaining discipline should be reduced through the development of firm and fair codes of student conduct that are enforced consistently, and by considering alternative classrooms, programs, and schools to meet the needs of continually disruptive students.

6. Attendance policies with clear incentives and sanctions should be used to reduce the amount of time lost through student absenteeism and tardiness.

7. Administrative burdens on the teacher and related intrusions into the school day should be reduced to add time for teaching and learning.

8. Placement and grouping of students, as well as promotion and graduation policies, should be guided by the academic progress of students and their instructional needs, rather than by rigid adherence to age.

Recommendation D: Teaching

This recommendation consists of seven parts. Each is intended to improve the preparation of teachers or to make teaching a more rewarding and respected profession. Each of the seven stands on its own and should not be considered solely as an implementing recommendation.

1. Persons preparing to teach should be required to meet high educational standards, to demonstrate an aptitude for teaching, and to demonstrate competence in an academic discipline. Colleges and universities offering teacher-preparation programs should be judged by how well their graduates meet these criteria.

2. Salaries for the teaching profession should be increased and should be professionally competitive, market-sensitive, and performance-based. Salary, promotion, tenure, and retention decisions should be tied to an effective evaluation

system that includes peer review so that superior teachers can be rewarded, average ones encouraged, and poor ones either improved or terminated.

3. School boards should adopt an 11-month contract for teachers. This would insure time for curriculum and professional development, programs for students with special needs, and a more adequate level of teacher compensation.

4. School boards, administrators, and teachers should cooperate to develop career ladders for teachers that distinguish among the beginning instructor, the experienced teacher, and the master teacher.

5. Substantial nonschool personnel resources should be employed to help solve the immediate problem of the shortage of mathematics and science teachers. Qualified individuals including recent graduates with mathematics and science degrees, graduate students, and industrial and retired scientists could, with appropriate preparation, immediately begin teaching in these fields. A number of our leading science centers have the capacity to begin educating and retraining teachers immediately. Other areas of critical teacher need, such as English, must also be addressed.

6. Incentives, such as grants and loans, should be made available to attract outstanding students to the teaching profession, particularly in those areas of critical shortage.

7. Master teachers should be involved in designing teacher-preparation programs and in supervising teachers during their probationary years.

Recommendation E: Leadership and Fiscal Support

We recommend that citizens across the nation hold educators and elected officials responsible for providing the leadership necessary to achieve these reforms, and that citizens provide the fiscal support and stability required to bring about the reforms we propose.

Implementing Recommendations

1. Principals and superintendents must play a crucial leadership role in developing school and community support for the reforms we propose, and school boards must provide them with the professional development and other support required to carry out their leadership role effectively. The Commission stresses the distinction between leadership skills involving persuasion, setting goals and developing community consensus behind them, and managerial and supervisory skills. Although the latter are necessary, we believe that school boards must consciously develop leadership skills at the school and district levels if the reforms we propose are to be achieved.

2. State and local officials, including school-board members, governors, and legislators, have the *primary responsibility* for financing and governing the schools, and should incorporate the reforms we propose in their educational policies and fiscal planning.

3. The Federal Government, in cooperation with states and localities, should help meet the needs of key groups of students such as the gifted and talented, the socioeconomically disadvantaged, minority and language minority students, and the handicapped. In combination these groups include both national resources and the nation's youth who are most at risk.

4. In addition, we believe the Federal Government's role includes several functions of national consequence that states and localities alone are unlikely to be able to meet: protecting constitutional and civil rights for students and school personnel; collecting data, statistics, and information about education generally; supporting curriculum improvement and research on teaching, learning, and the management of schools; supporting teacher training in areas of critical shortage or key national needs; and providing student financial assistance and research and graduate training. We believe the assistance of the Federal Government should be provided with a minimum of administrative burden and intrusiveness.

5. The Federal Government has the *primary responsibility* to identify the national interest in education. It should also help fund and support efforts to protect and promote that interest. It must provide the national leadership to insure that the nation's public and private resources are marshalled to address the issues discussed in this report.

6. This Commission calls upon educators, parents, and public officials at all levels to assist in bringing about the educational reform proposed in this report. We also call upon citizens to provide the financial support necessary to accomplish these purposes. Excellence costs. But in the long run mediocrity costs far more.

America Can Do It

Despite the obstacles and difficulties that inhibit the pursuit of superior educational attainment, we are confident, with history as our guide, that we can meet our goal. The American educational system has responded to previous challenges with remarkable success. In the nineteenth century our land-grant colleges and universities provided the research and training that developed our nation's natural resources and the rich agricultural bounty of the American farm. From the late 1800's through mid-twentieth century, American schools provided the educated work force needed to seal the success of the Industrial Revolution and to provide the margin of victory in two world wars. In the early part of this century and continuing to this very day, our schools have absorbed vast waves of immigrants and educated them and their children to productive citizenship. 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 scientists and skilled technicians who helped us transcend the boundaries of our planet. In the last 30 years, the schools have been a major vehicle for expanded social opportunity, and now graduate 75 per cent of our young people from high school. Indeed, the proportion of Americans of college age enrolled in higher education is nearly twice that of Japan and far exceeds other nations such as France, West Germany, and the Soviet Union. Moreover, when international comparisons were last made a decade ago, the top 9 per cent of American students compared favorably in achievement with their peers in other countries.

In addition, many large urban areas in recent years report that average student achievement in elementary schools is improving. More and more schools are also offering advanced placement programs and programs for gifted and talented students, and more and more students are enrolling in them.

We are the inheritors of a past that gives us every reason to believe that we will succeed.

A Word to Parents and Students

The task of assuring the success of our recommendations does not fall to the schools and colleges alone. Obviously, faculty members and administrators, along with policymakers and the mass media, will play a crucial role in the reform of the educational system. But even more important is the role of parents and students, and to them we speak directly.

To Parents:

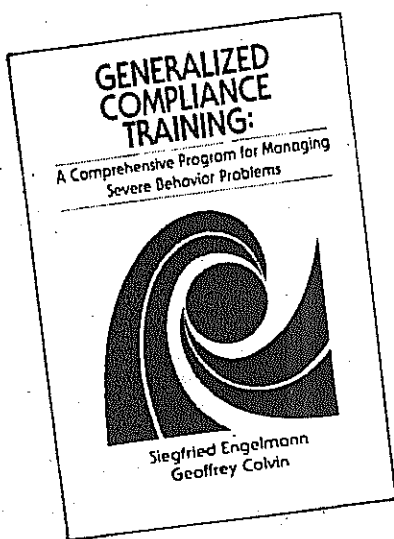
You know that you cannot confidently launch your children into today's world unless they are of strong character and well educated in the use of language, science, and mathematics. They must possess a deep respect for intelligence, achievement, and learning, and the skills needed to use them; for setting goals; and for disciplined work. That respect must be accompanied by an intolerance for the shoddy and second-rate masquerading as "good enough."

You have the right to demand for your children the best our schools and colleges can provide. Your vigilance and your refusal to be satisfied with less than the best are the imperative first step.

But your right to a proper education for your children carries a double responsibility. As surely as you are your child's first and most influential teacher, your child's ideas about education and its significance begin with you. You must be a *living* example of what you expect your children to honor and to emulate. Moreover, you bear a responsibility to participate actively in your child's education. You should encourage more diligent study and discourage satisfaction with mediocrity and the attitude that says "let it slide"; monitor your child's study; encourage good study habits; encourage your child to take more demanding rather than less demanding courses; nurture your child's curiosity, creativity, and confidence; and be an active participant in the work of the schools. Above all, exhibit a commitment to continued learning in your own life. Finally, help your children understand that excellence in education cannot be achieved without intellectual and moral integrity coupled with hard work and commitment. Children will look to their parents and teachers as models of such virtues.

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NEW FOR 1983 FROM PRO-ED



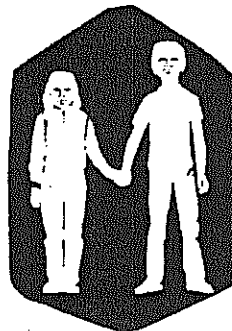
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Conducting DI Training Sessions

by Marilyn Sprick
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This article provides general guidelines to help experienced DI teachers plan and present a Direct Instruction training session in their district. 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 is recommended because credibility is gained from the mere fact that the trainer has boarded a plane or driven a few extra miles. On a small scale, teacher-to-teacher training can be very successful as the individuals who seek out training are generally enthusiastic about the instructional methods. One advantage of this type of training is that when questions arise, teachers are in close enough proximity to help resolve difficulties.

If you plan to train other teachers, it is important to have your teaching skills evaluated to be sure you are as effective as possible. The remainder of this article provides suggestions for helping you to set a positive tone in a training session, and gives a general outline of workshop content.

General Tone

An effective training session is one that is conducted with "well-informed enthusiasm." The almost religious fervor that has sometimes surrounded DI only serves to impede progress and dissemination. Convey to teachers your recognition that while DI programs are designed to provide success for every child, the teacher is the critical variable in whether the materials will in fact work for all children. There is no substitute for the combination of intelligent teaching and logical programming.

Avoid trying to "sell" participants on the benefits of the DI approach. Be an information bearer, presenting instructional tools to a set of professionals. You must respect the teachers as professionals before entering into a training situation.

Recognize the relevance of questions throughout your presentation, and be specific in your explanations. For example, a trainer could alienate teachers by saying that signals are used because they are the only effective way to teach. A more acceptable explanation includes why the procedure is included as a teaching skill. Signals are simply a method for providing each individual child in a group with many opportunities to independently practice needed skills.

If you do not know the answer to a question, give credit to the question and admit that you do not know the answer. You may wish to have the group discuss the question.

Always respond calmly and logically rather than emotionally. If you avoid proselytizing and maintain 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

Plan on providing basic information on the specific program you will be training on in the first 15 to 20 minutes of your presentation. This introduction 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 attained by 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 suggestions

Program Rationale

The amount of time spent on program rationale will depend on the amount of background participants have had with DI. Approximately 10 to 30 minutes will be spent on program rationale. Using the program you are training on, illustrate the concepts listed below. If teachers are naive to DI, 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 harder to teach than others.
2. Program organization and sequencing can make a new and complex skill relatively easy to learn. (You may wish to compare other programs and how we frequently 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 Teaching Skills

Throughout the remainder of your training session you will be training teachers to run the specific formats found in the program you are using. Focus first on formats that are the most common throughout the program. In *Effective Spelling Through Morphographs*, the "Word and Spelling Introduction" 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.

When introducing 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?

Introduce the first format practice by telling participants that these nontraditional teaching skills require practice initially. They will involve 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 how the entire format should run. Demonstrate part of the format, and lead the participants through. As the teachers become confident, drop your lead. When the group is able to run that part of the format smoothly, introduce the next part of the format. 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. Pacing
7. Reinforcement

First introduce the importance of following format steps and using signals. These two skills will be practiced with the first format you introduce. In addition to teaching participants how to use these skills, it will be 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 benefits of 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 throughout the day will help prevent teachers from being overwhelmed by the number of things to remember. Practicing skills in a cumulative manner will also provide a method for continually 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	20 minutes
Program Rationale	30 minutes
Teaching Skill: Formats	5 minutes
Teaching Skill: Signals	5 minutes
Format Practice	10 minutes
Review Teaching Skills: Formats and Signals	5 minutes
Format Practice	10 minutes
Break	15 minutes
Format Practice	15 minutes
Teaching Skill: 100% Response	5 minutes
Format Practice	15 minutes

Teaching Skill:
Corrections and Format Practice

45 minutes

Lunch Break

Review Teaching Skills and Format Practice

20 minutes

Teaching Skill:

100% Criterion

10 minutes

Format Practice

15 minutes

Teaching Skill: Pacing

10 minutes

Format Practice

25 minutes

Break

15 minutes

Format Practice and Review

20 minutes

Teaching Skill:

Reinforcement and Group Management

20 minutes

Format Practice

15 minutes

Conclusion and Summary

20 minutes

The above training outline assumes a one-day training session. This is the minimum length of time for a workshop. In your conclusion and throughout the day, you should focus on helping teachers to systematically apply teaching skills to new formats so they can transfer the skills they have learned to formats you have not had time to cover. If two days of training are possible, follow the outline above, and spend the second day reviewing the teaching skills and introducing new formats.

Conclude the training session by reassuring participants that the new teaching skills may seem overwhelming. DI becomes easy with daily practice. Emphasize that eventually participants will know the program well enough to run the program with a minimal amount of preparation compared to any other program they have worked with. Acknowledge the fact that everyone will initially need to work on refining their teaching skills. It is important that teachers feel free to seek out and accept help while they are learning to do DI. No one is expected to master the skills without support. Each year teachers will find that their efficiency and success with the programs will grow as their skills increase. Finally, emphasize that it is important for teachers to continue being themselves, providing positive interactions and encouragement throughout their direct instruction lessons.

If possible, get the district to make a commitment to provide follow-up training and nonevaluative classroom observations. An effective DI implementation requires on-going monitoring, fine tuning, and support.

Getting Hired

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

There are many excellent direct-instruction-trained job candidates who should be getting teaching positions that are opening up. It is hoped the observations and suggestions mentioned here regarding applications and interviews will ensure these capable teachers do 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

appropriate vowel combination. Beers, et al. (1977) found that children's spelling errors are very logical and that students make most errors because they overgeneralize rules (usually phonics based).

Cronnell (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) (Cronnell, 1978). Homonyms include words that sound the same but are spelled differently, such as *blue/blew* 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 their spelling (Cohen, 1969).

Workbook Characteristics

A relatively recent trend in spelling workbooks has been an increased emphasis on language arts skills (Graves, 1977). Language arts exercises include homonyms, synonyms, handwriting, capitalization, punctuation, etc. Cohen (1969) analyzed the relative contents of spelling texts from the 1955-61 period and categorized exercises within these programs as follows:

Affixes & inflections.....	24%
Language arts skills.....	20%
Syllabication.....	8%
Phonic skills.....	33%
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 include phonics skills, handwriting and capitalization exercises. The next day the lesson might emphasize syllabication and word meanings. Cohen found that many activities, especially language arts skills, did not improve—and some even hindered—students' spelling skills.

When Graves (1977) reanalyzed texts from the 1971-1975 period, he discovered two primary changes. Author's had decreased phonic instruction to 25% of the workbook exercises, 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. Hammill, Larsen, and McNutt (1974) investigated the effectiveness of the three most commonly used basal spellers and concluded that using or not using a testbook made no difference in students' spelling ability after the 4th grade. Although these authors do not

relate the described language arts/enrichment exercises in these spellers to the lack of student achievement, they do question whether educators should be using these materials 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 found to be ineffective generally in improving students' spelling skills (Bryant, Drabin & Gettinger, 1981; Reith, Axelrod, Anderson, Hathaway, Wood & Fitzgerald, 1974; Schoephoerster, 1962).

Teachers and textbooks frequently include independent "word copying" within daily instruction and as a correction procedure when students make errors. This technique has not been found to enhance students' spelling (Graves, 1977). Word copying does not insure that students are actually *spelling* the word when they rewrite it. Students could merely be copying the letter forms and not practicing the conversion of sounds to letters.

Teachers and programs may be hindering the spelling growth of low-performing students by not providing cumulative review of previously introduced words on a regular basis (Neef, Iwata & Page, 1977). Low-performing students (especially) need continuous practice with repetition on most skills (Engelmann, 1969). The research literature suggests that typical spelling texts provide too many words, too much information, and move too fast for low-performers (Bryant, et al., 1981).

Teaching Behavior

Teachers tend to devote too much time to unimportant tasks during spelling (Hillerich, 1982), time that could be spent on other academic tasks. Hillerich observed teachers in their "designated" spelling instruction periods and concluded that: (1) the average teacher spends 40 minutes in spelling; (2) for about 20 minutes the teacher was engaged in irrelevant tasks such as collecting lunch money, grading papers, and giving mechanical directions; (3) most teachers spent the other 20 minutes correcting student *workbooks*; and (4) only one teacher immediately corrected students' spelling tests. Hillerich concluded that teachers needed to set aside less time for spelling, but use the time set aside for direct teaching activities, including immediate feedback on student tests.

In summary, this research evidence suggests that poor spelling may be the result of poor teaching practices. Teachers and administrators have reason to question the procedures of published programs, since these texts and workbooks do not appear to provide the kind of assistance the teacher needs to facilitate spelling skills.

Effective Spelling Instruction

The research literature suggests a number of procedures that are likely to increase the effectiveness of spelling instruction. The procedures will be discussed under the following topics:

1. Placement and grouping procedures
2. Word lists and the test-study-test method
3. Phonics instruction, rule introduction, and generalization practice
4. Correction procedures, reinforcement, and cumulative review
5. Time-on-task and direct instruction strategies

Placement and Grouping Procedures

Placement procedures need to be established so that most students are learning new information in spelling (Hinrichs, 1975). Hinrichs believes that teachers can effectively group students to make their teaching more effective. Placement and grouping should be based on spelling-test performance, rather than student grade level (see next section).

Word Lists and the Test-Study-Test Method

The test-study-test method offers one possible solution to the problems of commercial programs. A pretest is used to determine which words to teach. After testing, the students work on those words that most students do not know, and then they are retested. The research literature suggests that this method is superior to the traditional study-test method (Christine & Hollingsworth, 1966; Sheldon, Lashinger, Troike & Mercer, 1976). The teacher would best meet the low-performing students' needs by presenting only a few words daily—say three or four per day (Bryant, et al., 1976).

Words should be presented in list form. Words taught by lists are learned more quickly, remembered longer, and the learning translates to other contexts (i.e., written expression) more readily (Horn, 1969). Hinrichs (1975) suggests that teachers only include high frequency words in their wordlists. Four thousand high frequency words account for 99% of all words used by adults in writing (Horn, 1926).

Some research (Miller, 1979) suggests that words within lists should include various letters or letter combinations for the same sound so that the students will learn to make the appropriate discriminations and select the appropriate letter combinations when writing. For example, if the teacher were introducing the *er* sound (as in *helper*), she might consider introducing *ir* and *ur* words in the same list (e.g., *turn, fir, burn, stir, helper*, etc.). Miller found that students taught by this list method were better able to discriminate similar words than students taught with lists containing same letter combinations (i.e., all *er* words).

Phonics Instruction, Rule Introduction, and Generalization

Although phonics instruction can lead to inappropriate procedures for teaching spelling, Beers, et al. (1977) recommend that teachers begin spelling instruction after students have received one year of phonics reading instruction. Once students have a solid symbol-to-sound foundation (reading), they will likely be better prepared to learn the sound-to-symbol translation (spelling), especially for regular-sound words.

Following the sound-to-symbol spelling practice, a limited number of spelling-relevant rules can be introduced. Miller and Graham (1979) find the following three rules most useful for spelling:

1. Doubling the final consonant on a CVC word before adding and ending. Example: *hop + ing = hopping*.
2. Dropping the final *e* on a CVCe word before adding an ending. Example: *save + er = saver*.
3. Change the *y* to *i* before adding an ending. Example: *happy + ness = happiness*.

Because most publishers and teachers only teach selected words to students (or incorporate rules for specified words), students are not skilled in generalizing rules to new words (Lovitt, 1975). To facilitate this, the teacher might consider including new word combinations (but not new word bases) to test students' rule generalization knowledge. For example, if the students were firm on the "double-the-consonant rule"; had previously been taught the base words *hop, run, sad, and help*; and knew the spelling for the suffixes *-ing, -er, -ly* and *-ed*, the teacher could include exercises in which students combined a base and suffix to test rule generalization. The worksheet should include positive examples in which the rule "works" (*running, sadder, hopped*) and negative examples in which the rule does not apply (*helping, sadly*), in a random order (Engelmann & Carnine, 1982). The students' performance on these worksheets would provide information to the teacher about whether to move ahead to new material or not.

Correction Procedures, Reinforcement, and Cumulative Review

Corrective feedback is important in all learning. It may be that children's self-corrections are the single most important factor in spelling improvement (Graham & Miller, 1979; Johnson, et al., 1981). The most successful teacher correction procedure uses the following sequence: (1) the teacher demonstrates the correct spelling on a chalkboard or overhead and *orally* spells the word while the students match their spelling with that of the teacher; (2) the student crosses out any mistakes and rewrites the entire word correctly. This method has been found to be superior to just having the teacher give the correction orally or visually (Kuhn & Schröder, 1971; Sheldon, et al., 1976).

With lower-performing students, correction procedures alone will not insure increased spelling skills. These students benefit most when the teacher verbally praises correct responses and insures that the students are correcting all errors in the manner described above (Ollendick, Matson, Esveldt-Dawson & Shapiro, 1980).

In some situations, especially when teaching older or handicapped students, verbal praise may not be reinforcing (McGrade, 1966; Serralade de Scholz & McDougall, 1978). One study (Lovitt, Guppy & Blattner, 1969) 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

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Spelling

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from an average of 4 per day to 25 per day (out of 32 fourth graders) after the free-time contingency was introduced.

Cumulative review is important to insure that new learning is integrated with old learning (rather than interfering with it). Teachers should regularly review words introduced earlier, especially including old words most like the new words being learned (Iwata, et al., 1977; Engelmann & Carnine, 1982).

Time-on-Task and Direct Instruction Strategies

Several researchers have identified basic classroom management procedures which are essential to keeping all students actively engaged in learning (Brophy, 1979; Emmer, Evertson & Anderson, 1980; Good, 1981). Brophy has indicated that the teaching procedures important to maintaining time-on-task are especially important when the learning goal is mastery, as it is in spelling. The essential components of good classroom management are:

1. Teachers should establish work-time rules and implement them the first day of class, after giving clear, simple statements and examples of the rules.
2. Teachers should continuously monitor all student work, providing regular feedback on performance.
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 techniques in a strategic manner (i.e., reinforce students showing desired behavior) so that behavior problems are prevented.
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 a day.

The Direct Instruction strategies developed by Siegfried Engelmann (see Engelmann & Carnine, 1982) incorporate the above management procedures with systematically programmed curricula. Several studies have shown DI spelling programs (*Corrective Spelling Through Morphographs* and *Mastery Spelling Series*) to lead to strong progress in spelling (Maggs, McMillan, Patching & Hawke, 1981; Vreeland, 1982). For example, Vreeland found that students taught with a commercial Direct Instruction program made more than twice the gains as students taught with traditional programs. 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 to teachers, there are steps the teacher can take to improve spelling instruction for all students.

Ed. Note: In the next issue, Marie Collins will continue her analysis of effective spelling procedures by focusing on the structure and properties of the Mastery Spelling Series, and Corrective Spelling Through Morphographs.

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Roles for DI

Continued from Page 2

program design: (1) specifying objectives, (2) devising problem solving strategies, (3) developing teaching procedures, (4) selecting examples, (5) providing practice, and (6) sequencing skills and examples (p. 14).

The teacher must use basic elements (words) to script out a composition which will be effective with students. Direct Instruction "compositions" are commercially available in many content areas. Although these scripted programs provide excellent models of composition, 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 competence in composition if they are to assume 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 connotations, but conducting implies "supervising by using one's executive skills, knowledge, wisdom, etc." (Webster's New World Dictionary, 1966). According to *The Modern Conductor* (Green, 1961):

Conducting, in its finest connotation—the only connotation accepted by those who are qualified to be called conductors—means that the aspirant (1) knows his score thoroughly and (2) has spent conscientious hours of his lifetime acquiring the skill to speak clearly, precisely and inspirationally to his performers by means of well-controlled sign language (p. 1).

The role is described as the "highest, most complete synthesis of all facets of the musical activity" and "an honorable and valid title." The conductor is differentiated from "time-beater"—a skill which can be mastered by "children of kindergarten age" (Green, 1961). Conducting requires leadership, management, and performance skills.

As with the conductor's role, the cues, prompts and signals of a DI teacher are similar. But too often, this role is not considered a vital or "professional" one for educators. This is particularly true when the teacher operates from a script (score) which is commercially developed. The following list of skills (Becker, Engelmann, and Thomas, 1975) are central to direct instruction: (1) teaching and using signals, (2) teaching directions, (3) using prompts efficiently, (4) using reinforcers (5) correcting mistakes and (6) pacing the presentation (p. 32). These skills are comparable to the "sign language" spoken of by Green (1961). Utilizing cues and prompts involves a sign language which must convey a precise message and provide adequate control. Further, the effective teacher must adapt each lesson to needs of the individual and the group, thereby maximizing effectiveness.

Conclusion

Producer, composer, and conductor roles are parallel in many ways to the classroom organizer, program designer and instructor roles, respectively. Each may be fulfilled by a single artist or educator without diminishing either of the other roles. That is, a composer may

conduct and a conductor may compose; a curriculum developer may instruct and a DI teacher may develop curriculum. However, within the respective roles, the producer and organizer *manage*; the composer and developer *script*; and the conductor and instructor *follow the script* using prompting, signaling, etc., to adapt and arrange. Thus, while the various roles differ (and may be exchanged), each is uniquely important to a successful experience.

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Achieving Excellence

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To Students:

You forfeit your chance for life at its fullest when you withhold your best effort in learning. When you give only the minimum to learning, you receive only the minimum in return. Even with your parents' best example and your teachers' best efforts, in the end it is *your* work that determines how much and how well you learn. When you work to your full capacity, you can hope to attain the knowledge and skills that will enable you to create your future and control your destiny. If you do not, you will have your future thrust upon you by others. Take hold of your life, apply your gifts and talents, work with dedication and self-discipline. Have high expectations for yourself and convert every challenge into an opportunity.

Final Word

This is not the first or only commission on education, and some of our findings are surely not new, but old business that now at last must be done. For no one can doubt that the United States is under challenge from many quarters.

Children born today can expect to graduate from high school in the year 2000. We dedicate our report not only to these children, but also to those now in school and others to come. We firmly believe that a movement of America's schools in the direction called for by our recommendations will prepare these children for far more effective lives in a far stronger America.

Our final word, perhaps better characterized as a plea, is that all segments of our population give attention to the implementation of our recommendations. Our present plight did not appear overnight, and the responsibility for our current situation is widespread. Reform of our educational system will take time and unwavering commitment. It will require equally widespread, energetic, and dedicated action. For example, we call upon the National Academy of Sciences, National Academy of Engineering, National Institute of Medicine, Science Service, National Science Foundation, Social Science Research Council, American Council of Learned Societies, National Endowment for the Humanities, National Endowment for the Arts, and other scholarly, scientific, and learned societies for their help in this effort. Help should come from students themselves; from parents, teachers, and school boards; from colleges and universities; from local, state, and federal officials; from teachers' and administrators' organizations; from industrial and labor councils; and from other groups with interest in and responsibility for educational reform.

It is their America, and the America of all of us, that is at risk; it is to each of us that this imperative is addressed. It is by our willingness to take up the challenge, and our resolve to see it through, that America's place in the world will be either secured or forfeited. Americans have succeeded before and so we shall again.

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 further education as of June 1982, compared to six (16.7%) comparison students. Of Follow Through students, 10 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 (GPA), and (3) inclusion on 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 tests, the mean standard

Table 3 Average High School GPA's and Ninth Grade Achievement Test Percentiles										
Cohort-Grp	GPA		Reading		Math		Lang. Arts		Composite	
	N	Mean	N	%ile	N	%ile	N	%ile	N	%ile
Cohort I										
FT	79	1.89	74	29th	72	30th	71	28th	72	27th
Comp.	31	1.73	27	22nd	28	35th	28	32nd	25	30th
Cohort III										
FT	60	1.81 ¹	51	34th ¹	51	50th ²	51	35th ¹	51	40th ²
Comp.	39	1.55	28	25th	28	31st	27	25th	27	28th

¹Approaching statistical significance (p = .15).
²Statistically significant difference (p = .05).

score for each group was converted to a percentile.

Statistically significant differences are marked by ²s. 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 34th 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 special education program—as well by attendance data.

A student was rated as an attendan problem if that student had been abse for over 10 days during school ye 1981-82. By this standard, in Cohorts and III, Follow Through students hav an edge in attendance data (Table 4).

Table 4 also shows that Direct Instru tion students were retained less tha comparison students. Almost twice as many comparison students receive special education help for academ deficits at some point in their scho careers, although these differences ar not statistically significant. When th data for Cohorts I & III are combine Good Attendance is significant beyon the .001 level, Never Retained is signif cant at the .01 level, and Placed i Special Ed. approaches significance (p .12).

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Table 4 Attendance, Retentions, and Special Education Placement				
Cohort-Group		Good Attendance	Never Retained	Placed in Special Ed.
Cohort I	N			
FT	82	75.6% ²	65.9%	6.1%
Comp.	36	47.2%	55.6%	11.1%
Cohort III				
FT	61	82.8% ¹	87.9% ²	3.4%
Comp.	38	67.5%	65.0%	7.5%

¹Approaching statistically significant difference (p = .10)

²Statistically significant difference (p = .01)

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