

# ADI NEWS

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THE ASSOCIATION FOR DIRECT INSTRUCTION

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## SPECIAL HISTORICAL ISSUE

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## SECTION 1. INTRODUCTION

*From The Editor:*

*The DI News has moved to a new journal-like format. This will make it easier to keep in your bookcase or file drawer. With this change in format we have planned two Special Historical Issues to help preserve the best of past issues and to bring the past "gems" to our new members. The second Special Historical Issue is planned for the Winter 1989 issue. Let me hear your views about the historical issues and the new format. Also send us articles to be considered for publication.*

*Wes Becker  
Editor*

# The Birth of a New Voice for Excellence in Education

by Doug Carnine  
Wes Becker  
University of Oregon

From *ADI News* Vol. 1, No. 1 (Fall, 1981)

This newsletter represents the first step in the formulation of the Association for Direct Instruction. The Association will be devoted to dissemination of training, program information and research on the systematic application of learning-teaching technology to the problems facing education. This technology has been called *Direct Instruction*. Direct Instruction is concerned with the ways teachers behave, the curricula they use, the use of time and other resources, the role of administrators—all of the factors that influence school effectiveness. Another aspect of Direct Instruction is a dedication to excellence in education through the application of knowledge. Knowledge must become embodied in the lives of students and staffs, not just in the rhetoric about what can or should happen in schools.

Although many educators do not agree on what school effectiveness means or how it can or should be achieved, an increasing number of educators in the U.S. and other countries are applying Direct Instruction and producing research on its outcomes. This newsletter is a response to the need for people to share ideas and information and let each other know that we're not alone—that many others share the same values and methods.

Two years ago, the Australian Association for Direct Instruction was formed at the urging of Alex and Robyn Maggs. The Association has sponsored a number of training conferences and has been able to get news about applications into the press so that the Association has had an impact on decisions by teachers and parents. Joe Moore is currently [1981] the president of that organization. As of this date [1981], Alex Maggs and his students have conducted some 22 studies of the effectiveness of various Direct Instruction programs. Later issues of *DI News* will highlight this work.

Recently, a Direct Instruction interest group was formed within the Association for Behavior Analysis (ABA) by Stan Paine. This group sponsored a half-day symposium at the ABA National Conference in Milwaukee in May. Zig Engel-

mann, Barak Rosenshine, and others were present.

There is a broad interest in Direct Instruction in Canada, a growing interest in England, South America and in Africa. With this growth comes a need for better communication systems for a constantly growing technology.

As part of the initial efforts of the Association for Direct Instruction, two books are planned for publication in 1982. The first, *Theory of Instruction* by Zig Engelmann and Doug Carnine, lays out the logical principles underlying the design of DI programs. The second, *Research on Direct Instruction*, edited by Wes Becker, summarizes 10 years of research findings using Direct Instruction programs. [Ed. Note: This has not yet been published for many reasons, but may yet see the light of day.]

To get the Association off the ground, and to help finance this newsletter, we are soliciting contributions to the Association (see back page for information). Teachers, parents, administrators and professors are all invited to join this effort.

In this first newsletter, we address issues of dissemination and implementation, research summaries, recognize effective programs, describe new programs, and reference important publications. Readers are invited to submit articles for subsequent issues. Send your contributions to: Newsletter Association for Direct Instruction P.O. Box 10252 Eugene, Oregon 97440. ♦

## Selected ADI By Laws

From *ADI News* Vol. 1, No. 1 (Fall, 1981)

Note. *The Association for Direct Instruction* was incorporated as a not for profit Oregon corporation in 1981.

### ARTICLE I: NAME

The name of the corporation shall be The Association for Direct Instruction.

### ARTICLE II: PURPOSE

The corporation shall have the following purposes:

1. To encourage, promote, and engage in research aimed at improving educational methods.
2. To encourage, foster, and promote the dissemination of knowledge and skills arising from

## By Laws—Continued

the research on teaching with the goal of improving the education of children and adults.

3. To sponsor training and informational workshops and conferences for parents, teachers, and others interested in education that will bring to the field of education the latest in effective knowledge and procedures.

4. To publish and distribute newsletters, journals, books and related materials that are in keeping with purposes 2 and 3 above.

5. Any other lawful and related purpose within the scope of S501(c)(3) of the Internal Revenue Code.

### ARTICLE V: MEMBERS

1. *Eligibility and Admission.* Any individual who subscribes to the purposes and basic policies of the corporation can become a member provided they:

- (a) Make written application for membership with the Secretary of the corporation, and upon acceptance of membership sign their name in the membership book along with their current address. The members shall promptly notify the Secretary of any change of address.
- (b) Agree to abide by the terms and conditions of these bylaws, and act in accordance with decisions made by the Board of Directors.
- (c) Pay the membership fee, as set from time to time by the Board of Directors.

2. *Rights of Members.* Each member shall have the right to one vote on matters submitted to a vote of the membership except to the extent voting rights are limited or denied by these bylaws or the Articles of Incorporation. Members shall vote to elect the Board of Directors, amend the Articles of Incorporation and other matters as set forth in the Oregon Revised Statutes and these bylaws.

No dividends or earnings of the corporation shall be payable to members, except that reasonable compensation and expenses may be paid to members who contribute services or incur autho-

rized expenses on behalf of the corporation, nor shall a member be entitled to receive any assets of the corporation which remain after payment of the corporate liabilities and expenses.

3. *Termination of membership.* Membership may be terminated by the occurrence of any of the following conditions:

- (a) The member resigns from the corporation by delivering a written resignation to the chairperson of the Board or the Secretary of the corporation.
- (b) The member fails to pay any charge, dues or assessment, or to obtain a waiver of such charge, dues or assessment after receiving written notice from an officer or agent of the corporation stating the nature of the assessment, the date it became due, and the fact that membership shall automatically terminate if the charge, dues or assessment is not paid by a date selected by the Board of Directors, which date shall be no more than thirty days from the date such notice is sent.
- (c) The member fails to comply with any term or condition of membership as provided in the Articles of Incorporation or bylaws of the corporation after receiving written notice from the corporation of the failure in performance and afforded a thirty day opportunity to cure the defect in performance if it is of such a nature that could reasonably be cured. The Board of Directors shall authorize the corporation to send the notice described herein, which notice shall state that unless the defect is cured, membership shall terminate on that date without further action of the Board unless the member submits evidence of remedial action to the Secretary prior to that date. If the defect is one which cannot reasonably be cured, the notice shall state the date that membership will be deemed terminated. ♦

## On Observing Learning

by Siegfried Engelmann  
University of Oregon

From ADI News Vol. 1 No. 2 (Winter, 1982)

Observing things in nature grow and develop is an extremely interesting pastime. Plants and trees, for instance, are fascinating—the way the

buds form and develop into leaves; the way new growth sprouts out to give the plant a form that is unique to the species; the way the plant protects itself from competing plants. For example, if a young tree is growing next to another tree that is almost as tall, the tree will try to extend a branch

## Observing Learning—Continued

over the top of the competing tree, thereby shading the top. Once the top is shaded, the tree's growth slows and the tree is no longer a serious competitor. The most amazing facet of growth is the way that things in nature achieve their shape or form. A young fir tree assumes a conical shape. If its top is cut off, it shoots out a new top and within a few years it again has a perfect conical shape.

Humans are even more fascinating than plants because they are more complex and are capable of growth in more ways than a tree. The human mind, the topic of thousands of books, is probably the most fascinating growing part of the young human because of the amazing complex form the mind assumes as it matures. How the mind works is basically a mystery. But the way in which it works is remarkably clear. The mind grows in response to demands from the environment and encouragement from the environment. The mind begins as something more than a blank slate. In the infant, the mind has a full program of responses, most of which are emotional. Even the simplest activities amuse, frustrate, or dramatically anger the infant. States, such as mild hunger, create incredibly strong emotional responses; and environmental changes, such as a smile from the infant's mother, create a response that seems to be pure joy. From these emotional responses and the magnificent human brain come learning and habits. At first, the learning is meager. Even after infants have been exposed to their new environment for a year, they may give no indication that they understand the basic assumption of language—which is that the same word or utterance means the same thing each time it occurs. But when these infants have tangled with the language code for a few more months, they begin to understand it, and they begin to learn at a rate that is almost frightening. Now meager gains are replaced by astonishing leaps, generalizations, and "role playing." Still driven by the very strong emotions that characterize early childhood, these youngsters want to do the things their parents and older siblings do. Their incessant tendency to idolize is reflected in their pretend-behavior, their play, and their insistence on tagging along and doing what the others do.

Then they go to school. By this time, they have minds that are capable of incredible learning—even the lower performers. But the school scenario is often sad, because, as many critics of

education have pointed out, the children are stifled. They are not provided with productive outlets for their emotion; they are not given strong models to emulate; they do not receive instruction that conveys urgency and the sense of mastery that they so desperately want; and, they often do not receive instruction that they understand. They are removed from a world in which they clearly see what others do and in which they are provided with many opportunities to join in. And they are placed in a setting that is characterized by new rules, new kinds of interactions with authority figures, and material that plays no important role in their life.

This is where you may come in as a DI teacher. Let's say that you create a different scenario. You begin by recognizing that the springs of important learnings are the emotional ones. You recognize that the children need strong models and that they will work with great intensity to impress their teacher and to succeed. You also recognize that the school should not be a period-after-period grind, but should have breaks, changes of pace, and a few activities that permit a full expression of children's emotions.

With this background understanding, you are in a position to observe things that very few observers in the history of the world have looked at with great care—the way children learn. If you exercise appropriate care to guarantee that you have a very good understanding of what the children know, which specific outputs you provide, and how the children respond to these as inputs, you will see the children's minds change, grow, and develop new shoots, new forms, and begin to take on a shape that is clearly distinctive as the form of the young fir tree.

But for you to receive good information about how the mind grows, you must exercise the same kind of careful controls that you would use if you were conducting an experiment. You must control all the variables that would make a difference in how the messages you present are received by the child, and you must make sure that the messages are valuable ones—those that will lead to generalization and growth.

So you make sure that you are modelling the kinds of emotional responses you want the children to emulate. *You show great interest in the material you are presenting. You reinforce effectively;* and you make sure that the children are placed in material that they can handle, so they will have many opportunities to be reinforced and

## Observing Learning—Continued

learn that indeed the teaching activities you direct are reinforcing. You *challenge*; you exhort, you set the stage so that the children understand that their work in school is as important as playing in the NBA championship. When they are having trouble with a particular skills or activity, you are empathetic, but urgent. "This is hard. Everybody, take a deep breath. We can do it. Back to the beginning and thinking big. Here we go..." When they succeed, you let them know that their success is a major one, not something that was less than expected. "I told you we could do it. That was great. Give yourself a double pat on the back and say, 'I'm the greatest'..." But you do not stop here. You work on the technical details of your presentation. You practice your skills of presenting, correcting, reinforcing, and going back to tasks that the children had trouble with earlier. You work on your pacing, your signals, the pauses that you present before signalling responses that require some thinking time, and the other details that make a difference in your presentation (such as the way the children are seated in front of you, and the schedule of events). And, you practice designing activities that permit the children to use the skills that they have learned after they have mastered them—perhaps the most important single detail in guaranteeing that the skills will be strong and that the children will recognize their importance.

Now you observe. Single out a child in the group. While you present to the entire group, observe that child. Attend to the specific responses the child makes. Say to yourself that the child will be able to do some things at the end of the school day that she could not do when she entered the classroom in the morning. See if it happens—make it happen.

On the next day, single out another child and do the same thing. See what it takes to teach each specific skill that you present. See how long it takes for the child to become perfectly facile, to generalize, to use the skill.

When you observe the learning process on this moment-to-moment basis, some very nice things will happen to you.

The first is that you will have a much *better understanding of children* and therefore be in a better position to view the problems they experience from their standpoint.

The second is that *you will learn to become a better actor*. You will see the influence that your

response to the children has, and your responses will be shaped so that you do not praise non-contingently and you show approval or disapproval more fluently, despite your mood.

The third thing that happens is possibly the most interesting: *Time seems to fly* during these interactions. Your mind is completely occupied, as if you are playing some kind of super-chess game that has all the intellectual challenges of chess and nearly the emotional involvement of an overtime basketball game. You present a task. The children respond. You respond. You note their reaction. You present . . . and before you know it, the period is over.

Certainly, there will still be times of the day that are boring and times of the school year when the game gets old and you have trouble getting into the role of the teacher-observer. But in most cases, you will be surprised when the period is over. Your mind will not have been on the time, but on your behavior and the children's responses. And sometimes, you will actually think that only about 10 minutes have passed when the clock indicates that a 30-minute period has already elapsed. The Direct Instruction programs play a part in this game because they make it possible for you to provide relatively clear messages to the children. In one sense the part they play is important because if the programs are followed both carefully and sensibly, the children will learn the intended skills and you will have the opportunity to observe their learning from the first time a particular task is introduced until the skill is integrated with others the children have been taught. In another sense, however, the programs are minor ingredients because they are passive. For them to become an active part of the interaction, somebody—you the teacher—must take them and transform them into effective communications. Also, you must add a lot of ingredients that are suggested by, but not provided by, the programs. The model that you present, the urgency that you convey, the patience, the reinforcement, and all the other responses to the children's efforts are not part of the program. But when you make them a part and when you transform those printed sentences and specifications into a convincing, technically well-designed presentation, you will be able to observe some things that only a few people have ever seen in detail—the magnificent growth of human minds.

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## SECTION 2. RESEARCH STUDIES

# Does the IQ Tell You Who Can Learn More?

by Wes Becker  
University of Oregon

From *ADI News* Vol. 1, No. 1 (Fall, 1981)

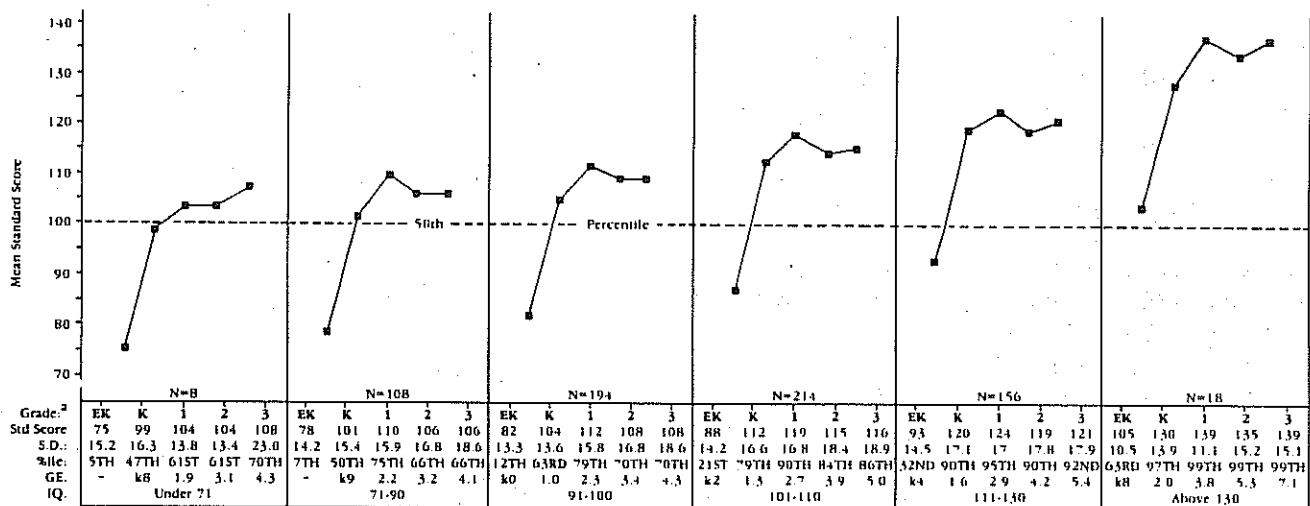
The fiction that IQ measures learning rate has haunted education for many years. It is derived from the high correlation (.70) between IQ and most norm-referenced measures of school achievement. While this correlation is not in doubt, its implications for "Who can be taught what?" are suspect.

John Anderson (1939) first confronted the issue of IQ and learning rate when he noted that while IQ does relate to achievement level, the correlations between IQ and year-to-year gains were very small or non-existent. Experimental studies of learning and IQ level have supported Anderson's position (see Cronbach, *Essentials of Psychological Testing*, for a summary). In one study comparing 5-year-old Down's Syndrome children (IQ's in

the 30's) and children of professors (IQ's in the 130's), Linda Meyers (1968) found that with adequate motivation and use of novel concepts, both groups took the same amount of time (22 minutes) to master five concepts. Also, retention was equivalent a week later. Maggs and Morath (1976) showed that severely retarded children gained in mental age on the Stanford Binet at a nearly normal rate (22.5 months in 24 months' time) when taught *Distar Language I* one hour a day. The control group, taught with the *Peabody Language Program* and teacher-prepared materials, gained only 7.5 months in mental age in 24 months.

The strongest data supporting the non-relationship of IQ and learning rate comes from the Direct Instruction Follow Through Model study. Gersten, Becker, Heiry, and White (1984) analyzed the DI Follow Through data by IQ groups

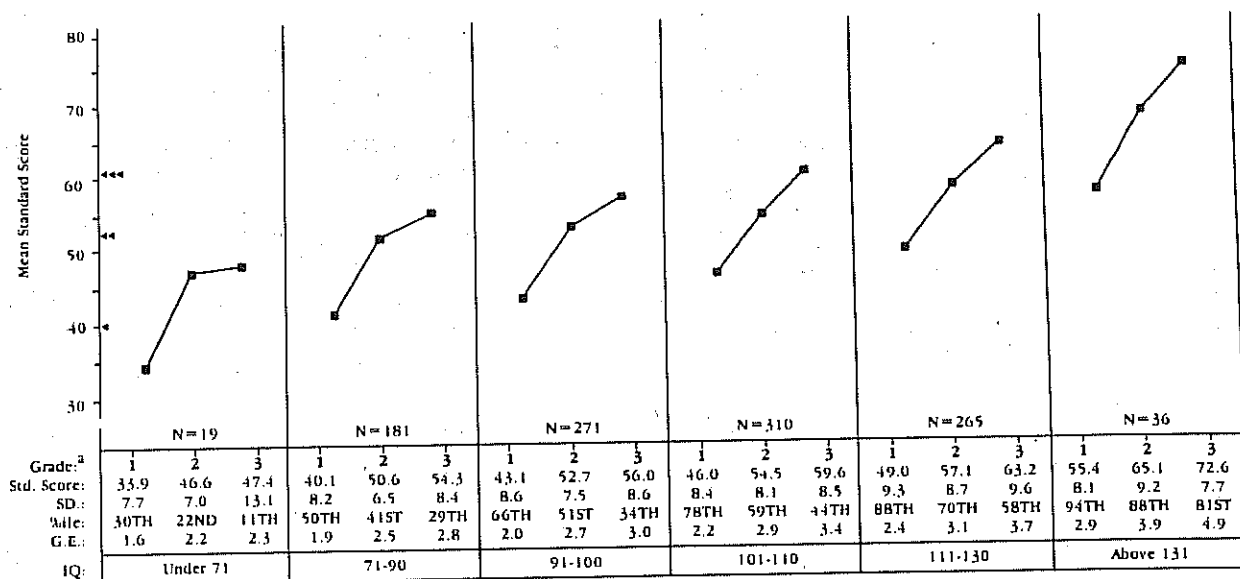
**Figure 1. WRAT Reading, Longitudinal progress by IQ block for children in Entering-Kindergarten (EK) sites (N = 698).**



<sup>a</sup>All testing performed at end of academic year, except for EK



**Figure 2. MAT Total Reading, Longitudinal progress by IQ Block during 2nd and 3rd grade for children in Entering-Kindergarten (EK) sites B (N = 1,082).**

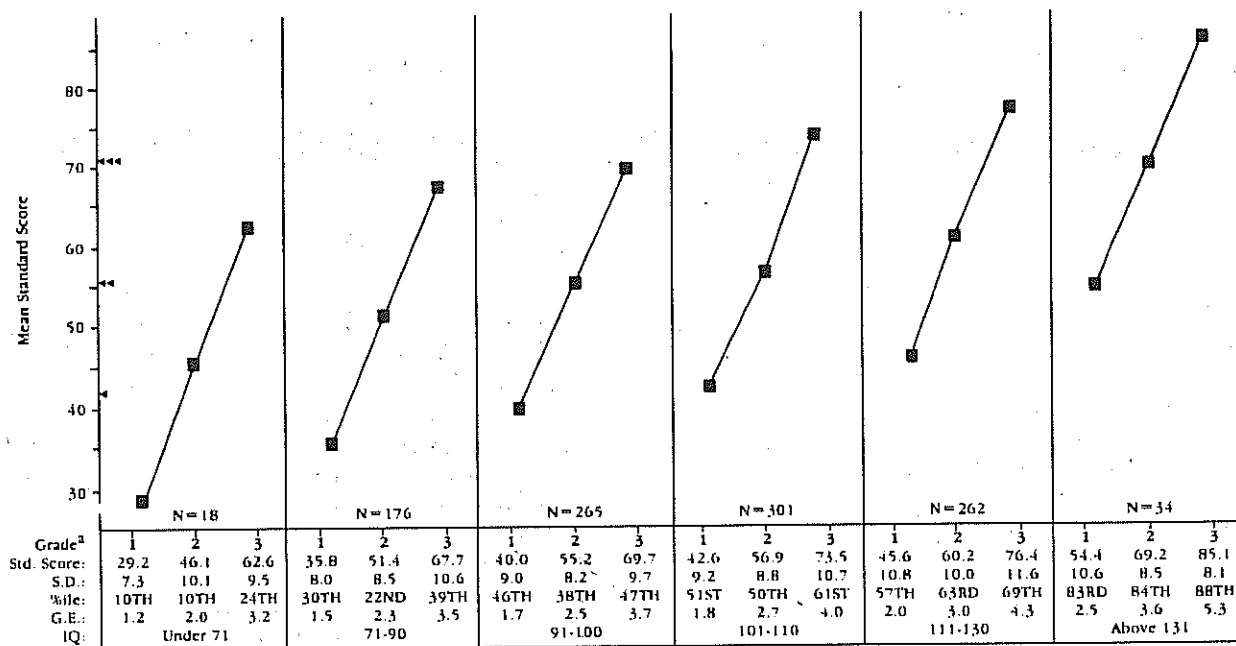


<sup>a</sup>All testing was performed at end of academic year.

<sup>b</sup>During Grade 3, the highest IQ block gained significantly more than the lowest block (which reflects the verbal content of the SIT and the Total Reading subtest of the Elementary Level MAT)

◄ Grade 1 National Median  
◄◄ Grade 2 National Median  
◄◄◄ Grade 3 National Median

**Figure 3. MAT Total Mathematics, Longitudinal progress by IQ Block during 2nd and 3rd grade for children in Entering-Kindergarten (EK) sites B (N = 1,056).**



<sup>a</sup>All testing was done at the end of the academic year

◄ Grade 1 National Median  
◄◄ Grade 2 National Median  
◄◄◄ Grade 3 National Median

## IQ and Learning—Continued

and found almost no contribution of IQ to learning rates. Figures 1 to 3 show the relation of Slosson IQ scores (a short-form individual test like the Binet) at entry to kindergarten to gains on the Wide Range (WRAT) and Metropolitan (MAT) Achievement Tests for Reading, and the MAT for Math. The WRAT shows age-normed standard scores (mean = 100; standard deviation = 15) that remain the same from year-to-year if the students gain one year for each year of instruction. The fact that the scores increase implies that more than a year's gain per year was made in Direct Instruction Follow Through. The MAT scores are expanded standard scores which increase each year about 10 points on the average. If there is no relationship of IQ to achievement gains, the slopes of the curves should remain the same across IQ blocks (be parallel to each other). For the most part, the gains for different IQ levels are nearly identical. (For a sample of more than 1,300 children who started in first grade, the results are nearly identical.) There is a slight contribution of IQ to gain on the MAT Reading (Comprehension) from the end of second to the end of third grade, but otherwise there is no relationship. This latter effect can be understood as due to the end-of-third-grade MAT Reading test being based on an uncontrolled adult vocabulary. IQ is strongly influenced by one's vocabulary. The first and second grade tests are based on controlled vocabularies found in basal readers. Thus, even the slightest relationship found can be explained in

terms of differences in home backgrounds (the opportunity to learn language) rather than in terms of inherent differences in children's ability to learn. This does not mean that heredity does not make substantial contributions to individual differences in learning; it only means that if there is contribution, the IQ test does not necessarily reflect it.

The findings strongly suggest that the answer to "Who can learn what?" lies in trying the best available instruction and gearing it to the individuals' entry skills. We should not assume that some children are poorer learners and therefore teach them less. We must assume that all children are competent learners and teach them competently. ♦

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## Making Moderately Retarded Children Smarter

by Alex Maggs  
Phil Morath

Maquarie University, North Ryde, NSW,  
Australia

From *ADI News* Vol. 1, No. 3 (Spring, 1982)

This study was carried out in Australia between 1972 and 1974. Twenty-eight children from Stockton and Marsden Hospital schools in New South Wales participated. They ranged in age from 6 to 14 at the start of the study. All had been institutionalized for at least 5 years.

At each school, the children were randomly assigned to one of two conditions. Condition 1 children were given intensive direct verbal in-

struction following the *DISTAR Language I* program and behavioral teaching techniques. Instruction was provided for one hour per school day over two calendar years. Condition 2 children were given the standard curriculum in effect in the schools, using the Peabody Language kit (P-level) and some teacher-provided variations. The Condition 2 teachers did not systematically apply behavioral principals (e.g., reinforcement, prompting, modelling, shaping, etc.). Teachers for both groups were monitored at least once a week to insure that they were applying the appropriate instructional procedures for their group. Videotapes were made of the teaching and analyzed to gain evidence for validity of program implementation.

# Making Children Smarter—Continued

**Table 1. Mean Gain Scores on Six Tests**

Group	Basic Concept Inventory	Reynell Verbal Comprehension in Mental Age Months	Stanford Binet IQ in Mental Age Months	Sereatim (Total Score)	Class Inclusion (Total Score)	Matrix (Total Score)
DISTAR Groups (N = 14)						
Mean	12.0	17.1	22.5	2.9	2.2	2.1
Standard Deviation	3.6	6.9	5.2	1.5	1.0	1.4
Peabody Groups (N = 14)						
Mean	3.1	6.0	7.5	1.1	.6	.4
Standard Deviation	3.8	4.1	6.4	1.1	.8	1.0
Significance of Difference	.01	.01	.01	.01	.01	.01
Omega Squared	60%	57%	47%	41%	31%	28%

A battery of tests was given before and after the two years of instruction by nine independent testers, who were unfamiliar with the program objectives. The tests included Engelmann's Basic Concept Inventory, the Reynell Verbal Comprehension Test, the Stanford-Binet (L-M) Intelligence Test, Piaget's tests of Class Inclusion and Seriation, and Bruner's Matrix test.

The results of this study are summarized in Table 1. The results show the DISTAR group gained significantly more on every measure of cognitive functioning. The last line in the table (Omega Squared) gives the percent of total variance that can be attributed to experimental treatment effects. The size of these effects implies an

extremely powerful treatment. The gains on the Stanford-Binet IQ test are most readily interpreted. The DISTAR Language group gained 22.5 months in mental age in 24 calendar months. This growth is nearly a normal (average) growth in mental age. The Peabody Language group gained 7.5 months in mental age in 24 calendar months. This growth is exactly what would be expected of children with IQ's averaging in the low 30's.

These findings imply that much more can be done with moderately and severely retarded children than has been assumed in the past. They raise critical questions about using labels such as educable and trainable. ♦

## High School Follow-up: *The Uvalde TX Study*

by **W.A.T. White and Russell Gersten**  
University of Oregon

From *ADI News* Vol. 2, No. 3 (Spring, 1983)

Uvalde, Texas students who were in the Direct Instruction Follow Through project in their first three grades were compared in high school with similar students who completed high school in Uvalde during the prior two years (and did not participate in Follow Through). Uvalde (45 miles from the Mexican border) is one of the largest Follow Through programs in the Direct Instruc-

tion Model. Over 99 percent of the Follow Through students are Chicano. Many enter first grade with little or no knowledge of the English language.

The high school data show that Direct Instruction students:

- Are more likely to receive a high school diploma.
- Are less likely to be retained in any grade.
- Show better attendance in the 9th grade.

The results do not show appreciable differences between ninth grade Follow Through and

## Uvalde Follow-up—Continued

Table 1.

Starting Year	N*	Percent Graduating from High School	N	Percent Retained
1966—Non-FT	103	37.9	110	43.6
1967—Non-FT	97	42.3	111	46.8
1968—FT	87	59.8	94	42.5
1969—FT	47	53.2	62	23.0

\* These N's exclude students who moved away during high school.

Non-Follow Through students in achievement scores or high school grade averages, but such differences are likely concealed by the differences in retention and dropout rates. Because many of the lower performing comparison students were given an extra year to learn (over 50% were retained in first grade), they could make gains that would help to mask a Follow Through advantage. Also, most dropouts were from those failing in school. This selective factor could also mask true Follow Through/Non-Follow Through differences.

### The Sample

The DI Model was implemented in the first grades in Uvalde in the Fall of 1968. This report covers a follow-up on the Chicano students who entered first grades in the Fall of 1966, 1967, 1968, and 1969. The students from the two years prior to Follow Through are compared with those from the first two years of Follow Through. A large number of students in all four of the annual classes failed to remain in the community. The percentages remaining in the community from the entry years 1966 to 1969 were 43.1%, 41.6%, 60.7%, and 44.1%, respectively. The figures given in the results reflect data for only the students who did reach high school in Uvalde for

Table 2. Percent Good Attendance in 9th Grade.

	N	Percent
1966—Non-FT	97	55.7
1967—Non-FT	101	59.4
1968—FT	90	68.9
1969—FT	54	83.3

some period of time.

### Results

Table 1 shows that a higher percentage of Follow Through students graduated than for the two preceding classes of students. It also shows that there were fewer retentions among Follow Through students, especially after the first year.

High school attendance was also examined (Table 2). DI students showed better attendance during 9th, but not 10th, 11th, and 12th grades. The dropout rate differences could be affecting the attendance differences. A student was considered to have a good attendance if the student was absent for 10 or less days during the year.

These findings show that in spite of many years of a return to a more traditional educational setting, effects of the Follow Through instruction in the DI Model during grades 1 to 3 are still detectable on variables obviously relatable to life success. ♦

## The Monterey DI Program for Students with Limited English (ESL)

by Russell Gersten

Mary Alice Brockway

University of Oregon and

Nancy Henares

Marina Del Mar School, Monterey, California

From ADI News Vol. 2, No. 4 (Winter 1983)

### Evolution of the Program

In 1969 there were no non-English or minority

children at the Marina Del Mar school in Monterey, California. The school population consisted of white low-income (or welfare) families. Because of the low-income level, the school became eligible for Title I funds. *DISTAR Reading and Language* were introduced in kindergarten and the primary grades.

In 1970, four non-English speaking kindergartners entered the program. Since there was no

## Monterey DILE—Continued

formal English as a Second Language (ESL) program, these children were taught using *DISTAR Reading* and *Language* programs. This appeared to be an efficient and successful approach, so all new ESL students in the primary grades were included in the Direct Instruction Limited English program (DILE) as developed and directed by Mary Alice Brockway and Nancy Henares.

At that time, 4th-6th grade ESL students at Marina Del Mar School were not taught any reading at all for three to five months to allow for English development. In the meantime, their younger siblings in the primary grades were being instructed in both *DISTAR Reading I* and *DISTAR Language I* from the first day of school. Often the intermediate students did not "pick-up" the language and felt inferior to their younger brothers and sisters, who spoke more fluently, and also could read English. Many parents (and children as well) asked that the older students be placed in *DISTAR*. Intermediate children came voluntarily after school or during recess to learn *DISTAR Reading*. A group of parents requested a night *DISTAR* class so that they could also learn using the same method as their children. At this point, the project teachers realized that all K-6 ESL students needed the *DISTAR Language* program.

Beginning in 1979, an ungraded model was developed for ESL students in kindergarten through sixth grade. Some of the content of the developmental (*DISTAR*) programs was too simple or childish for the intermediate grade students. A combination program was designed for them including the newly developed remedial Direct Instruction programs in oral reading and reading comprehension—the *Corrective Reading Programs*. The DILE program has always included some English-speaking students. As soon as ESL students become proficient in the English language, they are placed in regular classes in the school.

### Major Components of the DILE Program

1. *The Direct Instruction Model of classroom organization and teaching strategies.* Approximately 95 students are involved in the program each year. Instruction takes place in an ungraded learning complex, staffed by 3 teachers and 4 paraprofessional aides. (Three of the four aides are bilingual.) The ungraded complex allows for students to be placed according to correct academic skill level. Both English-speaking and limited English-speaking students are involved in the program.

Almost all instruction takes place in small groups by ability for instruction in reading, oral language, and mathematics. The Direct Instruction settings provide the opportunity for many student-teacher interactions within a 30-minute group. Most of the responses are oral. This is particularly important for ESL students. Oral practice is followed by worksheet practice. The worksheets require the students to use and apply the skills they have just practiced orally.

The teaching strategies built into the *DISTAR* programs are designed to assure mastery of each lesson by every child. These strategies are detailed in Becker and Carnine (1980).

2. *Use of developmental and remedial Direct Instruction programs for ESL students.* Previous research in the Follow Through programs in Uvalde, TX, and San Diego, CA, have demonstrated that the Direct Instruction Model can be effective in teaching mathematics and oral reading accuracy to non- and limited-English-speaking students in the primary grades (Gersten, 1981a; 1981b; Gersten, Carnine, and Williams, 1982).

However, no program has been developed which adapts and refines these procedures to include:

- The needs of limited English-speaking students in the intermediate grades.
- The domains of reading comprehension and written language expression assessed in the intermediate grades.

Beginning students with no English language skills, regardless of grade level, receive two language lessons a day. In the first, they cover material from *Language I*. The second sessions include strands from *Language II* and *III* that teach children the structure of the English language. Brockway and Henares found that Asian children would "pick up" nouns for everyday objects fairly easily from their peers. However, they needed intensive instruction in how sentences are developed and spoken in English, since sentence construction is totally different in Korean, Japanese, or Vietnamese.

In the intermediate grade (3-6) program, the DILE model combines developmental materials intended for 5-8 year olds with remedial programs intended for 9-17 year olds. The remedial reading programs used are the *Corrective Reading Program* in *Decoding* and *Comprehension*. In math, the remedial/developmental distinction appeared less important to us because the language demands of the series are greatly reduced, and the issue of "childish" content is not terribly

important. When students in the intermediate grades completed *DISTAR Arithmetic III*, they were placed in the district's basal arithmetic series. The basal arithmetic series was taught using the principles of Direct Instruction cited above.

There are several reasons for this combination of remedial and developmental programs in reading. The older Asian students need the intensive work in English language production and receptive language provided by *DISTAR Language I*, and need to be taught the basic word-attack strategies taught in *Reading I*, but also want to read age-appropriate material. The *Corrective Reading Programs* provide such material. By doubling up on *DISTAR Language* and the *Comprehension* strand of the *Corrective Reading Series*, the students receive a concentrated program for English language development.

3. *Structured English immersion.* This is probably the most unique feature of DILE. A major principle in the DILE model is that ESL students need to learn to understand, speak, read, and write English as rapidly as possible. We believe that ESL students learn English most effectively when attention is directly focused on their oral language. Learning a new language is like acquiring any other skill—the more a child practices the skill throughout the day, the more quickly he or she will master the skill. However, as in most areas of education, mere practice is not enough. The key to a structured immersion is that all instruction takes place in English, but at a level understood by the student. (See Baker & DeKanter, 1981.) The carefully controlled vocabulary and the carefully sequenced lessons in the Direct Instruction programs allow teachers to "preteach" any new words that come up in the math, reading, or language lessons. Though virtually all instruction is conducted in English, there are always several bilingual instructors in the class who understand the child's native language. The curriculum programs are structured so that prior knowledge of English is not assumed. New material and concepts are explained so that they can be understood by the students.

Both ESL and English-speaking students are in the learning complex. Thus, ESL students are provided with English-speaking role models.

4. *Non-graded approach.* Students are placed in instructional groups in language, reading, and math based on their current skill level. Thus, a fourth grader may be in a beginning (kindergar-

ten-level) English oral language program, a first grade reading program and a third grade math program.

Rather than isolate limited English students by placing them in a separate ESL classroom, they are mainstreamed into a learning environment where they encounter English-speaking children working at many skill levels. The student "grouping" is temporary; as skills develop, students are moved as rapidly as possible through our academic continuum. Students are assessed once every 6 weeks in each academic area (reading, language, math, spelling) on criterion-referenced tests. These test results are used to accelerate students for whom the work is too easy, determine which children need remedial work, and regroup students when necessary.

5. *Use of bilingual aides as instructors.* The paraprofessional aides serve two major purposes in the program. They are trained (by the head teachers) to teach daily lessons to small groups of children in the language and arithmetic programs. Essentially, they serve as additional teachers, allowing for small group instruction in all academic areas. In addition, the bilingual aides help the non-English speaking students adjust to the environment, occasionally serving as translators during a child's first few months.

6. *Cultural activities.* Due to the fact that there are many ethnic groups prevalent at Marina Del Mar School, multicultural activities are centered around the cultures represented. Each month a different culture is featured. Monthly multicultural discussions emphasize the similarities between the various cultures, as well as their uniquenesses. The students become familiar enough with the different cultures to readily see similarities. (For example, Koreans and Japanese both sleep on the floor, sit on the floor, and eat with chopsticks.) The children discover that sushi (Japanese) and kimbab (Korean) are both dishes utilizing rice and seaweed.

Everyone is encouraged to "share" things from various cultures. Cultural displays depict the artifacts, dolls, toys, games, costumes, etc. Not only do the children learn about cultural heritage, but they also learn ethnic songs, games, and dances, taught by other students or staff members. The culminating cultural activity has been cooking a complete meal, featuring the food from the particular culture studied. This lunch is prepared by the children and then enjoyed by students, staff, parents, and guests.

## Monterey DILE—Continued

### Results of the Evaluation

Since the testing procedures and instructional programs are different for the primary (first and second grade) students and the remaining (third through sixth grade) students, separate analyses were made for each group. The reader is reminded that all instruction took place in a non-graded setting. Students were placed in instructional groups on the basis of current skill level, not age or grade level.

### Primary Grades

Limited and non-English speaking students in the DILE program during the first and second grade perform at a significantly higher level in Reading and Math on the Comprehensive Test of Basic Skills (CTBS), Form S, (1973) than comparable students in the district's bilingual program.

The Language Assessment Scale (LAS) was used as a supplemental measure to insure that the DILE and traditional bilingual samples were equivalent in English language proficiency upon entry into the first grade. The LAS provides an overall picture of a child's oral language proficiency in English. Scores on the LAS range from 1 to 4. 1 means non-English speaking; 2 and 3 represent degrees of limited English language proficiency; and 4 means fluent in English.

The comparison group was randomly selected from the district's central computer file. The computer file included the student's ethnicity and their LAS score upon entry in school. The comparison group was selected from the file by reviewing the files of all ESL students who entered first grade by October 31 of the school year and spent two years in the district's bilingual program. The ethnic distribution and mean entry LAS score for the comparison groups were equivalent. The DILE students included children from Korea, Vietnam, Japan, the Philippines, and Samoa.

Table 1 presents the number (and percent) of

DILE students and comparison students at or above grade level at the end of second grade in Reading, Language, and Math. The data for 1980 and 1981 are grouped. The mean student performance of the DILE students is above national norms.

Statistical analyses revealed that significantly more DILE students were at or above grade level in Reading and Math. (The effect was not significant in Language.) Seventy-five percent of the students were at or above grade level in Reading, and 96 percent in Math. For the students in the traditional bilingual program, only 19 percent were at or above grade level in Reading, 62 percent were above grade level in Math.

The effects of the DILE program were maintained during the third and fourth grades. Table 2 presents third and fourth grade achievement data for all DILE students who started school in 1978 and who were still in Marina Del Mar School. Student performance remained essentially stable in Reading and Language. While there was a drop in Math from second to third grade for the 1979 group, students were still well over the national median. One and two years after the students left the DILE program, they were performing well above the national median, at approximately the same level as when they left the program in 1980.

### Effects on the English Speaking Children Who Participated

The English speaking students all performed above the national median, and above the median level for the district (which is between the 60th and 70th percentiles). Average scores were the 79th percentile in Reading, 77th in Language, and 81st in Math. Though the absence of a control group precludes drawing any strong inferences from these data, it is clear that the English speaking students in DILE perform at high levels in all domains. It appears the DILE experience

**Table 1. Number and Percent of Students At or Above the National Median on the CTBS**

	Total Reading		Total Language		Total Math	
	Below	At or Above	Below	At or Above	Below	At or Above
DILE	7 25%	21 75%	8 27%	20 71%	1 4%	27 96%
Bilingual	13 81%	3 19%	9 56%	7 44%	6 38%	10 62%

# Monterey DILE—Continued

**Table 2. Follow-up of DILE Students on the CTBS**

<b>1978 Starting</b>			
	(N = 10) End of 2nd Grade (May, 1980) Percentile	(N = 10) End of 3rd Grade (May, 1981) Percentile	(N = 9) End of 4th Grade (May, 1982) Percentile
Total Reading	63rd	65th	65th
Total Language	71st	75th	67th
Total Math	86th	67th	65th

<b>1979 Starting</b>		
	(N = 9) End of 2nd Grade (May, 1981) Percentile	(N = 9) End of 3rd Grade (May, 1982) Percentile
Total Reading	73rd	78th
Total Language	74th	68th
Total Math	80th	83rd

was not harmful to them academically, and probably provided a valuable cultural experience.

## **Intermediate (Third through Sixth) Grades**

The students in the program in grades 3 to 6 spoke Vietnamese, Korean, Japanese, Laotian, Hispanic, and German languages. Significant improvement was found in all achievement domains for the 1980-81 group. For the 1981-82 students, significant growth was found in Read-

ing and Language for third graders; and Reading, Language, and Math for grades 4 to 6 (see Table 3).

## **Summary**

These data indicate that non- and limited-English-speaking students in a structured immersion program following the DILE model: (a) make significantly greater gains in bilingual programs, and (b) perform at or above the national median levels after only one or two years of the

**Table 3. Norm-Referenced Comparison Pre- and Posttest Scores on the CTBS (Percentile Equivalents)**

<b>1980-81 School Year: Grades 3 to 6 (N = 15)</b>		
	Pretest (May, 1980) Percentile	Posttest (May, 1981) Percentile
Total Reading	4th	19th
Total Language	5th	23rd
Total Math	13th	45th

<b>1981-82 School Year</b>		
	Pretest (May, 1981) Percentile	Posttest (May, 1982) Percentile
<b>Grade 3 (N = 10)</b>		
Total Reading	17th	47th
Total Language	16th	41st
Total Math	39th	50th
<b>Grades 4, 5, 6 (N = 10)</b>		
Total Reading	4th	23rd
Total Language	4th	30th
Total Math	24th	43rd



program. In addition, the follow-up data show that students who began in DILE in the primary grades maintain their level of performance after they leave the program and enter the mainstream.

In an exhaustive review of research on the effectiveness of approaches toward teaching limited English-speaking students, Baker and DeKanter (1981) reported a dearth of empirical findings on effective approaches toward teaching these students. Two Canadian studies (Lambert & Tucker, 1972; Barik et al., 1977) found structured immersion approaches superior to traditional bilingual approaches. The government Joint Dissemination Review Panel has validated the English immersion Direct Instruction Follow Through programs in San Diego, California, and Uvalde, Texas, as effective approaches for teaching mathematics and beginning oral reading to NES/ESL students. ♦

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## Corrective Reading Program Evaluated with Secondary Students in San Diego

by Marlene L. Campbell  
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Reported by Wes Becker

From *ADI News* Vol. 3, No. 3 (Spring, 1984)

This study used the original *Corrective Reading Program* (Engelmann, et al., 1975) which was later revised and published as *Decoding B* of the 1978 *Corrective Reading Series*. The program provides for daily teaching presentations, group oral reading, silent reading practice, and dual oral checkouts on each story. The program has a built-in point system and charting of progress.

The students selected for the study were seventh and eighth graders with reading levels on the Woodcock Reading Mastery Test (1973) more than one standard deviation below the mean. A nonequivalent control group consisted of students reading at least at the third grade level who were emotionally stable. They were placed in regular English classes. There were 13 subjects in the control group (6 reading at the third grade level, and 7 at the fourth grade level at the start). There were 42 experimental subjects (19 starting at the second grade level, 14 at the third grade

level, and 9 at the fourth grade level). A small percentage of experimental subjects were in the program for a second year (e.g., as a seventh grader and an eighth grader). If pretests and posttests were available for each year, they were counted twice. The experimental group was more evenly divided. Seventy-nine percent of the experimental group and 62% of the control group were non-white. The classes were held in a junior high and middle school in a minority neighborhood. Both were magnet schools where the principals encouraged the development of reading skills.

The individually administered Woodcock Reading Mastery Tests was used to evaluate progress (in most cases Form A at pretest and Form B at posttest). The Woodcock gives a total Reading Score and five subscores: Letter Identification, Word Identification, Word Attack, Word Comprehension, and Paragraph Comprehension, and a Total Reading score.

The students were taught *Corrective Reading* (CRP) for 50 minutes a day in resource room classes of 8 to 12 students. The teachers and aides received no special training in the use of the

# Corrective Reading in San Diego—Continued

**Table 1. Comparisons of Gains in the Woodcock Mastery Reading Test**

Groups	N	Months in Program	Total Reading Scores		
			Grade Level Gain	Terminal Level	Standard Score Gain (SD=10)
I—Exper.	42	9.0	2.2	5.9	5.9
II—Control	13	10.5	.4	4.4	.5
<b>Subgroups</b>					
A. Pretest—Grade 2					
I—Exper.	19	10.2	1.2	3.7	4.8
B. Pretest—Grade 3					
I—Exper.	14	9.0	2.4	5.4	7.3
II—Control	6	10.8	.2	3.6	-0.5
C. Pretest—Grade 4					
I—Exper.	9	6.4	3.4	6.6	6.0
II—Control	7	10.1	.5	5.0	1.4

program. Check-outs were made by the teachers or aides within the 50 minutes of class time. The students were also required to read six books of their choice each quarter and to give book reports to the class. CRP was not taught on book report days.

## Results

Table 1 shows the gains by subgroups and total groups on the Woodcock Total Reading scores. The *Corrective Reading* groups all did better than their comparison groups. Overall, there was a gain of 2.2 years in 9 months of instruction by students in CRP, and a gain of .4 months by students in English classes. The lowest performing group, subgroup A, gained 1.2 years in 10.2 months. Considering that these students had gained only 2 years in the last 7, this is an excellent change. It is likely that these low students also needed additional systematic phonics instruction (as provided in *Decoding A*) to make better progress. Subgroup B gained 2.4 years and subgroup C gained 3.4 years. The comparison groups gained .2 and .5 years respectively.

Table 2 breaks scores down by subtest and shows *t*-tests for statistical significance. On each of the subtests, except Word Identification, there is a highly signifi-

cant difference. Gains occur for comprehension as well as decoding skills. The magnitude of the gains (with the exception of Word Identification) range from .5 to .7 standard deviation units for the CRP group. The maximum change for the control group was a little over .1 of a standard deviation unit. (Note: To express gains in standard deviation units, the standard score is divided by the standard deviation for the standard scores, which in this case is 10.)

These remarkable findings are consistent with a number of other studies of the original *Corrective Reading* Program and its successor *Decod-*

**Table 2. Standard Score Gain by Subjects (Woodcock) (N=42, E, 13 C)**

Subtest	Group	Standard Score Gain/Loss (S.D.=10)	Significance or Difference (T-Test)
Letter	E	7.17	.007
Identification	C	-1.23	
Word	E	3.26	.098
Identification	C	.46	
Word	E	7.02	.0001
Attack	C	-1.31	
Word	E	8.24	.0001
Comprehension	C	1.54	
Passage	E	5.50	.001
Comprehension	C	.31	
Total	E	5.90	.0001
Reading	C	.54	

## Corrective Reading in San Diego—Continued

ing B. The failure of the students in regular English classes to make progress should be noted. Mainstreaming obviously is not the answer at the secondary level when the students lack basic reading skills. In her discussion, Campbell writes:

"One of the real concerns for secondary schools is finding teachers with experience to teach reading. Many of the researchers (in her review of the literature) agreed that this is why successful reading programs for this age group are so difficult to find. 'Corrective Reading,' with its scripted lessons and exact rules, can be used by anyone willing to spend some time learning the method. This researcher had a one-half hour presentation and, with that and practice gained in an afternoon extended day class, used the program so

that students had effective gains in reading. The results of this program suggest that secondary schools committed to raising scores can successfully fit 'Corrective Reading' into an all-school reading program as long as the size of the small group stays below fifteen" (Campbell, 1983, p. 150). ♦

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## Progress in a High School LD Class

by Charles Arthur  
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From ADI News Vol. 5, No. 2 (Winter, 1986)

In September 1984 a special class was established at my Jr. High for students with learning disabilities. Tests were given at the beginning and end of the year in order to evaluate the progress made by the students. Only test scores for six students have been recorded, because they are the students who completed a full year in the program. Three other students were in the class for a portion of the year. Testing was not completed for these three because of the partial year participation and because of attendance problems. Also, these three did not have the same serious academic problems as the first six.

For the six students (4 boys and 2 girls), the special class provided instruction for 4 or 5 out of 7 classes a day. Four of the 6 students were considered 7th graders and 2 were 8th graders at the beginning of the year. Their ages ranged from 12-2 to 14-2. The daily classes included instruction in reading, language, math, independent reading in the content areas, and, for three of the students, a spelling/writing class. An instructional aide worked in the class for the last three-fourths of the year when 8 or 9 students were in the program.

The main purpose of the class was to provide intensive instruction to students who were at least two grade levels behind in academic skills

due to a history of learning difficulties. The goal of the program was to help the students catch up as much as possible to the average skills of their own grade level. In order to do this, each student would have to make more than a year's progress within the year.

The tests given, as one indication of this progress, were all norm-reference tests. These tests sample a progression of representative skills and provide standard average scores for various age level groupings and grade levels.

The students would be expected to improve at least one grade level in order to just keep up with the average progress. To catch up, they need to progress more than one grade level. All six students gained at least two grade levels in most areas. Thus, the progress made with these students, during this year, indicates that it is possible for students with a history of learning problems, who have fallen way behind each year, to begin to regain these losses.

Not all of the students were given exactly the same tests. Some first year difficulties prevented a complete uniform evaluation. For example, one of the 8th graders refused to take some oral tests at the beginning of the year, and the lack of time caused a few small omissions with other students. In spite of this, the testing was very similar for each student, and enough tests were given to provide adequate information (see Table 1).

The most interesting aspect of these scores has to do with the degree to which they correlate with

## LD Class—Continued

the mastery of curriculum objectives. Curriculum objectives can measure skills more precisely, but are more difficult to relate to age or grade level groups. The Reading Comprehension/Written Language objectives and the Reading Decoding objectives that these students worked on come from the *Corrective Reading Program* by Engelmann and others. This program has two tracks, one for decoding skills and the other for reading comprehension and written language skills. These programs, plus the corrective spelling and math programs from the same author, comprised most of the curriculum for this class.

To summarize the curriculum levels achieved in the class, all six students mastered the Reading Comprehension/Written Language objectives of Comprehension B. Two students completed Level B Decoding Skills, which represents a two year advance. Another completed this same level and about 15% of Level C Decoding Skills. Two students completed all of Level C Decoding Skills, and one completed 80% of this same level. Level C Decoding Skills also represents at least two grade levels.

In Math the progress in curriculum skills was more mixed. Three students completed long division, words problems with the basic four operations and about 75% of fraction and decimal computation skills. One student accomplished the same skills with the addition of closer to 90% of fraction, decimal and percentage skills; and two students accomplished about 95% of all of the skills, but did not start as low as beginning division skills at the beginning of the year.

The results shown in Table 1 give strong support to the effectiveness of Direct Instruction programs. ♦

### *Plan now to attend these ADI Training Sessions:*

June 26—28 • Chicago, Il.  
The Third Midwest DI Institute

August 7—11 • Eugene, Or.  
The 15th Eugene DI Conference

August 14—18 • Salt Lake City, Ut.  
The Fourth Salt Lake City DI Institute

**Table 1. Results for Six LD Children**

#### **A. Test of Language Development (TOLD-Intermediate) (Mean=100, standard deviation=15, N=6.)**

Scale	Fall 1984	June 1985	Gain
Overall	83.4	103.2	19.8
Listening	91.6	101.4	9.8
Speaking	79.0	105.0	26.0
Semantics	82.6	91.4	8.8
Syntax	84.8	111.6	26.8

#### **B. Test of Reading Comprehension (TORC)**

Quotient score has mean of 100 and a standard deviation of 10. Subscale scores have a mean of 10 and a standard deviation of 3 (N=6).

Scale	Fall 1984	June 1985	Gain
Comprehension			
Quotient	83.5	98.8	15.3
Vocabulary*	7.5	8.0	.5
Syntax	7.3	9.8	2.5
Paragraph	7.8	9.7	1.9
Sequence	7.3	10.0	2.7

\*Student D was given the Vocabulary Comprehension test orally in the Fall and through reading in June.

#### **C. Test of Written Language (TOWL)**

(Mean=100, standard deviation =15, N=5)

Scale	Fall 1984	June 1985	Gain
Overall	81.6	95.4	13.8

#### **D. Sequential Test of Educational Progress (STEP) grade equivalent scores.**

Scale	Fall 1984	June 1985	Gain	N
Reading (silent)	4.17	6.77	2.60	6
Vocabulary	3.50	5.92	2.42	4
Written Language	3.44	5.90	2.46	5
Math Computation	3.63	6.17	2.54	3

#### **E. Woodcock-Johnson Psycho-Educational Battery grade equivalent scores.**

Scale	Fall 1984	June 1985	Gain
Reading Cluster	5.08*	7.00	1.92
Written Language	4.87	6.52	1.65

\*One student was not pretested until late November.

#### **F. Wide Range Achievement Test (WRAT) grade equivalent scores.**

Scale	Fall 1984	June 1985	Gain	N
Word Recognition	5.15	6.88	1.73	6
Spelling	4.28	5.80	1.52	4
Math Computation	3.63	6.17	2.54	3

# A Meta-Analysis of the Effects of Direct Instruction in Special Education

by W.A.T. White  
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From *ADI News* Vol. 6, No. 3 (Spring, 1987)

This analysis is based on studies that compared the effectiveness of Direct Instruction (DI) intervention with that of one or more comparison interventions. Only studies with students experiencing some form of learning handicap (e.g., learning disability, trainable mental retardation, reading disability) were included. Studies with students considered "at-risk" for learning problems did not qualify.

For a study to be included in the meta-analysis, the assignment of participants to experimental and comparison groups must have taken place *prior* to intervention. Studies with noncomparable experimental and comparison groups, established by statistically significant differences on pretest scores or by acknowledgment of an author in a report, were excluded.

A study was considered to contain a Direct Instruction treatment group if the author of the report considered one of the groups to be such. Studies were included if a treatment group was based on the Engelmann and Carnine (1982) model of Direct Instruction, or if a group utilized instructional materials developed by Engelmann and associates.

## Literature Search

Studies were gathered from research previously known to the reviewer or to the reviewer's colleagues, from reports referenced in such research, and from research listed in a computer literature search conducted on April 30, 1986 using data compiled by the Educational Resources Information Center (ERIC). Descriptors used in the search were: direct instruction; direct teaching; directed instruction; directed teaching; DISTAR; direct verbal instruction; active teaching; and active-teaching.

The 25 studies in the meta-analysis for which treatment lasted for over a week are listed in Table 1. Twenty-one of the studies involved mildly handicapped students, one involved moderately handicapped students, and three a mixture of mildly and severely handicapped students.

Some of the studies require explanation about the manner in which they were analyzed for the

meta-analysis. The intervention in the Branwhite (1983) study consisted of two phases, only the first of which was included in the meta-analysis. During the second phase, both the experimental and comparison groups received the same Direct Instruction treatment. Thus, data from the second phase clearly are of no relevance. In the Hursh (1979) report, comparisons involved both mildly handicapped students and nonhandicapped students. Only effect sizes based on the comparisons involving the mildly handicapped students were included in the meta-analysis. The Lloyd, Epstein, and Cullinan (1981) and Lloyd, Cullinan, Heins, and Epstein (1980) reports described the same study, but included different dependent measures. In the meta-analysis, the two reports were considered as one study. The Walker, McConnell, and Clarke (1983) report described two studies, but the first study had already been included in the meta-analysis from a separate report (Walker, McConnell, Walker, Clark, Todis, Cohen, & Rankin, 1983). Thus, for the purposes of this meta-analysis, citations of Walker, McConnell, and Clarke (1983) refer only to the second study in that report. Finally, C. Walker's (1980) master's thesis was coded not from the complete original report, but rather from Lewis' (1982) description of the study, and from photocopies of tables from C. Walker's (1980) results section sent to the reviewer from England.

## Coding Study Characteristics

Studies in the meta-analysis were coded on a number of study characteristics or potential moderator variables. *Treatment length* was coded as persisting either for one day, for two to five days, for six days to a month, for over a month to a year, or for over a year. *Fidelity of treatment* was coded as "high" if the research report mentioned that: (a) teachers using Direct Instruction methods were periodically observed for the quality with which they were implementing the treatment; and (b) observation indicated that the level of implementation was adequate. If either of these criteria were lacking, fidelity was coded as "low." The *teacher category* was coded according to whether students were taught during treatment by their regular teacher (i.e., an interventionist from the school district who worked with the students even after the study), or an experimen-

tal teacher (i.e., a professional brought in from outside the district for the duration of the study only).

*Degree of handicap* was coded mild if students with labels of reading disabled, learning disabled, emotionally disabled, or educably mentally retarded. Individuals with greater learning handicaps were considered moderately to severely handicapped. *Age range* was divided into categories of students' school grades determined as if they had progressed academically at the same rate as their age-group peers. *Grades* were coded as prekindergarten, kindergarten through third grade, fourth through sixth grade, junior to senior high school, and after high school. Whether a study was coded as experimental or quasi-experimental in *design* was determined by whether assignment of individual participants to groups was done randomly. Random assignment of entire classes to treatment groups was considered quasi-experimental in design, since all research reports used in the meta-analysis provided outcome means for individuals rather than for classes.

*Outcome measures* used in the studies fell into three categories: norm-referenced tests, criterion-referenced tests, and "other" tests (tests designed for use with a particular curriculum, observational measures, student data from school files, etc.). Tests that could not be positively determined to be criterion-referenced from a reading of the research report were placed in the category of norm-referenced measures.

### Effect Sizes

An effect size was calculated for each dependent measure on which the experimental and treatment groups were compared. The effect size was computed by dividing the difference between the means of the experimental and comparison groups by the pooled standard deviation, as advocated by Wolf (1986). Effect sizes favoring Direct Instruction groups were assigned positive values; those favoring comparison groups were assigned negative values.

When the necessary figures for effect size computation (i.e., means, standard deviations, and sample sizes) were not available in a report, estimates of the effect size were calculated from proportions, *t* values, or *F* values where possible. However, effect sizes were not estimated from *p* values for a number of reasons.

In synthesizing the effect sizes across the studies in the meta-analysis, the individual study

rather than the individual outcome measure was used as the unit of analysis. Thus, for synthesis of overall effect size of Direct Instruction, the Maggs and Morath (1976) study contributed an effect size (ES) of 1.93, which was the mean of the six ESs from its individual measures. For synthesis of effect size of Direct Instruction on measures of *intellectual ability* (only), the Maggs and Morath (1976) study contributed an ES of 2.57, which was the ES of its only measure of intellectual ability.

A study-weighted "vote count" was also conducted for synthesizing the research results. For each study the proportion of measures for which there was a statistically significant difference favoring the experimental group, and the proportion significantly favoring the comparison group was computed. The mean of the individual studies' proportions represents a study-weighted proportion of significant outcomes.

### Results

The effect sizes for 25 studies that compare the outcomes for DI groups of handicapped students with the outcomes for comparison groups are listed in Table 1. Not a single outcome measure in any of the 25 studies significantly favored the comparison treatment. The means show that on the average, 53 percent of outcome measures significantly favor DI. This value far exceeds the 5 percent that would be expected by chance if there were actually no differential effects between the DI and the comparison treatments. The average advantage of .84 standard deviation units that DI treatment maintains over comparison treatments is well above the standard of .25 to .33 that has been typically used to determine educational significance of an educational treatment effect. (See Stebbins, St. Pierre, Proper, Anderson, & Cerva, 1977.)

A quasi-experiment that produced a non-significant negative effect for DI (Moodie & Hoen, 1972) compared DISTAR Arithmetic with traditional math instruction in Canadian learning assistance classes for one school year. Post-intervention interviews and questionnaires indicated that teachers liked DISTAR and were pleased with the apparent progress of their students. The questionnaires also indicated, however, a low level of implementation of the DISTAR system. No information was provided on the comparability of experimental (*N* = 14) and comparison (*N* = 24) students at the start of the study. The authors

**Table 1. Individual Study Effect Sizes for DI**

Study	Target Skill	Research Design	Effect Sizes		Proportion of Significant Outcomes
			Overall ES	Academic Es	
Branwhite (1983)	reading	Q	+1.61	+1.61	1.00
Campbell (1983)	reading	Q	+1.08	+1.12	.83
Darch & Kameenui (1986)	reading	E	+1.59	+1.59	1.00
Gleason (1985)	math	E	+0.57	+0.76	.33
Gregory et al. (1982)	reading	E	+1.66	+1.71	1.00
Haring & Krug (1975)	reading	Q	+1.05	+1.05	1.00
Hursh (1979)	academics	Q	+0.71	+0.77	.25
Kelly et al. (in press)	math	E	+1.39	+1.39	.60
Leiss & Proger (1974)	language	Q	+0.40	—	.00
Lewis Study 1 (1982)	reading	E	+0.16	+0.16	.00
Lewis Study 2 (1982)	reading	E	-0.40	-0.40	.00
Lloyd et al. (1981)	reading	E	+0.84	+0.85	.17
Maggs (no date)	language	E	—	—	1.00
Maggs & Morath (1976)	language	E	+1.93	—	1.00
Moodie & Hoen (1972)	math	Q	-0.14	-0.14	.00
Proger & Leiss (1976)	language	Q	+1.30	—	.71
Richardson et al. (1978)	reading	E	+0.10	+0.10	.25
Stein & Goldman (1980)	reading	Q	+0.75	+0.75	1.00
Stephens & Hudson (1985)	spelling	E	+1.94	+1.94	1.00
Summerell & Brannigan (1977)	reading	Q	+0.54	+0.54	.50
C. Walker (1980)	reading	Q	+0.39	+0.04	.00
H. Walker et al. (1983)*	social	E	+0.29	—	.10
H. Walker et al. (1983)**	social	E	+0.99	—	.44
Weitherman (1984)	writing	E	+0.33	+0.33	.50
Woodward (1985)	health	E	+1.02	+1.22	.56
Mean E S			+0.84	+0.81	.53
SD			.64	.67	.40

\*refers to Walker, McConnell, & Clark

\*\*refers to Walker, McConnell, Walker, Clarke, Todis, Cohen, & Rankin

E= Experimental Design (random assignment to groups).

Q= Quasi-experimental design

(Moodie & Hoen, 1972) emphasized that their study had severe limitations, and offered strong subjective support for DISTAR.

One of Lewis' (1982) experiments investigated the effect of DI for 11 and 12 year olds with reading disorders. Students who were taught with traditional remedial programs and other model programs scored *higher* than DI students on *posttests* of word attack skills and reading comprehension. The respective ESs were -.47 and -.32. However, DI students averaged *gains* of 8.4 months in spelling, compared to 5.4 months and 3.0 months for the two comparison groups. Adequate information was not available for the calculation of the spelling effect size. None of the

measures in Lewis' study produced statistically significant differences.

## Reading and Mathematics

The DI studies that investigated academic outcomes have been divided according to specific skill areas. The study-weighted mean ESs for measures of reading and mathematics achievement are listed in Table 2. The mean ES in reading of .85 is consistent with the mean ESs for DI, both overall and in achievement measures. A further subdivision of reading measures (into comprehension, word-attack, and total reading measures) does not support the arguments of those educators who contend that DI teaches

**Table 2. Study-Weighted DI Effect Sizes in Reading and Mathematics**

	Measures	
	Reading	Math
Mean	+0.85	+0.50
Median	+0.80	+0.38
SD	.78	.71
(N)	(13)	(4)

basic academic skills of a lower-order cognitive level (such as word-attack skills) at the expense of higher-level skills (such as comprehension). The study-weighted mean for DI on word-attack measures across 10 studies was .64. The corresponding mean for measures of reading comprehension across eight studies was .54. Using a difference of .33 standard deviation units as the criterion for an educationally significant difference, there is no important difference between ESs for DI in the "low level" word-attack skills and the "high level" reading comprehension skills.

The study-weighted mean ES of .50 for math was lower than the corresponding mean for reading. However, less confidence can be placed in a mean ES resulting from only four studies.

## Intelligence and Readiness

Effects of Direct Instruction on measures of intellectual ability and readiness skills are indicated in Table 3. Because of the low number of studies (4, 5, and 2) in these effect sizes, they should be treated with caution. Typically, standardized measures of intelligence are not the most responsive measures to educational intervention. However, since the earliest research on the DI model in the mid-sixties with "at risk" nonhandicapped preschoolers (Engelmann, 1968), DI has produced appreciable gains in IQ. All studies that measured IQ in this meta-analysis

**Table 3. Study Weighted DI Effect Sizes in Intelligence and Readiness**

	Measures	
	Intellectual Ability	Overall Readiness
Mean	+1.32	+1.13
Median	+1.13	+0.89
SD	.93	.88
(N)	(4)	(5)

(Leiss & Proger, 1974; Lloyd, Cullinan, Heins, & Epstein, 1980; Maggs, n.d.; Maggs & Morath, 1976; Proger & Leiss, 1976) made use of the DISTAR Language curriculum, which was quite similar to that used in the preschool studies. Apparently, the same curriculum and approach that were beneficial for young students who are at risk for developing learning handicaps are also effective with older students with demonstrable learning handicaps. DISTAR Language presents basic language concepts in a controlled, systematic manner, and teaches some of the language abilities (e.g., analogy, deduction) measured by most intelligence tests.

Measures of academic preskills, basic concept learning, language development, psycholinguistic abilities, and Piagetian cognitive development were pooled together and called "readiness" measures. Except for learning basic language concepts (e.g., under/over, singular/plural, past tense/present tense), Direct Instruction programs usually skip over so-called readiness activities in favor of academic skills. However, six studies (Campbell, 1983; Hursh, 1979; Leiss & Proger, 1974; Maggs, n.d.; Maggs & Morath, 1976; Proger & Leiss, 1976) suggest that Direct Instruction students more than hold their own in readiness skills. Table 3 shows a study-weighted mean ES for the pooled readiness measures of 1.13 for 5 of the 6 studies that could be included in the effect-size analysis. Positive effects were found in all five subcategories of readiness measures.

## Degrees of Handicap and Type of Comparison Group

The research results show that Direct Instruction can be equally effective for mildly and moderately/severely handicapped students. The mean ES for mildly handicapped students was .80, and the mean for the more severely handicapped students was 1.01. This difference of .21 standard deviation units between the two figures does not meet the standard of .33 for educationally meaningful differences. It is difficult to compare the two groups of studies, because 18 of the 20 studies involving mildly handicapped students measured academic achievement (mean effect size of .85), whereas only 1 study of 4 involving moderately handicapped students did so.

One variable that did have a significant effect on effect size was the type of comparison group(s) used in a study. None of the studies utilized a pure control (i.e., no treatment) group, but three



## DI Meta-Analysis—Continued

of them (Campbell, 1983; Walker, McConnell, & Clarke, 1983; Walker et al., 1983) utilized a comparison group that was involved in activities unrelated to the final outcome measures. These studies produced an average effect size of .79. The mean ES for these studies was probably held down to some extent by the rigorous tests of generalization in social skills used in the Walker, McConnell, and Clarke (1983) and the Walker et al. (1983) studies.

### Grade Level and Other Study Characteristics

Most of the studies in the meta-analysis were conducted with subjects in the age ranges of the intermediate grades (4th to 6th) and secondary level (7th to 12th). The 13 studies in the intermediate grades were actually composed of 6 studies that fit neatly into the category, and 7 studies that included students in a wide range of grades (e.g., grades 1-6, grades 1-9) which were judged closer to the intermediate category than to any of the other categories. The mean effect size for the 6 studies that fit the category neatly was .65, which is similar to the mean of .69 for all 13 studies categorized as intermediate. The mean effect size for 7 secondary studies was 1.15. The data show that DI is quite effective for both age groups.

### Type of Posttest

Another variable that had a significant impact on the magnitude of effect sizes was the type of the posttest. Table 4 shows that criterion-referenced measures generated significantly greater effect sizes than did norm-referenced measures or "other" measures (i.e., observation, official records, and self-report). This result is consistent with the premise that criterion-referenced tests can be more sensitive to the effects of instruction than are standardized tests or non-academic measures. Also, criterion-referenced tests that were *closely aligned* with the tasks assigned to students during intervention yielded higher effect sizes (mean of 1.76 across eight studies) than did criterion-referenced tests of *low alignment* (mean of 1.06 across six studies). These figures support Cohen and Hyman's (1982) contention that congruence between intervention task and outcome measure is a major determinant of effect size. The effect of 1.06 for measures of low alignment also suggest that Direct Instruction students transfer what they have learned to somewhat different kinds of tasks.

**Table 4. Study-Weighted DI Effect Sizes for Different Forms of Measures**

	Form of Measure		
	Criterion-Referenced	Norm Referenced	Other
Mean	+1.67	+0.77	+0.70
Median	+1.13	+0.71	+0.71
SD	.94	.72	.50
(N)	(8)	(17)	(8)

### Teachers and Treatment Length

The teacher variable played a significant part in *academic* effect sizes, but not in *overall* effect sizes. Study-weighted mean ESs, across all outcome measures, were .81 for 18 studies that used regular (usually classroom) teachers, and a slightly higher .94 for six studies that used experimental teachers. Across measures of academic achievement, however, the difference between effect sizes exceeded the .33 standard for educational significance. For 15 studies with regular teachers, the mean was .79; for four studies with experimental teachers, the mean was 1.13. It makes sense that experimental teachers, having been specially trained in the experimental curricula, might implement the Direct Instruction intervention more faithfully, which in turn might bring about a greater effect.

Another variable, length of treatment, also had a greater differential impact on academic than on other measures, but the effect is confounded. When all measures within a study were averaged, the study-weighted mean effect for Direct Instruction in interventions lasting from six school days to one month ( $N = 5$ ) was .98 standard deviation units. The corresponding overall mean ES for interventions ranging from over a month to a year ( $N = 17$ ) was .77. When only academic measures within a study were averaged together, the study-weighted mean for the 5 comparatively shorter studies was 1.06, which is greater than the corresponding mean effect size of .77 for the 13 comparatively longer studies. The confound comes from the fact that the 5 shorter studies (Darch & Kameenui, 1986; Gleason, 1985; Kelly, Carnine, Gersten & Grossen, in press; Wehnerman, 1984; Woodward, 1985) were all university-generated projects using experimental teachers. The implementation levels of these short university projects very likely exceed those managed by school district personnel.

## Level of Implementation and Research Design

Whether or not fidelity of treatment was assessed had no systematic impact on effect sizes. Studies ( $N=11$ ) that referred to high level of Direct Instruction implementation produced a mean ES of .86; those ( $N=13$ ) that failed to mention level of implementation or that certified that implementation was poor produced a mean ES of .82. These numbers seem to conflict with other research (Gersten, Carnine, & Williams, 1982; Siegal & Rosenshine, 1973) that indicate that fidelity of treatment plays a significant role in the impact of Direct Instruction. However, some authors and observers may have judged level of implementation to be adequate, when in fact it was not. Also, in some other studies, the Direct Instruction teachers probably followed the experimental programs carefully, yet the reports make no mention of fidelity of treatment.

Type of research design (experimental versus quasi-experimental) also had no systematic effect.

## Summary

It seems that there are occasional circumstances under which Direct Instruction can produce a negative effect. However, only 14 percent of the comparisons showed a negative effect for Direct Instruction. (One percent of the comparisons produced a neutral, or .00, effect. None of the negative effects were statistically significant.)

The 25 studies on Direct Instruction treatments of over a week in length found a strong, consistent effect for the treatment. The strength is not limited to a particular age range, or handicapping condition, or skill area. The meta-analysis indicates that, based on 25 studies, instruction grounded in Direct Instruction theory (Engelmann & Carnine, 1982) is efficacious for both mildly and moderately/severely handicapped learners, and in all skill areas on which research has been conducted.

**Author's Note:** For a more thorough examination of this research, refer to the reviewer's December 1986 dissertation (The Effects of Direct Instruction in Special Education: A Meta-Analysis) at the University of Oregon. ♦

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# Reading Instruction for Poverty Level Preschoolers

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Ever since it opened its doors to poverty-level preschoolers in 1970, a major and continual objective of Early Childhood Day Care Center (ECDCC) has been to accelerate the academic achievements of its 24 children.

## Background

When we began, we knew how terribly ill-equipped entering first graders from poverty homes were in skills related to reading. This led us to champion the teaching of this tool subject in our preschool setting. However, despite these strong convictions, our early efforts were not directed at generalizable word attack or decoding strategies. Instead of teaching the requisite skills for

decoding words, we engaged in modelling and encouraging "reading-like" behaviors: Going to the book area, holding a book rightside-up, turning the pages properly, etc. We soon discovered that reading did not magically evolve from these "pre-reading" activities.

We then tried basal readers and the sight-word approach with little success. It became obvious that to establish substantial and continual improvement in reading, we would need to abandon traditional methods and search for a program that focused the young reader's attention on the key elements of the printed word (i.e., its sounds), and provided a logically consistent, manageable way of decoding words. That opportunity presented itself when, in mid 1975, we observed a *Distar Reading I* program in a rural all-black school. The teacher's training consisted of a weekend workshop. Her pacing was marginal and she spoke in a monotone, hardly ever chal-

lenging the children. We worried about all those signals, about the drill and teaching from scripted material. Yet, the children didn't seem to mind and, to our astonishment, they energetically and carefully sounded out each word. About the same time, we saw Engelmann's (1968) provocative movie where previously trained preschoolers, just starting the first grade, were eagerly doing basic algebra problems and understanding the mathematical concepts typically reserved for much older children. The impressive and promising achievement data from the Engelmann-Becker Direct Instruction Model in the Follow Through Project (Becker, Engelmann, & Thomas, 1975) also came to our attention. Noteworthy was the greater academic advantage for disadvantaged children started on DI in kindergarten. Their end-of-third grade reading levels on the Wide Range Achievement Test (WRAT) averaged 0.7 grade points higher than those who started in first grade in DI programs.

These events provided the impetus for the author to spend his sabbatical leave at the University of Oregon in 1976. Both he and his wife attended classes in DI programming and taught *Distar Reading* and *Arithmetic* to Title I children at a local school. Upon returning to Tuscaloosa in the summer of that year, DI programs were set up at the ECDCC.

### Program Usage

During the first school year in which *Distar* was implemented (1976-77) priority went to the five-year-olds who were taught from the *Language I* and *Reading I* programs. From 1977-1978, the *Arithmetic I* program was added to the curriculum of the five-year-olds and the *Language I* and *Reading I* programs were started with the beginning four-year-olds. By 1979-1980 and thereafter, all three programs were taught to beginning four- and five-year-old groups.

Children staying for one year typically finished all of *Language I* and *Reading I* and three-quarters of *Arithmetic I*. Those staying an additional year usually completed all components of *Language II* and *Reading II* and at least half of *Arithmetic II*.

Three teachers each taught three groups daily, two in the morning (reading and language) and one in the afternoon (arithmetic). Group size varied from five to eight children. As needed, a fourth group in language was held once in the morning for children lacking even rudimentary language skills and for later-entering children

requiring catch-up work. It was usually taught by the part-time cook upon completion of that person's breakfast chores. All of the staff were trained in DI procedures by the author.

### Children Served

The ECDCC offers year-round, full-time services to preschoolers living within a ten-mile radius of its location on the University of Alabama campus in Tuscaloosa. Funding is largely through yearly contractual arrangements with the state welfare agency under Title XX of the Social Security Act and the University of Alabama's Office of Sponsored Research. The Department of Psychology administers and sponsors the ECDCC.

Single-parent and extended family patterns predominated among the children served. Over 80 percent of the children are black and 60 percent are male. The family demographics resemble those of low socioeconomic groups and are characteristic of families whose children have participated in previous preschool intervention projects.

When they begin, the preschoolers are unable to read, print words, spell, or do any mathematical computation. The Slosson IQ test, the scores of which are taken as an indication of verbal competency, is individually given following a two-to-three-week adaptation period. The mean entry IQ over the past four years ( $N=58$ ) has been 87, with only 19 percent of the IQ's exceeding 100.

### Evaluation Design

Continuous Progress Tests (CPT) in Reading (Becker, Carnine, & Davis, 1978), administered individually after 10 to 20 instructional lessons, provided an estimate of how well the children were mastering the concepts and skills being taught. The results for a randomly selected group showed their performance on major tasks was consistently high across all lessons; for sound identification items, correct answers averaged about 97 percent; for word identification, it was 92 percent for trained words (nonsense and unfamiliar); for the oral reading of three sentence stories, beginning at lesson 120 of Reading I, it was nearly 100 percent; and for answering simple comprehension questions, it was 94 percent.

Norm-referenced tests were also administered and the children's progress evaluated in two ways. First, norm-referenced comparisons were made in which the average of the ECDCC group's performance on standardized tests during the

Spring of each program year were compared to normative data established by the test authors as reported in appropriate test manuals. Two sub groupings of ECDCC children were formed: Those about to enter first grade in the coming Fall (called 1st-starting) and those who were going to be between 5 and 5 1/2 years of age (labeled kindergarten or K-age children). Most 1st-starting children had the benefit of two program years of Distar, whereas the K-age children had only one program year.

Second, norm-referenced tests were used to provide between group (or treatment) comparisons during one program year in 1980, during which the test scores of the ECDCC children (Distar-trained) were contrasted with those from other preschool programs (non-Distar-trained) on various evaluative instruments that measured many common instructional objectives. The non-Distar-trained preschoolers came from a local Head Start program (in operation for eight years) and from Child Development preschool (in operation for ten years). The latter was run by the Home Economics Division of the University of Alabama which, like the ECDCC, was a campus-based facility under the state contract to furnish year-round, full-time day care services for poverty-level preschoolers. The local welfare agency assigned children to this preschool or to ours on a random basis.

Both the Head Start and Child Development programs essentially followed a Structured-Cog-

nitive Model in which the professed aim was to develop general cognitive processes or abilities rather than knowledge of specific content, such as decoding words or solving arithmetic operations.

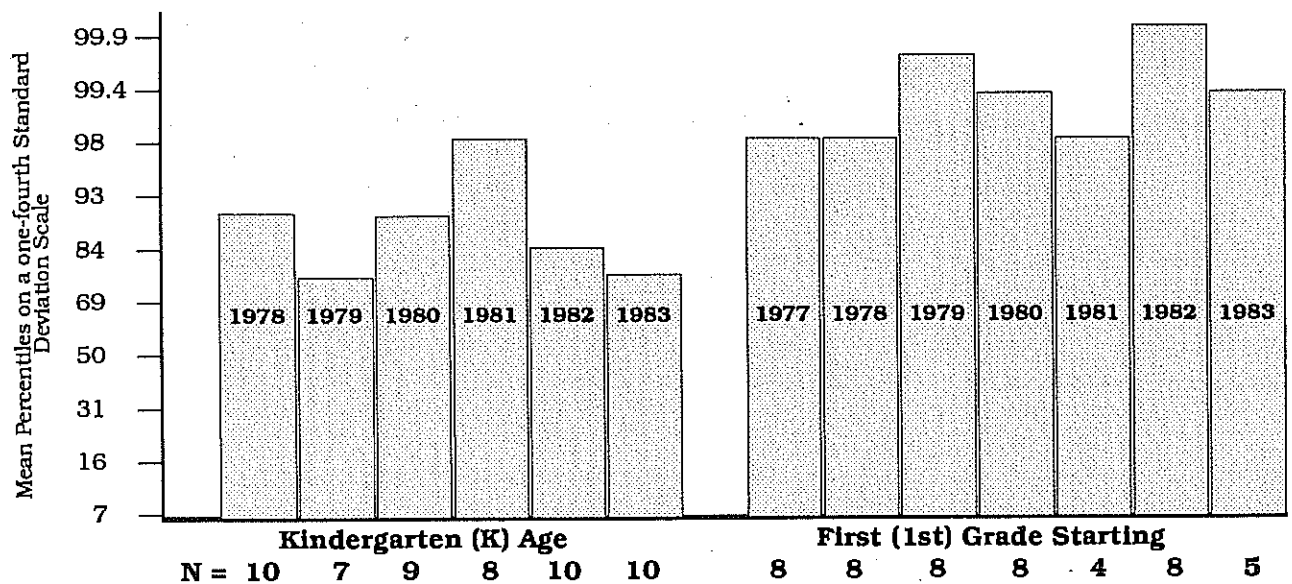
A third comparison group contained children in the first several months of public school either in kindergarten or first grade (conforming to the K-age and 1st-starting distinction), but who had never been in a preschool program prior to public schooling. All children in this No-Preschool Group were of the same low socioeconomic status and lived in the same neighborhood as children in the other groups.

## Results

**Decoding.** The Wide Range Achievement Test (WRAT) was given every program year to the ECDCC children. In Figure 1 the mean percentile scores are plotted on quarter-standard-deviation-scale units. Averages were first computed using raw scores before converting to percentiles. At every program year, the percentile scores for Reading were substantially higher than the 50th percentile. The DI-trained 1st-starting groups were consistently near or above the 98th percentile (two to three standard deviations above norm). The DI-trained K-age groups were also advanced, averaging between the 77th and 98th percentile across program years.

Previous WRAT evaluations of DI preschoolers used grade equivalent (G.E.) scores to assess

**Figure 1. WRAT Reading across program years. Data are plotted in equal percentile units on a .25 standard deviation scale.**



## Preschool Reading—Continued

reading and other academic skills. Considering just those studies containing 1st-entering children having two preschool years of DI Reading, the obtained G.E.'s on WRAT Reading have always been higher than the normative value of 1.0 for beginning first graders. Beretter (1968) reported a mean G.E. of 1.5 for the initial 13 graduates of the Beretter-Engelmann (1966) preschool. Engelmann (1970) obtained a mean G.E. of 2.6 for 12 later graduates taught by an improved reading program that was phonics-based and focused greater attention on the lowest performers. Seven middle-class preschoolers taught for two years with the revised program obtained a mean G.E. of 3.4. Anderson (1982) reported a mean G.E. of 2.6 for 87 children trained with *Distar Reading* whose average entering IQ was close to 106.

The G.E. on WRAT Reading for our 1st-starting ECDCC children with two program years ( $N = 31$ ) was 3.8 (which simply means an extremely high WRAT score for this age group and does not imply the children can read and comprehend third-grade books). Chief among the reasons for the higher G.E. is that our facility, was a full-day preschool (the others were half-day) which allowed for longer engaged-time in reading, and we had the advantage of using improved DI materials and teaching procedures.

The reason that DI-trained preschoolers do so well on WRAT Reading can be understood by considering the subskills tested (Table 1). Clearly, it is the substantive subskill of decoding words that distinguishes DI from non-DI children.

The same pattern of WRAT subskill performance for the ECDCC groups in 1980 has been obtained for every evaluation year. Especially provocative was the decoding performance of the 1st-

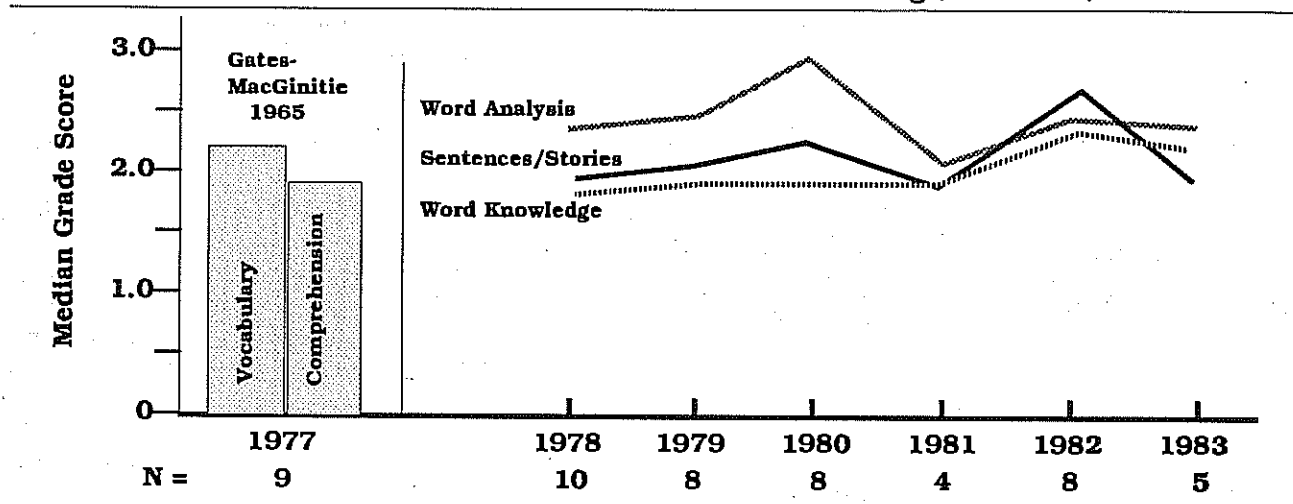
starting children with two program years. Of the first 50 WRAT words, a total of 21 words should have been familiar since they were explicitly taught in *Distar Reading* (12 words from Level I and 9 words from Level II). Nevertheless, the preschoolers were able to decode a large number of never-presented words, such as *size*, *weather*, *stalk*, *cliff*, *struck*, *glutton*, and *threshold*. The two-year DI-trained children had little trouble with other word lists. Of the 220 Dolch sight words, extending from preprimer to third grade, an average of 95 percent were correctly read, and of the 37 words used by Durkin (1966) to identify early readers, 99 percent were correctly read. These findings suggest that the excellent decoding skills imparted to public school children by the *Distar Reading* program (Becker, 1977; Becker & Gersten, 1982) can be similarly generated with preschoolers.

Returning to the performance of the non-DI groups, one might expect that these children, by virtue of being competent only in the rudimentary skills, would rank relatively low with respect to their same-aged peers who comprised the WRAT standardization sample. Such is not the case. The average non-DI-trained child between 6 and 6 1/2 years of age and about to enter first grade who obtains the raw score of 23.9 (Table 1) would place at the 47th percentile. This favorable showing was replicated by the author with Head Start preschoolers evaluated in 1982 ( $N = 8$ ) and 1983 ( $N = 12$ ). That a preschool intervention program can be judged as a relatively successful when normative data from the WRAT are used, even though its graduates are barely able to read, is possible because the skills tapped by the WRAT to gauge average first grade-entering performance are mediocre ones. Stated differently, enter-

**Table 1. Mean WRAT Reading Subtest Raw Scores for DI and Non-DI Programs**

Subtest	Maximum Score	K-Age		1st-Starting Age	
		DI ( $N = 9$ )	Non-DI ( $N = 25$ )	DI ( $N = 8$ )	Non-DI ( $N = 24$ )
Labeling two letters in name	2	1.5	1.3	1.6	1.8
Letter Matching	10	9.9	9.7	10.0	9.9
Letter Naming	13	6.2	5.2	10.9	10.0
Reading	75	9.1	0.2	28.4	2.2
Raw Score means		26.7	16.4	50.9	23.9

**Figure 2. Median grade scores of first-entering ECDCC children on end-of-first grade reading achievement tests. For the Gates-MacGinitie (Form 2), the equivalent end-of-first grade score at the 50th percentile is 2.2 for Vocabulary and 1.9 for Comprehension. Comparable values for the MAT subtests are 1.8 for Word Knowledge; 1.7 for Word Analysis and for Reading Sentences and Stories; and 1.8 for Total Reading (not shown).**



ing first graders are not expected to be proficient at reading (nor at spelling or doing written arithmetic problems).

**Comprehension.** The WRAT does not assess any comprehension skills. We, therefore chose the Gates-MacGinitie Test for the first evaluation year in 1977, and the Metropolitan Achievement Test (MAT) after that. The median grade equivalent scores (G.E.) by MAT subtest for the 1st-starting ECDCC children by program year are presented in Figure 2. (As with the WRAT, averaging was based upon raw score conversions to standard scores, from which the median G.E. and percentiles for each year could be derived.)

It is readily apparent that for most evaluation years the plotted G.E. either approximates or is higher than end-of-first grade normative performance for the MAT. Considering only the 1980 program year (when the MAT was also given to non-DI groups), the corresponding percentile values by subtest were: the 70th percentile for Word Knowledge (G.E. = 2.1); the 94th percentile for Word Analysis (G.E. = 3.0); the 88th percentile for Reading Sentences and Stories (G.E. = 2.4); and the 78th percentile (for the Total Reading (G.E. = 2.2).

The performance of the 1st-starting DI groups seems remarkable in light of the fact that disadvantaged children are commonly from four to six months below grade level in reading by the end of first grade.

It cannot be said that the K-aged DI children have the full complement of decoding skills to

tackle any word. Having only one program year, they have not yet learned to distinguish between long and short vowel sounds in many words by applying the silent-e rule; they are unfamiliar with the sounds made by many letter combinations (*ea, ou, al*); they have not been taught capital letters, so words containing these letters will cause problems, particularly when they are dissimilar to their lowercase counterparts (*A-a, D-d, G-g, R-r*); and, since they have not been phased out of the special Distar orthography containing macrons, joined letters, and so forth, the regular orthography inherent in primary grade achievement tests is likely to be troublesome.

The K-age DI children are further limited since the first year of *Distar Reading* stresses reading for accuracy, rather than for speed. Thus, they often do not finish all of the items of those MAT subtests that are timed, namely Word Knowledge and Reading Sentences and Stories. The items they do attempt, however, are more often done correctly and, if one looks at the items completed on Sentences and Stories, they are correct on 42 percent of those attempted, as opposed to only 28 percent correct when scoring is based on all of the subtest items, whether attempted or not.

Not only are the K-age DI children penalized for taking their time to decode words, many of which are irregular, they will have trouble with the meaning of many MAT words. They are not likely to know the meaning of *special, favorite, lick, pasture, flat, best, and starry night*, and they may not know what certain idioms mean, as in "to

# Preschool Reading—Continued

**Table 2. Mean MAT Subtest Scores of First-Starting Children with One versus Two Years of DISTAR Reading.**

MAT Subtest	Type of Measure*	No. of Program Years	
		One (N = 12)	Two (N = 31)
Word Knowledge	Mean S.S.	33.6	49.4
	Mean G.E.	1.5	2.3
	Mean %-ile	28th	77th
Word Analysis	Mean S.S.	37.2	51.2
	Mean G.E.	1.7	2.4
	Mean %-ile	46th	92nd
Reading Sentences & Stories	Mean S.S.	31.6	50.4
	Mean G.E.	1.4	2.4
	Mean %-ile	22nd	88th
Total Reading	Mean S.S.	32.1	49.1
	Mean G.E.	1.5	2.4
	Mean %-ile	23rd	88th

\*S.S. = Standard Score; G.E. = Grade Equivalent Score; Percentile (%-ile) are based on an *end-of-first grade* norm group.

catch a bus", "water meets land", and so on.

All is not lost, however, for the K-age DI children. The 1st-starting children were in the exact same predicament as the K-age children just before they got another year of DI training. Fortunately, during that second year their promising decoding skills were enlarged to include a broader set of words and they were taught to read with increased fluency, speed, and expression, both during class and during independent reading activities. The greater stress in *Distar Reading II* on developing comprehension skills, aided by the *Distar Language II* program which features more complex syntax, semantic relationships, and an enlarged vocabulary, inevitable helped them to read for information and meaning.

*One-versus two-program years.* Of the 43 1st-entering children from the ECDCC who took the MAT, 12 and 31, respectively, completed on and two years of *Distar Reading*. As revealed in Table 2, length of program participation has a major effect on MAT outcomes. The standard score differences between the one-year and two-year children are significant for every subtest and for Total Reading all  $p$ 's = .001). The absolute differences in subtest grade scores, from 0.8 to 1.0 points, are what one would expect from an extra year of training in reading. Both groups are highest in the decoding based Word Analysis subtest, again

lending credence to the power of the reading program to teach this skill.

## The Future

Although the answer to the question, whether educationally at-risk preschoolers can be taught advanced reading skills, is clearly in the affirmative, the more nagging and not as easily research question of "what happens to the graduates?" is currently being pursued. We are finding the our preschoolers leaving with two years of *Distar Reading* are having an easy time in first grade and many of them begin reading at the second grade level without any problem. Our concern rests with those leaving with only one year of *Distar Reading*, either entering a public school kindergarten or first grade program that does not build on the moderate reading skills we developed. Fortunately, *Distar Reading* is catching on in the city schools so the issue of program continuity can be addressed. ♦

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## SECTION 3. MANAGEMENT STRATEGIES

### *A School-Wide Discipline Plan:* A Management Primer for Teachers and Principals

by Geoff Colvin, Lane School

Robert Lowe and Betty Clanton, Casper, Wy

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*Editors note: This is a copyrighted chapter from the book Establishing a Schoolwide Discipline Plan, recently published by Geoff Colvin and available for \$9.00 through Behavior Associates, P.O. Box 10459, Eugene, Oregon 97440. The chapter is reproduced with permission of the authors.*

A principal was beginning to worry about the number of referrals coming to the office from regular classroom teachers. The referrals were quite frequent and seemed to have little in common. A cross section of the referrals follow:

What's the deal? Al never has a pencil? Please visit with him and get him to bring his stuff to school.

Chas argued with me, talked back, mouthed off, and defied directives. Everything was explained, but Chas NEVER listens.

From 1:00 p.m. to 1:30 p.m. Pete was either arguing with everyone or complaining and tattling. After the tenth incident, I sent him out and he continued to complain. This happens every class with different people. Here's the list:

1. Bickering with Cheryl.
2. Out of seat.
3. Moving furniture.
4. Cheating.
5. Pete needs 1:1 monitoring.

Joe refused to go to the end of the line, tried to get in front of a student. Was sent to the end of the line for pushing and shoving two students who were ahead of him. They were also sent to the end of the line. He argued violently when I refused to allow him to get in front of another student. He then hid under his desk and said, "I'll slap you on your bald head if you come close to me."

Deanna refuses to even try to complete her homework, and is wasting my time by trying to argue and smart mouth me. Her parents said, "You have her in school for six hours a day and if you are teaching her, as you get paid for, then she doesn't need to have me teaching her at home and doing

homework."

Charles has three marks for wandering around the room. His behavior is disruptive and he is not using his time to do his work. He needs medicine for being so hyper!

Joshua got into trouble for being so immature and he does not listen to directions. Please place him in a class for students who are immature and who do not follow directions.

Janet called Misty a bitch because whenever you call on Misty she never answers.

To principal: I really need your help. Bubba is keeping himself, as well as the rest of the class, from learning. Today, he completed 3 assignments while everyone else completed 13, plus extra points. I have had to give him five penalty points for various offenses, which is the maximum as you know. The only way Bubba gets anything accomplished is if he sits right next to me and I don't help anyone else. He is so distractible that he cannot sit still or concentrate on anything else. If you have any idea why Bubba has fallen apart, please let me know. I care about and am concerned about Bubba, but I cannot afford to lose the whole class. He was placed in my class because they thought I could help him, but he needs to come half way.

The principal began to see a few patterns in the referrals and drew the following conclusions:

1. The vast majority of referrals were related to classroom discipline.
2. Most referrals came from just a few teachers.
3. Teachers who had some kind of formal discipline plan made fewer referrals than those who had no discipline plan.

The principal was then faced with the problem of identifying a plan for assisting the weaker teachers and with establishing some kind of school-wide discipline plan. There are basically five pieces that could be considered necessary for a school discipline plan to help teachers in the classroom:

1. Ensure each classroom has a discipline plan.
2. Utilize specific proven strategies for managing behavior in the classroom.

## Discipline Plan—Continued

3. Establish a discipline referral process.
4. Establish a discipline plan from the Office to support the classroom plan.
5. Establish individual behavior plans for students who do not respond to the overall discipline plan.

### Classroom Discipline Plan

The basic intent of a discipline plan is to communicate to each child that behavioral standards are expected in the classroom. The plan is designed to teach a simple relationship: Appropriate behavior has positive consequences and inappropriate behavior has negative consequences. The procedural steps in developing such a plan are:

#### 1. Establish Classroom Rules or Expectations

The first step is to identify and explicitly state the classroom rules. The rules need to be precise, practical and behaviorally expressed. It should be clear to the teacher, the student and any observer whether a rule has been broken or kept. The students should be given a clear rationale for the rules to help them understand that good behavior leads to a positive classroom where children may learn and develop. Also they need to understand that inappropriate behavior disrupts the classroom, causes tension, and can make learning and development very difficult and sometimes impossible.

#### 2. Select Functional Rules

A simple guideline for selecting classroom rules is to ask yourself the question, "What do students need to do so that I can be effective as a teacher?" With this orientation, the rules address student behaviors that facilitate instruction and learning. The following list might serve as a useful source for selecting functional rules:

- a. Be on time for class.
- b. Enter the classroom quietly.
- c. Go to your assigned area quickly.
- d. Begin the entry task promptly.
- e. Listen to the teacher's directions or explanations.
- f. Raise your hand if you wish to talk.
- g. Join in the discussion or lesson.
- h. Follow the teacher's directions.
- i. Organize required materials promptly.
- j. Start assigned work promptly.
- k. Keep working.
- l. Ask for help only after you have first tried by yourself.

- m. Respect other's space and they will be required to respect yours.
- n. Leave the room quietly.

#### 3. Establish the Rules Immediately as the School Year Begins

Students should be introduced to the classroom rules on the very first day of the school year. If the teacher allows a loose structure, "Until everyone get to know each other," or "Until rapport has been established," then the teacher will have a much harder time establishing rules.

#### 4. Rehearse and Review the Rules

Allow time in the classroom schedule to regularly rehearse and review the rules. In this way, students are constantly reminded of the rules. Review times also provide an opportunity for teacher and students to identify which rules are not working or which rules need further clarification.

#### 5. Practice Rules Which Are Frequently Broken

If certain rules are consistently broken then the teacher should simulate the context and provide additional practice for the class. For example, suppose the teacher has a rule that the children enter the classroom quietly at all times. If the children are noisy coming in after recess, have the students line up outside the door, talk to them about the rule of entering the room quietly and have them come in. This procedure could be repeated several times until an acceptable criterion is reached. Clearly, if the students do not cooperate, then stronger measures would need to be taken, such as loss of free time for the students who are making noise or disrupting the practice. The teacher should also remind the students before the next recess that they should enter the room quietly and be waiting at the door to receive the students and to identify the students who may be breaking the rule.

#### 6. Establish Consequences for Appropriate and Inappropriate Behavior

To strengthen the likelihood that students will follow the rules, there needs to be clear, positive consequences for students who keep the rules and clear, negative consequences for students who break the rules. The best positive consequence for keeping the rules is teacher approval. Teachers should not take good behavior for granted. They need to work hard to provide constant acknowledgement of students who are cooperative. Other positive consequences could

include extra privileges, and access to preferred activities. It is useful to have a hierarchy of consequences so that better performance can be more strongly acknowledged and deteriorating performance can be more strongly consequated. For example, a hierarchy for negative consequences could include:

- 1st Infraction: Warning (reminder, name on the chalkboard, etc.).
- 2nd Infraction: Isolation within the room.
- 3rd Infraction: Miss next recess.
- 4th Infraction: Miss full day of recesses.
- 5th Infraction: Discipline referral to principal's office

*Note: Consequences should be tied to the rule broken as closely as possible. For example, if the student breaks a rule during free time, then there could be less free time for the student. If a student breaks a rule during group work, then the student could be removed (partially or fully) from the group.*

### **Useful Strategies for Managing Behavior**

Many behaviors can be prevented or nipped in the bud if the teacher uses appropriate strategies at the right time. The following strategies, though not exhaustive, are commonly used by teachers to manage behavior:

#### **1. Respect for the Teacher**

The most effective way to manage behavior is to gain the student's respect. There are two steps in securing a student's respect in the classroom:

*a. Require respect.* The teacher needs to take the stance from the first day of school that she or he is the responsible adult in charge of the class. Disrespect violates a basic classroom rule and will lead to a punishment. The teacher should also strive to gain respect by being warm, consistent, fair, a good role model, mentally healthy, professional and competent, but not necessarily just "friendly."

*b. Show respect.* The teacher needs to show respect to the students. If the teacher requires respect and does not show respect to the students, the teacher will end up functioning as a tyrant and the students will fear him or her.

#### **2. Planned Ignoring**

Many inappropriate behaviors are maintained by the teacher's critical attention to them. Behaviors such as low volume noises, mumblings, "funny faces," inappropriate way of raising hands, asking questions, and making comments should be ignored.

There are some situations, however, where behaviors cannot be ignored, such as:

- a. Acts of disrespect.
- b. Acts that are too intrusive (i.e., they disrupt

the lesson).

c. Behaviors related to safety.

d. Serious behaviors (e.g., breaking a window).

#### **3. Reminders or Warnings**

If a student is just beginning to break a rule or exhibit inappropriate behavior, then a timely warning or reminder can arrest the inappropriate behavior. The student could be reminded of the rule and the consequences for breaking the rule. Reminders are very helpful for the more impulsive student. Reminders are more effective if they can be presented before the student gets too far into the inappropriate behavior.

#### **4. Proximity and Touch Control**

Some students are upset from time to time. A student may be helped by physical proximity. The teacher might stand close to the student or move the student to a seat where the teacher is able to be closer to the student. The teacher may touch the student on the shoulder and say, "Take it easy," or, "Let's not have a big battle today." In this situation the teacher is showing understanding of the fact that the student is upset and letting the student know that.

#### **5. Show Interest in the Student**

Teacher approval and interest is a powerful way of getting students' trust and cooperation. In general, the teacher may show interest in the tasks they are presently involved in, or ask them about their interests at home. It is important to let them talk, versus asking a series of question. Questions are useful in getting started, but after that the teacher should try to listen and to encourage conversation.

#### **6. Display Affection**

Students often respond to a teacher who displays a positive, supportive, and appreciative approach to them. Students need love and warmth. Some students will stop acting-out behavior in the classroom simply because they do not wish to offend the teacher; however, they may exhibit the acting-out behaviors with other teachers and in other settings.

#### **7. Direct Appeal**

For some students a direct appeal can be very effective in arresting behavior. The teacher may say to the student, "Come on Billy, see if you can pull out of this and have a good day," or "Mary, see if you can settle down and keep out of trouble." This approach is more effective with students who have some degree of self-control and who have reasonable rapport with the teacher. Class leaders often respond to the direct appeal approach.

## Discipline Plan—Continued

### 8. Contracts

A contract can be a useful tool for dealing with prolonged misbehavior. The terms of the contract should be spelled out in writing. It should list both positive and negative behaviors and the corresponding consequences. The contract should be reviewed on a regular basis.

### 9. Cool Down Time

Some students with emotional problems may be upset as they enter the classroom or may begin to get upset for some reason or other in the classroom. If the student remains in the demand situation, the student may get out of control. For these students, it is better to have a cool down time available. A section of the room, a corner, or partitioned area could serve as the cool down area. Once the student regains calm it may be possible to address the concerns and talk about things without a "fight." The cool down period is also beneficial after students have been in a verbal or physical fight.

### 10. Removal of the Student from the Scene of Conflict

It may be necessary to remove a student from the scene of conflict in order to gain control of the group. Sometimes the group, or audience, will be too stimulating for a student who is losing control. Or, the student who is losing control is too stimulating for the group and the teacher loses control of the group, as well as the individual.

### 11. Helping Students Problem Solve

This approach is designed to help students understand exactly what they are doing to themselves. The strategy the students uses may be highly inappropriate. The student need to be taught how to identify situations that may be stressful and to identify or use alternative strategies to deal with the problem. Some students often repeat mistakes because they are unable to develop and use problem-solving techniques by themselves. When the teacher helps them "think through" each step of problem solving, then they have a better chance of learning the skill.

### 12. Using Group Influence

The group can be used as a positive way to shape appropriate behavior. The teacher needs to develop in the group a sense of "family," where the students care about each other. It is important to acknowledge students who look out for other students. The group should not be used to punish students.

### 13. Removal of the Group

If a student contests the authority of a teacher through physical violence or verbal assaults, then the group should be removed from the room. This approach allows the teacher to deal one-to-one with the student and takes away the student's audience. The student does not have to save face in front of the group and the teacher has more of a chance of gaining control of the student. This technique needs to be rehearsed with the class so that the students may respond quickly. The students need to know exactly where to go and the receiving staff (librarian, next door teacher, principal) need to be prepared.

### 14. Recognition of Good Behavior

If a student does not display appropriate behavior very often, then it is important to recognize and respond to good behavior when it occurs. In addition, teachers should not assume that students will behave appropriately. Teachers need to frequently acknowledge or show approval of good behavior. Teachers should also seize opportunities to praise the whole class (where appropriate) in the presence of a visitor.

### 15. Rehearsal and Review

If a student has a difficult time behaving well in certain situations, then the teacher may rehearse some rules just before the student enters the problem situation and review the student's behavior after the event. This approach is particularly useful for the less structured areas such as recess, hallways and cafeteria. For some students, it is helpful to spell out the acceptable behaviors or the behaviors that other students exhibit which are acceptable for this context and to identify the behaviors that are not acceptable.

### 16. Provide a Focus on the Inappropriate Behavior

When a student breaks a rule or behaves inappropriately, the teacher should immediately provide a focus on the rule broken. For example, if students are required to walk along the hallways and Jim was observed to be running, the teacher might say, "Jim, you ran down the hall. You need to walk." The teacher then should apply the designated consequence. It is important to avoid discussion and asking questions. These kinds of verbal exchanges often give the student an "out." If there is a disagreement, especially when a number of students are involved, then it is useful to have each student write down his or her actions. It is necessary to have the students

report on actions (what they did) versus interpretations or causes. The plan is to identify what the student did, deliver the consequences, and help them to identify what should have been done.

### 17. Reduce Anxiety

Many acting-out behaviors are a result of stress. The stress builds to such a level that an outburst occurs (either verbal or physical). The outbursts can be prevented if the teacher can recognize the signs of stress and use simple stress reduction techniques. The signs of stress include: rubbing the body (often times thighs), jiggling legs rapidly, tapping a pencil or some object on the desk excessively, excessive movements, lack of concentration, eyes darting around the room, head kept down, and/or inability to get started on a task manifested by stopping and starting then changing to something else. The stress can sometimes be reduced by taking the student aside for a talk. It is important to address the stress by comments such as, "You look as though you are upset," or "I can tell that something is bothering you." The teacher could allow the student to have some quiet time, take a break, or do an easy activity instead of the assigned task.

*Note: Some teachers fear efforts to reduce stress, because they believe they may be reinforcing off-task behavior. The answer usually is, "Time will tell." If the student is manipulating the teacher, then the "stress behaviors" will increase in frequency. If the student is truly under stress, then these strategies will help avoid escalation and help the student to become calm.*

### 18. Speak to a "Third Person"

In some cases it is more productive to speak to a student indirectly through a "third person." For example, the teacher may speak to a student behind the target student just loud enough so that the target student can hear the conversation. The teacher might say, "I sure hope Michael can get through the day today without a big blow up." Technically, the teacher is talking to the student behind Michael, but Michael hears the information. This indirect approach is helpful in cases where direct communication may escalate the student. If the student turns around (Michael) and stares at the teacher, or makes a comment then the teacher should not make eye contact or engage in conversation with him.

### 19. Facilitate Positive Teacher-Student Interaction

The quality of teacher-student interactions is a good indicator of behavior control in the classroom. These interactions can be either positive or

negative. In an ideal classroom these interactions should be at least 80% positive.

There are two ways of ensuring a high degree of positive interactions:

a. *Reinforce appropriate behavior.* The teacher should be ready to be positive when students are on task, following directions, and generally displaying cooperative behavior.

b. *Use a two-step correction procedure.* If students display inappropriate behavior, then the teacher should use two steps in dealing with the behavior. The first step is to address the inappropriate behavior. This could take the form of a reminder of a consequence, depending on the gravity of the inappropriate behavior. The second step is to re-orient the student toward appropriate behavior. Once the student is behaving appropriately, then the teacher has a basis to be positive to the student. For example, if a student is out of her seat then the teacher might say, "Mary, you are out of your seat without permission." (Step one: Addressing the inappropriate behavior.) Then the teacher could say, "Now, sit down and get on with your math." Once the student is seated and is underway with math the teacher could move towards the student and say, "Mary, I'm pleased to see you working on your math. Thank you." The point is that the student exhibited inappropriate behavior which was addressed and the student then was directed to appropriate behavior which could be reinforced.

### Discipline Referral Process

Even though the teacher may have a sound discipline plan in the classroom and may be skilled in managing behavior, some students may still have persistent behavior problems. A discipline referral process is needed to provide support to the teacher and to provide stronger consequences (or services) for the student. The referral process should include:

a. *A written statement of the problem from the teacher.* The written statement should be expressed in terms of what the student did. That is, express the action or behaviors of the student.

b. *If the student has to be sent to the principal, then a written note should be sent to the principal.* The principal should not be put in the situation of having to ask the student why he or she has been sent to the office.

c. *A written statement from the student, if possible, as soon as the student reaches the office.* It is better to use a standard form.

### School Discipline Plan

The school discipline plan coming from the principal's office serves both to strengthen the

## Discipline Plan—Continued

teacher's plan for the classroom and to provide stronger consequences for the student's behavior. This plan should be set up with a hierarchy of consequences. The plan needs to be clearly communicated to the staff, parents, and students. The information should be disseminated at the beginning of the school year and should be included in any printed information about the school (Parent Handbooks, etc.). One school discipline plan is as follows:

### Discipline Rules

#### Fighting

First offense: Warning.

Second offense: Parent conference and 7 days in-school suspension.

Third offense: Choice: 3-days in-school suspension at noon, 3 swats\*, or 1 day out-of-school suspension.

Fourth offense: 3-day suspension.

#### Classroom Misbehavior

(Serious) First offense: Parent conference.

Second offense: 7 days in-school suspension.

Third offense: Out-of-school suspension. Conference with parents before re-admission.

*Note. It is very important to have some kind of structure to foster appropriate behavior. Unfortunately, it is easier to have a plan to consequence inappropriate behavior than to reinforce appropriate behavior. The principal should seize opportunities to draw attention to appropriate behavior. In addition, a specific plan should be*

\*Editor note: This is not legal in some schools.

*developed to strengthen appropriate behavior. Individual students (or classes) could be acknowledged weekly or monthly for keeping the rules or for displaying appropriate behavior on a regular basis. They could be acknowledged at school assemblies, on the bulletin board, in school communications, etc.*

### Individual Plans

Some student may not change their behavior even though there is a solid school-wide discipline plan in place. It is imperative that these students are dealt with on an individual basis once it is evident that the school plan is ineffective. If these students are continuously "recycled," then the whole discipline plan will soon be eroded. Staff will lose faith in the "system" and inappropriate behavior will probably escalate. In addition, these problem students do not get the help they need. There needs to be a plan in place to deal with individual students who have persistent inappropriate behavior. Services for these students vary from school to school, and from district to district. The basic approaches to serving these students are:

- Utilize support services (school psychologists, consultants, behavior specialists, counselors, social workers, etc.)
- Develop an individual behavior program (contract) through a parent conference comprised of parents, principal and teacher(s).
- Utilize alternative district programs such as special classrooms or schools for behavior/emotionally disturbed students. ♦

## Classroom Management: Strategies for Beginning the Year

by Randy Sprick

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Successful classroom management consists largely of preventing behavior 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 her or 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 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 the 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 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!

## Classroom Management—Continued

- 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 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, lining 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 instruc-

tional 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 his/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 throughout 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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# Planning for Substitute Teachers

by Geoff Colvin

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*Editors note: This is a copyrighted chapter from the book Establishing a Schoolwide Discipline Plan, recently published by Geoff Colvin and available for \$9.00 through Behavior Associates, P.O. Box 10459, Eugene, Oregon 97440. The chapter is reproduced with permission of the authors.*

It is a universal rule among students that, "Substitute teachers are fair game." There are several reasons for this situation such as: the substitutes do not know the children; the assigned work is unclear; the substitute teacher does not follow the normal routine; the substitute teacher may try to just get through the day knowing that he or she will not be back the following day; children test the substitute teacher thinking they may be able to get away with more and the substitute may be unfamiliar with the discipline procedures throughout the school.

At a recent workshop substitute teachers were asked to identify problems or difficult situations that arose while they were teaching. The following quotes were taken from the survey:

"I told a principal that I would never sub in his school again. The kids had no respect and everyone did what they wanted to do."

"In one class I could only get six of the children to work. The rest were unruly, talking out, wandering around the room noisy, refusing to work, interfering with other students and being insulting to me. I would never sub again except that I need the work and one day I hope the District will give me a full time job."

"I sent one student out to the hallways and he just disappeared. The principal could not find him and ended up having to call the police. I felt so bad."

"While showing a film one day I got hit in the face with an eraser. No one would 'fess up' so I stopped the film. Then all of the class got mad. I then said they had to do assignments and no one would do the assignments. So I just sat there at the desk and tried to read a book."

"I sent one kid to the principal for calling me an obscene name and the principal sent the kid back to me with a note to take care of discipline myself and that I am supposed to be trained. I was furious."

"I could not read the teacher's notes on what work the children were supposed to do. So I spent the whole day trying to make up math problems, reading problems etc. The children were no help. They kept saying things like, 'We have already done that,' or 'We normally have free time now.'"

While substitute teachers will have difficult times, they can be provided systematic assistance which will help to minimize the problems they are likely to have. There are two basic strategies for assisting substitute teachers: (1) provide adequate communication from principal, classroom teacher, office staff and, support staff; (2) use a behavior control system specifically designed for substitute teachers.

## **Providing Adequate Communication: The Role of the Building Principal**

The building principal needs to communicate to the substitute that they are teachers and that they play a significant role in helping to reach the educational goals of the school. Substitutes need to feel that they belong and the principal's attitude is a key factor in meeting this need. There are several specific steps a principal can take to assist the substitute teacher. (These steps could be written down in the form of a checklist so that the principal does not need to rely on memory):

1. Assure the substitutes that they will be assisted with any problems and that they will be notified who is in charge of the building should the principal be absent.
2. Introduce the substitute to key personnel, especially staff who may be working with the class in any capacity.
3. Take the substitute on a quick tour of the building and be sure to point out the lounge, cafeteria, and restrooms.
4. Walk the substitute through school policy regarding problems and procedures (accidents, fire drill etc.).
5. Inform the substitute of any meetings or assemblies and invite him/her to attend where appropriate.
6. Let the substitute know when you will be available throughout the day should any questions arise.
7. Check occasionally throughout the day to see how the substitute is doing or to see if they have any problems.
8. Do not send discipline problems back to the class right away otherwise the substitute may conclude that you are not providing support.

## Substitutes—Continued

9. Encourage teachers to maintain updated folders and lesson plans and check to see that they are kept current.
10. Inform the substitute of any specific problems or special programs for the students.
11. Inform the substitute of any special procedures for checking out equipment or for using any special purpose rooms in the building.
12. Have available current schedules for Music, Art, and P.E.
13. If possible have teachers prepare and discuss with the substitute in advance, the details of lesson plans (especially in the case of an extended absence). Some teachers make their telephone number available to substitute teachers.
14. Have the classroom teachers identify priority work from the lesson plans.
15. Give the substitute information of what can be told to the students regarding the teacher's absence.
16. Give the substitute an up-to-date packet of information on school policy and procedures.
17. Encourage the substitute to do a good job and wish them well for the day(s).
8. Ensure the substitute folder is readily available and up-to-date.
9. Leave a list of classroom rules and information on any specific discipline procedures or plan.
10. Leave the names of helpful or reliable students.
11. Leave some alternative activities in case the regular plans have to be changed.
12. Leave answer sheets.
13. Indicate whether or not the papers or assignments need to be graded. Leave a copy of the grading procedures.
14. Have teacher's manuals available.
15. Invite comment on how the day(s) went and establish some way for the substitute to provide feedback or to identify any pertinent information about the class.
16. Wish the substitute teacher well.

### Role of the Classroom Teacher

The classroom teacher is the one who can make or break the substitute teacher. If the lesson plans are complete and the substitute folder is current and sufficiently detailed, an average substitute has a chance of making it through the day. However, if the lesson plans are vague and the folder is quite inadequate then even the most capable substitute teacher will have a difficult time. The classroom teacher should attend to the following details in order to lay the groundwork for the substitute teacher:

1. Make available clear, precise, and complete lesson plans for the duration of the substitute's time in the classroom.
2. Make available the daily schedule and clearly identify any special schedules.
3. Make available updated seating charts.
4. Ensure there is adequate work for all students and leave a file for extra work or alternative activities should the faster students finish early.
5. Indicate where materials are located.
6. Leave notes for students who may require special attention or considerations.
7. Leave the name of a teacher who may be called on for information or assistance. Ensure the designated teacher is aware of this arrangement.

### Role of Office Staff

Office staff can play a significant role in assisting the substitute teacher. Office staff should come forward to introduce themselves to the substitute and help them with some of the clerical details such as signing in. Specifically, office staff could help with the following details:

1. Inform the substitute on how and where to sign in and out of the building.
2. Take the substitute to the classroom if the principal is unavailable.
3. Locate lesson plans and any information that the classroom teacher may have left for the substitute teacher.
4. Show the substitute where the children enter the room and or building and where the teacher begins supervision.
5. Provide any building information: manuals, fire drills, lunch, recess schedules and procedures for purchasing lunch if appropriate.
6. Inform the substitute of any particular changes in the schedule and notify them which specialists may be involved with the class that day.
7. Inform the substitute of any detail regarding materials or supplies.
8. Inform the substitute of teachers who may help and identify the teacher in charge should the principal be absent.

### Role of Support Staff

Support staff can also provide important assistance to the substitute teacher. Support staff can

make the transitions from regular classroom activities to the specialist activities much smoother if they attend to the following details:

1. Introduce yourself to the substitute teacher, and tell him/her exactly what specialist area you have and identify any specific routines you may require (where the children line up etc.).
2. Inform the substitute of any special materials you may need.
3. Be sure to track students arrival at your class. Some students may take advantage of the situation and take leave.
4. Be prepared to provide extra supervision, especially as the class arrives.
5. Send the students back to the classroom calmed down and be ready to help with supervision of the transition.

### **A Behavior Control System**

The substitute teacher could preempt many behavior problem situations by ensuring that there is some kind of management plan for the day. If the teacher has a plan then the substitute teacher should invoke the established plan. If no plan is in place then the substitute teacher should introduce one for the day(s). There are three basic components in a discipline plan for substitute teachers:

1. Establish rules or expectations
2. Establish consequences.
3. Communicate a professional attitude

### **Establish Rules or Expectations**

If the classroom teacher has not identified specific rules for the students then the following five will be useful:

1. Enter the classroom quietly and go to your assigned area.
2. Listen to the teacher's directions or explanations.
3. Raise your hand if you wish to speak or leave your assigned area.
4. Start assigned work promptly.
5. Keep working.

### **Establish Consequences**

Again, if the teacher does not indicate specific consequences then the substitute needs to implement a plan. Basically, positive consequences should follow appropriate behavior and negative consequences should follow inappropriate behavior. Positive consequences could include verbal approval, teacher attention, access to free time or access to preferred activities. It is more effective to have a hierarchy of consequences so that better

performance can be more strongly reinforced and deteriorating performance can be more strongly punished. A hierarchy of negative consequences could be:

1st Infraction: Warning (reminder, name on chalkboard etc).

2nd Infraction: Isolation within the room for ten minutes (desk facing the back of the room).

3rd Infraction: Miss the next recess.

4th Infraction: Miss full day of recesses.

5th Infraction: Discipline referral to the principal.

### **Communicate a Professional Attitude**

The substitute teacher can prevent many behavior problems by being sensitive to what they are communicating to the students. For example, if the substitute communicates to the children that he or she is just looking after them for the day, then the children may take over the classroom. If the substitute communicates that his or her main goal is survival then the students will more than likely test these survival skills. However, if the substitute comes across as business like, that the job at hand is to teach, and to get on with it quickly, then the children are more likely to respond to the instruction. Substitutes need to believe that they are an essential part of the teaching system and that they have a clear, constructive function in the classroom. Finally, it is important for the substitute teacher to act quickly on behavioral infractions. They should not allow things to slowly get out of control. It is far better to swoop on behavior problems versus waiting to see if things go further (or go away).

### **Summary**

Substitute teachers often experience hard times with behavior problems. Many of these problems can be prevented if there is a clearly formulated system to assist substitutes. This system falls into two broad categories. First, school personnel (principal, office staff, support staff, and the classroom teacher) need to communicate certain important pieces of information to the substitutes. Second, the substitute teacher should have a discipline plan, either the one already in place, or one that the substitute routinely uses. In addition the substitute's attitude, in many respects, holds the key as to how the children will behave. If the substitute is business like, work oriented, and behaves in such a way as to communicate that he or she is a serious teacher and an important teacher, then the children will more than likely stay on task with the assigned work for the day(s). ♦