Coaching Athletes

by Wes Becker

Some very exciting developments are taking place in the application of behavioral methods to coaching. A major summary of this work is provided in Martin and Hrycako (1983) which illustrate applications to football, golf, swimming, tennis, little league coaching, hockey, gymnastics, volleyball, basketball, xambo, and cross-country ski racing. In addition, they cover changing the coach's behavior, life-fitness programs, self-management, and mental preparation of the athlete using specific relaxation training, imagery, and other cognitive-behavioral therapy procedures. In this article, I will summarize some of the ideas and research findings presented by Martin and Hrycako.

Steps for Effective Behavioral Coaching

According to Martin and Hrycako (1983), to be effective a behavioral coach needs to do the following:

1. Specify performance objectives. What do you expect of your athletes? Sounds like the first step in effective planning for teaching, doesn't it? For a competitive sport this might consist of requirements for practice and procedures for competition.

Expected behaviors at practice:

- Attend each session.
- Listen to instructions.
- Practice techniques as instructed.
- Apply good technique in endurance training.
- Keep your practice going (without stopping a lot).
- Practice as if in competition.
- Practice relaxation and imagery techniques (for use prior to competition).

Expected behaviors at competition:

- Use imagination and imagery to prepare.
- Work to show performance improvement.
- Support the team.
- Show good sportsmanship (shake hands with losers or winners, keep control, show respect for others, etc.).

In the area of skill training it is necessary to get more specific about exactly what is good execution and what is not. Game statistics do not tell you who has mastered what skills. You need to get specific enough to say whether any component of a complex behavior is adequate or not. Martin and Hrycako illustrate this point with five pictures showing each phase of the backstroke. For each picture, there is a set of 2 to 5 actions to be checked. With a chart based on the checklist, the coach can rate a sequence of strokes during training and provide feedback to the swimmer. Keep and Martin (1983) evaluated the use of error analysis of this sort in coaching beginning swimmers in the three basic strokes. They found reductions in error rates from near 100% during baseline to under 10% with error feedback during the experimental condition.

2. Learn to maintain as well as develop behavior. Just because a coach gets some new behavior going, that does not mean that it will keep going on its own. Many coaches believe the kids for "dumb-play" because they think the kids had already learned it. One can do it right once without maintaining it, however. Coaches are too quick to criticize when they should be teaching and using procedures to maintain behavior.

3. Have athletes work against their personal best. Having winning as a goal isn't always the best way to go. Athletes can't always control who will win, but they can work to improve their performances. By setting multiple goals and keeping data on them while working toward them, more successes will be experienced and athletes will have stronger motivation to practice.

4. Base procedures on those demonstrated to be effective. The effective coach doesn't fly by the seat of his or her pants. She or he uses the science of behavior and data on performance of team members to make decisions. For example, use clear instructions to get better stimulus control over the athlete's behavior. Don't just tell the field-town defense on a football team to "Watch the quarterback." Tell them what to watch. Watch where he is looking. Watch for an arm cock. He has to look where he is going to throw and he can't throw until his arm is cocked." Explicit instructions that can be used to guide an athlete's behavior are important to effective coaching.

5. Monitor your own performance as a coach. Videotape your training session and review it. Develop a checklist to remind you of the critical things you need to do to train, motivate, and monitor the team. Are you giving positive feedback for improvement? Etc. Continued on Page 12

Coaching Teachers

by Ann Gleig and Russell Gersten

The growing body of research on intervention training provides evidence regarding effective approaches to training teachers in new skills. Perhaps the most consistent finding is that a training program consisting of lecture only is not sufficient (Lawrence, 1974; Willis and Quinlingey, 1981). The majority of training programs that attempt to train teachers in new skills employ one or more of the following components: (a) lecturing on new procedures and providing a rationale; (b) modeling of new techniques, and (c) rehearsing new technique and providing feedback. For example, some training programs have used lecture and practice (Peck &Robbins, 1982), some lecture and demonstration (Brand, 1973), and some lecture, demonstration, and practice (Symington, 1979). Each of these authors (like many others) reported that teachers who participated in the training program demonstrated acquisition of new skills in the training setting.

In reviewing the critical ingredients for a successful training program may have more to do with what happens once teachers are in the classroom than with what the initial training procedures involve. Untrained teachers receive some follow-up training once they are in the classroom they are unlikely to use the new skills they have learned (Fuligni, 1983).

Some Research Findings on Coaching

In an extensive review of the teacher training literature, Joyce and Showers (1980) hypothesized that for teachers to actually use the skills they have learned, they must be coached by consultants, peers, or supervisors. Coaching involves in-classroom assistance in implementation of new skills and strategies. Coaches make on-going observations throughout the course of an in-service training program. Joyce and Showers (1980) describe the coach's responsibilities as: (a) giving technical feedback, (b) analyzing when to apply a model and evaluating what its effects are, (c) adapting the model to student needs, and (d) providing companion-ship and support in implementing new strategies. Since their initial article on the potential benefits of coaching, Joyce and Showers, have studied the effects of coaching on teachers' ability to implement newly learned skills. (See also Baker, 1983; Copeland, 1977; Fitzpatrick, 1985; Sparks, 1983b.)

Showers (1983) trained 37 junior high teachers in three different teaching models (Joyce & Well, 1980). All teachers received 21 hours of training that included four components: theory presentation, demonstration, and discussions of new strategies, practice with peers in a role play situation, and feedback. Following the initial training, teachers were randomly assigned to the coached or uncoached condition. Uncoached teachers were encouraged to implement the new strategies and were observed regularly. Coached teachers were observed by an outside consultant once a week for five weeks. Following each observation, the consultant and teacher met for a conferenced and discussed plans for future sessions.

The experiment computed transfer of training scores for all teachers based on their skill with the strategies and the appropriateness with which they used them in new models of teaching. Results showed that coached teachers' performance in the classroom (i.e., transfer of training scores) was significantly better than teachers in the uncoached condition. After initial training, uncoached teachers tended to discontinue use of the new strategies and return to previous teaching methods. (See Table 1.)

Table 1. Transfer Scores for Coached and Uncoached Teachers (Showers, 1983)

<table>
<thead>
<tr>
<th></th>
<th>Coached</th>
<th>Uncoached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>11.67</td>
<td>5.75</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>4.21</td>
<td>4.23</td>
</tr>
</tbody>
</table>

Other authors have reported similar findings: Teachers who are not given in-classroom assistance frequently fail to implement new strategies (Dodd, 1985; Fuligni, 1982). Baker (1983) followed the teachers who participated in the Showers (1983) study to investigate whether teachers retained their skills and continued to use them in the classroom. Six to nine months following training, teachers were asked to demonstrate lessons in which they used one of the models they had learned in their earlier training (the teachers did not use the models as part of their normal teaching). The findings indicated that coached teachers surpassed uncoached teachers on measures of skill retention and transfer of training. (See Table 2.)

Continued on Page 4
Doctoral Studies at Northern Illinois University

by Alan Rapp
Maria Collins
Northern Illinois University

The faculty of Special Education at Northern Illinois University offers a doctoral program where students specialize in the art and science of teaching and learning. This program is designed to provide students with a comprehensive understanding of the field of special education. The faculty at NIU is dedicated to providing students with the knowledge and skills necessary to excel in their careers. The program is structured to offer students a balance of theoretical knowledge and practical experience. Students are encouraged to engage in research,service, and dissemination of knowledge.

Students in the doctoral program are expected to complete a minimum of 90 semester hours of coursework, including dissertation research. The coursework includes courses in special education, psychology, educational psychology, and research methods. Students are also required to complete a comprehensive exam and pass a final oral examination. The dissertation must be a significant contribution to the field of special education.

Graduates of the doctoral program are prepared for careers in teaching, administrative positions, and research. Many graduates find positions in universities, colleges, and schools, while others work in state and federal agencies, non-profit organizations, and private practice. The program is designed to prepare students for leadership roles in the field of special education.

Plan now to attend the 13th Annual Eugene Direct Instruction Conference, August 3-7, 1987 - Details in the next D.I. NEWS

Special Education Works

The Direct Instruction News is published Fall, Winter, Spring, and Summer, and is distributed by mail to members of the Association for Direct Instruction. Readers are invited to submit articles for publication. The Association for Direct Instruction is a professional organization dedicated to the improvement of education through the use of Direct Instruction. The Association's mission is to promote research and dissemination of best practices in Direct Instruction.

In the newsletter, articles on the use of Direct Instruction in various educational settings are featured. The newsletter also includes updates on upcoming events and conferences related to Direct Instruction. The newsletter is a valuable resource for educators interested in implementing Direct Instruction in their classrooms.

The newsletter is published by the Association for Direct Instruction, and is available online at http://www.direcnews.com. The newsletter is available for free to members of the Association for Direct Instruction. Non-members can purchase the newsletter online at the Association's website.

The newsletter is published digitally in various formats, including PDF, HTML, and e-book. The newsletter is also available on mobile devices, including tablets and smartphones.

The newsletter is a valuable resource for educators interested in implementing Direct Instruction in their classrooms. The newsletter is published by the Association for Direct Instruction, and is available online at http://www.direcnews.com. The newsletter is available for free to members of the Association for Direct Instruction. Non-members can purchase the newsletter online at the Association's website.
Replication of CLASS Program in Costa Rica

by Bill M. Walker
University of Oregon
Gerardo Fonseca Retana
University of Costa Rica
Russell Gersten
University of Oregon

The functions of replication are to: (a) establish the reliability of previous findings, and (b) to determine the generality of these findings under differing conditions (Helson & Barron, 1976). This report examined a cross-cultural replication of the CLASS program (Contingencies for Learning Academic and Social Skills) for acting out pupils within Costa Rica. CLASS (Hops, Beickel, & Walker, 1976) is a comprehensive behavior management package consisting of the following components: (1) a behavior management system, (2) adult praise, (3) group and individual contingencies, (4) school and home rewards, and (5) behavioral contracting procedures. The CLASS program is designed to remediate the disruptive, oppositional behavior patterns of acting out pupils in K-4 school settings and the program has been implemented successfully for pupils in the full elementary age range and is applied to the behavior of acting out pupils in a cooperative arrangement between a program consul- tant (counselor, school psychologist, resource specialist, principal, teacher aide, etc.) and the pupils' home or primary teacher. CLASS is applied to all school settings (classroom, lunchroom, hallways, playground) in which the target pupil's behavior is considered to be undesirable.

This study was designed to answer three questions in relation to the CLASS program:

1. Can the CLASS program be feasibly implemented in Costa Rican schools?
2. Does implementation of the CLASS program, according to its usage guidelines, lead to a quantifiable increase in the appropriate behavior levels of disruptive Costa Rican pupils who meet the program's eligibility criteria?
3. Do consumer satisfaction measures, completed by program participants, socially validate the CLASS program's effectiveness and utility with Costa Rican schools?

Method

Study Design

An experimental/control group design was used to investigate questions one and two posed by the study; social validation methodology was used to generate data to answer question three. Subjects were randomly assigned to experimental and control groups by pairs.

Program Consultants

A total of 10 CLASS program consultants were trained by the senior and second author during a one-week psycholinguistic training in Costa Rica. The program consultants trained were graduate and undergraduate special education students at the University of Costa Rica who were enrolled in a practicum for training on child behavior disorders in the school setting. Some of them had previous teaching experience with handicapped children. The remainder either had minimal or no teaching experience. The intra- and inter-establishment training (a protocol of the second author) offered her students, with their consent, to participate in this study. All students received three days of intensive training in the CLASS program, conducted by the authors, but only those who volunteered to participate in the study (N = 10) actually implemented the CLASS program.

Subjects

Twenty acting out pupils enrolled in Costa Rican elementary schools participated in the study as either experimental or control subjects. Subjects were enrolled in regular classroom settings and were referred by teachers because of their disruptive, non-compliant behavior. The subjects consisted of 17 males and 3 females who ranged in age from 8 to 12 years and were enrolled in grades 2 through 6.

A dual selection criterion was used to identify eligible children. This criterion involved teacher ratings and direct classroom observations using the CLASS consultant observation form. Pupil behavioral levels and these measures for program eligibility were identical to those used in U.S. applications of the CLASS program. Pupils meeting the above criteria were recruited and received referrals of disruptive pupils and from a number of San José elementary schools. Referring teachers were asked to complete a scale of 1 to 8 for each pupil's behavior and to allow direct observations of the referred child.

Program consultants were each required to identify two children who qualified for the program, i.e., met minimum, behavioral eligibility requirements. These pupils were then randomly assigned to either an experimental or control group.

Intensive Training Procedures

The CLASS program materials, i.e., the Consultant Manual, Teacher Manual, and Program Materials Packet, were all translated into Spanish by the second author. Workshop activities were conducted in English and Spanish and focused on mastery of the CLASS program materials. Special attention was given to participants' achieving both conceptual and behavioral mastery of the program components that directly affect implementation quality (e.g., use of the red/green point card, monitoring teacher performance, etc.). A majority of the available training time was devoted to the CLASS Consultant Manual, which provides detailed information on program tasks and implementation procedures. Actual training activities involved: (a) providing brief overviews of each program task; (b) consultants' reading of relevant sections of the CLASS manual; (c) role playing and behavioral demonstration of program tasks; (d) providing feedback on performance; (e) content viewing and discussion of videotaped examples of correct and incorrect program applications; and (f) question/answer periods.

Training required 3 full days. Approximately 2 1/2 days were devoted to CLASS program mastery and one-half day to logistical arrangements for the replication study. The instructor of the practicum course participated in the training sessions and served as a Local Program Coordinator (LPC) during program implementation following the workshop procedures. Her program-related duties as Local Program Coordinator were:

1. To serve as a resource to student consultants in technical matters concerning CLASS Program implementation.
2. To observe consultant performance during CLASS Program implementation.
3. To directly supervise consultants during implementation and provide feedback on their performance.
4. To hold weekly group meetings with consultants to share information about the program.
5. To work with consultants and schools in solving logistical problems relating to delivering program procedures.
6. To make a Likert scale rating of each consultant's fidelity of implementation.

The consultants' CLASS program responsibilities were to pretest the CLASS program to school personnel, to identify two acting out children who qualified for the program, to apply the CLASS program to one of the two qualifying children, and finally to implement the program according to the application guidelines and steps contained in the CLASS Consultant Manual. Consultant trainers were trained in all these tasks during the workshop sessions. In addition, detailed instructions for accomplishing them are contained in the consultant manual supplied to each trainer and the LPC.

Following completion of training, the authors returned to the U.S. and the LPC and consultant trainers began the task of program application. Telephone contact and written correspondence were maintained between the LPC and authors throughout the implementation period.

Dependent Measures

The primary dependent measure in this study was the proportion of observed time subjects spent engaged in appropriate classroom behavior as recorded by the CLASS Consultant Observation Code. A copy of this code was provided to all consultants. All ratings were contained in the CLASS Consultant Manual (Hops, Beickel, & Walker, 1976). This is an interval observation code that requires the observer to determine, on a 30-second basis, that the child's behavior meets the following criteria:

1. The subject engaged in appropriate 10-second intervals.
2. The subject engaged in appropriate 10-second intervals.
3. The subject engaged in appropriate 10-second intervals.
4. The subject engaged in appropriate 10-second intervals.
5. The subject engaged in appropriate 10-second intervals.
6. The subject engaged in appropriate 10-second intervals.

In vivo coding of live models. In this training program, the authors alternated in role playing appropriate child behavior in a simulated teamwork situation. Four 20-minute sessions were conducted in which observers compared their ratings with the author's and with other observers on average interobserver agreement between pairs of observers across the four sessions in which they modeled child behavior. The overall mean for these four sessions was 94.99 percent. The level of agree-

Continued on Page 4

DIRECT INSTRUCTION NEWS, WINTER, 1987
CLASS- Continued from Page 3

ment was consistently higher for coding of live models.

Results
Means and standard deviations for the percentage of appropriate behavior are presented in Table 3. Separate t-tests were performed for experimental and control group differences on the pretest and posttest data. The t-test was significant only at posttest. All 10 subjects in the experi-
mental group showed gain in appropriate behavior. In contrast, only 4 of the 10 control sub-
jects showed a gain from pretest to post-
test.

Table 2. Observer Training Reliability Using in Vivo (Live) Models of Classroom Behavior

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>94.16</td>
<td>7.92</td>
</tr>
<tr>
<td>2</td>
<td>98.33</td>
<td>5.77</td>
</tr>
<tr>
<td>3</td>
<td>95.00</td>
<td>5.22</td>
</tr>
<tr>
<td>4</td>
<td>92.90</td>
<td>8.66</td>
</tr>
</tbody>
</table>

During the 3-month implementation period for CLASS, the local program coordinator (LPC) met weekly with the 10 CLASS consultants and also worked closely with them in supervising and facilitating their application of the program. At the end of the implementation period, the LPC re-
ed each consultant’s fidelity of program im-
plementation on a 5-point Likert scale.
The LPC’s fidelity ratings averaged 3.7 (S.D. = .24) and ranged from 2 to 5. These ratings were correlated with gain scores in appropriate behavior for the experimental target subject assigned to each consultant (N = 10). The obtained correlation (r = .68, p < .05) indicated a statistically significant relationship between implementation fidelity and behavioral gain scores.
The CLASS program was rated very positively by the consultants who com-
pleted the consumer satisfaction measures (N = 8). Items in Section One, Two, and Three required either a yes/no response or a Likert rating on a 1-7 point scale.

In Section One, the CLASS Program Manual received a perfect average score across the 8 responding consultants (e.g., 7) on each of the descriptions of comprehen-
sive, useful, and precise. Consultant ratings indicated high levels of clarity of presentation for both CLASS pre-interven-
tion and intervention program components, e.g., average ratings ranged from 5.00 to 5.87. Average ratings of the importance of 15 major program components (e.g., school rules, parent involvement, teacher feedback, etc.) ranged from 5.88 to 7.00.

In Section Two, program consultants rated the interval training they received in the CLASS program as effectively prepar-
ing them to implement it. Three questions in this section were rated as highly important. These were: (1) How effectively were you prepared to implement the CLASS pro-
garm?: (2) Do you think you implemented the program correctly?; and (3) How satis-
fied were you with the results you obtained? Average ratings for those three ques-
tions were, respectively, question (1) Mean = 5.88, S.D. = .35; question (2) Mean = 5.88, S.D. = .35; and question (3) Mean = 6.75, S.D. = .46. These ratings indicate very positive responses to each.

In Section Three, respondents clearly perceived the CLASS program as highly effective in remediating child behavior problems. Average ratings for the 12 ques-
tions in this section ranged from 5.00 to 6.88.

Discussion
The goals of this study were to (a) conduct a cross-cultural replication of the CLASS program in Costa Rica; (b) test the behavior problems of disruptive children in Costa Rican schools; and (c) feasible for use in Costa Rica schools; other school personnel to a comprehensive self-

Table 3. Means and Standard Deviations for Percentage of Appropriate Behavior (N=10 in each group).

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>35.21</td>
<td>33.72</td>
</tr>
<tr>
<td>S.D.</td>
<td>6.77</td>
<td>6.67</td>
</tr>
<tr>
<td>Pretest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>50.38</td>
<td>34.61</td>
</tr>
<tr>
<td>S.D.</td>
<td>12.18</td>
<td>6.15</td>
</tr>
</tbody>
</table>

To determine if previously coached teachers (i.e., teachers who had mastered one of the models of teaching) could effectively teach their peers, Showers (1984) conducted a study examining the generalizability of CLASS pro-
gram. As in the earlier study, coached teachers scored significantly higher on the transfer of training consistent with coached teachers. Although the un-
coached teachers in the 1984 study mastered the new models more than the uncoached teachers had in the 1983 study, their skill levels did not increase. Showers hypothe-
sized that practice alone may not result in the control at schools felt positive coaches tend to practice skills incorrectly unless they receive appropriate feedback regarding implementation.

Table 2. Mean Transfer Scores: Follow-up Study (Baker, 1983)

<table>
<thead>
<tr>
<th></th>
<th>Coached Uncoached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer of Teaching</td>
<td>Brander’s Criterion Intervention Strategy</td>
</tr>
<tr>
<td>Means</td>
<td>15.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.80</td>
</tr>
</tbody>
</table>

These studies demonstrate that coaching is an effective means for training teachers to use new skills. Following initial train-
ing, teachers who were not coached imple-
mented more new skills models point in the sta-
all, and coached teachers used the new strategies more consistently and effectively. Therefore, it is critical that teachers felt positive coaches who practice skills incorrectly unless they receive appropriate feedback regarding implementation.

To determine if Coaching was less effective than peer ob-observation, Sparks’ (1985) shows that coaching was less effective than peer ob-
ervation. Sparks’ (1985) suggests that teachers in the coaching condition may not have improved because they had more time to implement the new skills. This hypothesis seems especially reasonable given the distance of almost 2000 miles between teachers and their consultant-
coaches (only two meetings).

The relationship between teachers and their coaches may be of considerable impor-
tance in evaluating the effectiveness of coaching. While Showers (1983) and Gersten, Carnine, Zurek, and C中式 (1986) have interviewed teachers to document their perceptions of the coach-teacher relation-
ship, the relationship and the way this interac-
tion is conducted can have a profound effect. The relationship is important because it is a relationship that is unique to this particular setting. The relationship between teachers and their coaches can be a very important factor in determining the effectiveness of coaching. The label “coaching” is vague and may describe different activities that may be performed by teachers in different contexts.

In the studies reported here, both “expert” and “coach” teachers were used with success. Although some “expert” teachers are more easily accepted by teachers (Sparks, 1985; Wagner, 1985), most au-
thors have cautioned against simply plac-
ting teachers in the role of coaches without first training them in supervisory skills (Gray & Gray, 1985; Kuni, 1985; Littie & Wagner, 1985). Teacher who works well with students does not necessarily work well with teachers. Little (1985) found that even highly trained peer coaches were hesitant to "advise" other teachers; "professional good manners" dictate against advising peers in the teaching profession. Additional research is needed to

Continued on Page 5
Coaching Teachers -- continued from page 4

determine the effectiveness of "peer" versus "expert" coaches.

Coaching in Project Follow Through

Research from the Direct Instruction Follow Through Project supports the general training methods described by Showers (1983). During this 14 year project, researchers were able to evaluate teacher training methods in the context of a comprehensive implementation effort. Teachers and instructional aides in 20 communities, previously untrained in the Direct Instruction Model, learned the highly structured teaching methods through participation in an intensive teacher coaching program. Validation required teachers to make radical changes in their teaching behavior, and as a result, researchers were interested in teacher and aide behavior as it related to the training program as well as the training program's effects on their skill levels in the classroom.

Like Showers, we were reporting in the staff development literature, researchers who evaluated the teacher training procedures in the Direct Instruction Follow Through Project found that an effective training program consisted of: (a) presentation of rationale, (b) demonstration, (c) practice feedback (d) on-site coaching (called "supervision" in the Follow Through literature). However, several aspects of the Direct Instruction training program differ from the Showers model. Following a discussion of these differences, specific training and coaching techniques will be presented, and the results from two representative studies will be summarized.

A comparison between the Direct Instruction teacher training studies and those of Showers and her colleagues is that Direct Instruction programs were conducted with para-professional aides as well as teachers. In most Direct Instruction classrooms, aides had many of the same responsibilities as teachers, including teaching small groups for language and arithmetic.

Second, teachers who participated in the Direct Instruction Follow Through project learned new teaching skills involving highly specified techniques. This is very different than the taba or Bruner models used by Showers and Baker. Teachers implemented these skills for at least two and a half hours a day, every day. Teachers in other teacher training studies, such as the Boeing (e.g., Showers, 1983) were not required to make such radical changes; they learned several new strategies, such as Bruner's "Concept Attainment Strategy," that they used at their discretion (e.g., once or twice a week).

Third, in the Direct Instruction program used an additional training technique: modeling specific techniques with students in the classroom. Direct Instruction teachers found that modeling teaching skills with the teachers' students was more effective than output-of-class demonstrations (Carone & Greene, 1983).

Fourth, Direct Instruction coaches focused on student behavior (not teacher behavior) to determine what kinds of suggestions they would make to teachers (Gleason, 1984). Unless coaches observed student problems (either academic or behavioral), they would not suggest that the teacher change his or her behavior. Coaches used fairly objective criteria to determine the need for assignments. For example, if students were not at least 90% correct on oral responses, the coach and teacher discussed possible suggestions to improve student accuracy.

In this research, the Direct Instruction coaches used classroom data in ways similar to those described by Stallings (1982).

Finally, coaching in the Direct Instruction Follow Through Project operated on several levels, often lasting several months to two basic techniques, and did not demonstrate proficient use of more advanced skills (e.g., remediation procedures) until the end of the school year. The length and intensity of the coaching process in Follow Through is in contrast to the five week coaching program described by Showers (1983).

In spite of these differences, the Direct Instruction training procedures were quite similar to the methods described by Showers (1983). Teachers attended inservice workshops in which trainers explained the Direct Instruction skill and demonstrated the training skills, and participants initially practiced techniques and received feedback from trainers. In the classroom, trainers observed and critiqued teachers as they worked on the training skills (stages) to improve teacher performance.

Evaluators of the Direct Instruction Follow Through program analyzed both student gains and changes in teacher performance. The purpose for evaluating student outcomes was to determine the effectiveness of theDirect Instruction guidelines. Researchers hypothesized that students taught with teachers who demonstrated high implementation ratings would make the most significant academic gains.

Cheung, et al. (1986) suggest that in many ways the Follow Through teacher training process was analogous to what research shows is effective instruction for students (e.g., Brooks & Good, 1984). Training was designed so that teachers could improve: (a) teachers' assignments were clear and achievable (based on students' work); (b) practice feedback was effective; (c) teachers' progress was noted; and (d) teachers' understanding was provided when necessary. While the coach was concerned with the teacher's success, the coach framed all interactions in terms of student performance. Thus, all problems that the coach identified related to students' academic or behavioral problems. An effective coach could quickly identify problems, prioritize them in order of importance, and discuss remedies with the teacher. The coach often took over groups and taught for 3-5 minute segments.

Follow Through coaches found that the most effective when they: (a) helped teachers organize time effectively; (b) helped teachers organize time effectively; (c) helped teachers improve their use of the teaching skills. Although aides' mean scores were usually slightly below those of the teachers, the interesting patterns of the two group's skill improvement was the same (see Figure 1 for the three of the variables).

All teachers in the study took a significant amount of time (e.g., a full eight months) to master those complex skills that have the most impact on student performance: provision of immediate corrective feedback and maintaining high student accuracy during the lesson. As anticipated, students of teachers who mastered these critical skills (and who also had the highest overall implementation scores) made the most significant academic gains on the Comprehensive Test of Basic Skills. This finding is in direct contrast to the student outcomes reported by Showers (1983). Showers found no significant differences between students of uncoached and coached teachers on measures of student performance. Results from the Gerton et al. (1982) field research showed that the majority of teachers and aides who participated in the Direct Instruction training program mastered a complex set of new teaching behaviors.

Study 2

The second study to be discussed here was experimental. Cunnane and Fink (1978) used a multiphase baseline design to determine if there was a functional relationship between the Direct Instruction training procedures and implementation levels for two teaching techniques -- rate of presentation and signaling.

Before the study began, the subjects (two aides and one teacher) read a teacher's manual describing the two techniques. Following baseline, teachers participated in Continued on Page 7
Distar Language—
A powerful tool for teaching

A powerful tool for teaching:
- A basic vocabulary
- A rich body of knowledge about the world
- The oral language and writing skills needed to ask precise questions and to communicate ideas.

These are the abilities that a raw report, Becoming a Nation of Readers, lists as being important to all children who are learning to read... crucial for children who have not grown up with oral language that resembles the language of school and of books... because these abilities are the basis of comprehension.

And these are the abilities that teachers have been successfully teaching children for almost twenty years with Distar Language programs.

But Distar Language does more than teach the complex language skills needed to understand classroom instruction and comprehend written text. Distar Language programs go beyond the content of other language programs to give you the help you need to teach critical thinking skills, skills that enhance a child's intellectual development.

With Distar Language you teach logical thinking through:
- Classification
- Analogy
- Deductive reasoning
- Inductive reasoning

You teach students to be "THINKERS" who use language as a tool. And that is the foundation for eventual success in all school subjects.

And now the Distar Language program is better than ever! Distar Language I has been revised to give you:

- Expanded Language Activities—ideas for fun-to-do songs, read-aloud stories, nursery rhymes, and plays. These informal lesson extensions encourage students to apply their language skills in classroom activities. Language achieves full naturalness at a remarkably early stage.
- Fast Cycle—an in-lesson skipping schedule eliminates unnecessary drill and practice for average and above-average students. A "star" identifies the tasks that you teach to all students. You are free to skip the remaining exercises with the faster children. Lessons are easier to adapt to student ability.
- Take-Home—easily pencil and paper activities teach color, shape and workbook skills. Activities reinforce skills, demonstrate that students can apply language concepts. Illustrations are improved. There is more to do on each page.

Use this order form to receive these exciting new materials as soon as possible.

Mail to: SRA, 155 N. Wacker Drive, Chicago, IL 60606

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Product Code</th>
<th>Description</th>
<th>Price</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7-7340</td>
<td>Distar Language I Classroom Kit</td>
<td>$290.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7-7346</td>
<td>Additional Teacher's Guide</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7-5373-7</td>
<td>Take-Home Workbook 1 (pkg of 5)</td>
<td>14.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7-5373-8</td>
<td>Take-Home Workbook 2 (pkg of 5)</td>
<td>14.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7-5373-9</td>
<td>Take-Home Workbook 3 (pkg of 5)</td>
<td>14.85</td>
<td></td>
</tr>
</tbody>
</table>

Ship to:
Date: ____________________
SRA Account Number: ________

Purchase Order Number: ________

Order By: __________

Account: __________

Street: __________

City, State, Zip Code: __________

Attention: __________

Telephone Number: __________

Expiration Date: __________

Certified Delivery Marked: __________

All orders are subject to price change, subject to approval as required by SRA, except for those used in public schools, public schools only if public school officials are notified.

Copyright 1987 SRA, Inc.

Examples from Teacher Presentation Book D

SRA®
Coaching Teachers
Continued from page 5

daily training sessions with a coach. Training sessions involved practice ses-
sions with coaches in which techniques were modeled and practiced, feedback on individual andoodle (each day the teachers viewed videoconfes of themselves and coded their behavior on an observation form, although this did not make suggestions to the teachers on the basis of the teacher's performance in the daily practice session and the video.)

For all three teachers, the training intervention produced significant and immediate effects. All teachers increased their skill levels to points above the comparison standard (for example, after training, the teachers' rate of appropriate signaling was 95.5%; the comparison standard was 73.5%), and maintained their skill levels on two follow-up measures. This study demonstrated that training procedures that were effective in training hundreds of teachers involved in the Direct Instruction Follow Through program could be expected to be effective in training teachers. This finding is consistent with findings from the study of the effect of the Direct Instruction Follow Through program (Gersten et al., 1987; Gersten et al., 1988). This study showed that teachers and aides trained in the project effectively used the skills they learned in their classroom instruction. While it is impossible to determine the precise contribution of each of the training components, there is no doubt that training was instrumental in the teachers' success. As Showers (1984) notes, teachers who practice new skills without receiving specific feedback tend to practice skills incorrectly and therefore fail to effectively implement skills in the classroom.

Summary of Research on Staff Development and Supervision Training

An effective training program involves initial instruction in new skills as well as practice in the real setting with feedback. An integration of research findings documents the efficacy of the following teacher training guidelines:

1. Training and transfer tasks should be similar with respect to the learning coaching skills, the teacher should be trained to teach coaching skills. (Ripple & Drinkwater, 1983).

2. Training should provide a clear demonstration of the technique or strategy (Joyce & Showers, 1981; Gersten et al., 1988).

3. Teachers should understand the rationale behind the skills they are learning (Joyce & Showers, 1981; Ripple & Drinkwater, 1983).

4. Teachers need multiple opportunities for practice (in the Direct Instruction program, teachers practiced for 90 minutes every day for eight months) (Gersten et al., 1986; Showers, 1983; Ripple & Drinkwater, 1983).

5. Teachers must help teachers make discernible changes in their teaching so that teachers feel successful (Sparks, 1983). Trainers can help teachers be successful by:

(a) making assignments clear and achievable
(b) providing adequate practice and feedback
(c) assisting teachers frequently, and
(d) providing remediation when necessary (Gersten et al., 1986).

6. On-site coaching will greatly increase the likelihood that teachers will transfer skills (Atwell, 1981; Atwell & Grossman, 1985; Gersten et al., 1986; Joyce et al., 1983; Joyce & Showers, 1980; 1982; 1983; Showers, 1983).

7. Coaches should make frequent classroom visits and model teaching techniques with students so that teachers can see the effective-ness of the procedures (Gersten et al., 1986).

In conclusion, the research on staff development suggests that the above procedures are effective in training teachers in new skills. Teachers who participate in training programs that:

(a) include the above components, and
(b) attempt to teach research-based teaching techniques should help students make substantial gains in learning.

Several issues relating to coaching remain unresolved. First, it is unclear whether "peers" or "experts" are the most effective coaches. Although peer coaches may be more easily accepted and readily available to teachers (Sparks, 1983), teachers may require extensive training in supervisory skills prior to coaching other teachers (Grey & Grey, 1985). Such training may prove to be cost-ineffective.

Second, the short classroom instruction time used by Direct Instruction coaches (and also used in this study) may enhance the coaching process. When a trainee sees that a technique improves student performance, and the trainee's expectations increase and the trainee is more likely to implement the new technique (Carnine & Gersten, 1985; Gersten et al., 1986).

Third, most teachers require a substantial amount of time to master new skills (Borg, 1977). Although teachers who will require varying amounts of time to master new skills, it is clear that teachers learning new skills or skills that are in conflict with previous behaviors will require substantial practice and coaching to be able to use their skills naturally and effectively.

References

Editor's Note: A complete set of references may be obtained by writing to The Editor, Direct Instruction News, P.O. Box 10252, Eugene, OR 97404


SchoolWriter—A Software Review

SchoolWriter, C.C. Publications, Inc., 1980, 180 S.W. 7th, Tualatin, OR 97062; (800) 547-4800 Cost: $79.95; additional workbooks, $5.95; teacher lab package, $239.85 (3 floppy disks).

Reviewed by Nancy Matzer SchoolWriter is a recently released 80-column word processor with 64K and 128K versions developed for Apple II computers. SchoolWriter requires an 80-column text card, an 80-column video monitor, and one or two floppy disks. In PASCAL, an advanced computer language, SchoolWriter was designed for the school population, primarily students in grades 4-12. All materials and instructions have approximately a fourth-grade readability level.

Description

The package includes a program manual, a back-up disk, an activities file, disk, an Instructor's Manual, and a Student Workbook. The disks, manual, and workbooks are designed for both teaching and performing word processing. Word processing is systematically taught and practiced and should be capable of being learned in approximately 20 minutes. Each of the 80-page Instructor's Manual provides answers to the Student Workbook objectives for each lesson, instructions for classroom presentation, and a Student Progress Sheet. The 56-page Student Workbook contains instructional and review activities, a quick reference chart, and an index/summary of terms. The SchoolWriter activities disk contains supplementary practice exercises. The program is workbooks can be used in a classroom, small group, or individual students.

Running SchoolWriter

After loading SchoolWriter, the main menu appears at the top of the writing screen. This menu contains the following choices: Get File, Save, Options, Print, Find/Replace, Underline, Clear Delete File, Jump, Center, Move, Block, Delete, Prepare Disk, and Help. The lower portion of the screen displays the number of words written on the page and line numbers. All commands are executed by the menu which is entered as entered below. The "Help" command is a mini-manual that describes and explains the different commands and tasks. Before entering text, it is necessary to prepare a file disk for storage of the non-ASCII text that contains a blank disk for use with SchoolWriter.

Evaluation

Several features make SchoolWriter appropriate for use with learning disabled (LD) students. Foremost, the program is easy to operate. Students and teachers familiar with word-processing systems can learn to operate the program in minutes without reading the manual. Most students unfamiliar with word processing can learn to write, edit, and print their stories as well as can bona fide adults.

Some familiarity, however, is required for adroit, accurate execution of the ESC, Apple keys, and return com-

mands. Although the screen provides instructions, selecting the return key at the right moment requires a modicum of practice. With a little experience, one can learn how to move between the writing screen and the main menu, the Apple keys select a task on the screen, and the ESC key either cancels a task or moves the cursor to a new op-

SchoolWriter is a recently released 80-column word processor with 64K and 128K versions developed for Apple II computers. SchoolWriter requires an 80-column text card, an 80-column video monitor, and one or two floppy disks. In PASCAL, an advanced computer language, SchoolWriter was designed for the school population, primarily students in grades 4-12. All materials and instructions have approximately a fourth-grade readability level.

Description

The package includes a program manual, a back-up disk, an activities file, disk, an Instructor's Manual, and a Student Workbook. The disks, manual, and workbooks are designed for both teaching and performing word processing. Word processing is systematically taught and practiced and should be capable of being learned in approximately 20 minutes. Each of the 80-page Instructor's Manual provides answers to the Student Workbook objectives for each lesson, instructions for classroom presentation, and a Student Progress Sheet. The 56-page Student Workbook contains instructional and review activities, a quick reference chart, and an index/summary of terms. The SchoolWriter activities disk contains supplementary practice exercises. The program is workbooks can be used in a classroom, small group, or individual students.

Running SchoolWriter

After loading SchoolWriter, the main menu appears at the top of the writing screen. This menu contains the following choices: Get File, Save, Options, Print, Find/Replace, Underline, Clear Delete File, Jump, Center, Move, Block Delete, Prepare Disk, and Help. The lower portion of the screen displays the number of words written on the page and line numbers. All commands are executed by the menu which is entered as entered below. The "Help" command is a mini-manual that describes and explains the different commands and tasks. Before entering text, it is necessary to prepare a file disk for storage of the non-ASCII text that contains a blank disk for use with SchoolWriter.

Evaluation

Several features make SchoolWriter appropriate for use with learning disabled (LD) students. Foremost, the program is easy to operate. Students and teachers familiar with word-processing systems can learn to operate the program in minutes without reading the manual. Most students unfamiliar with word processing can learn to write, edit, and print their stories as well as can bona fide adults.

Some familiarity, however, is required for adroit, accurate execution of the ESC, Apple keys, and return com-

mands. Although the screen provides instructions, selecting the return key at the right moment requires a modicum of practice. With a little experience, one can learn how to move between the writing screen and the main menu, the Apple keys select a task on the screen, and the ESC key either cancels a task or moves the cursor to a new op-
by John Woodward
Doug Carnine
University of Oregon

Special education has passed through a phase where technology has been widely embraced and uncritically adopted. It was hoped that technology, particularly computer-based instruction, could be used to far reaching effects on both what students learn and how they learn. Most research to date has looked at how students have been implemented in the schools, with lesser attention paid to the effects of CAI on learning (Hutley, 1984). What we can glean from the fact that CAI programs are being written is that there is no clear agreement on the the key parameters of the question (Koehler, 1973-74). However, ICAT is most commonly associated with intelligent tutoring, where the optimal characteristics of human tutoring are incorporated into the problem solving processes. It has been suggested that intelligent programs should be able to adjust to different student backgrounds, measure progress, review previously learned material, recognize new problems, and generate feedback on errors while still giving the students cues in learning how to decipher the problem which should be solved (Gable & Page, 1980).

A coherent expert system is a large set of rules for solving problems in a domain of expertise. An expert system is a knowledge-based system that can simulate human problem solving. The expert system is a computer program that can reason about a specific task or area of expertise (such as medicine, chemistry, or metallurgy). Expert systems are designed to mimic the reasoning processes of human experts in a particular field, allowing them to make decisions and provide recommendations based on their knowledge and experience.

Table 1. A Brief Overview of Some Intelligent Computer Assisted Instruction (ICAI) Program

SCHOLAR, One of the earliest ICAI systems was SCHOLAR (Carbonell, 1970), a system designed to teach South American geography. The program uses a network of facts and concepts as well as an extensive data base. The original system allowed the student to conduct a "mixed initiative" dialogue, allowing SCHOLAR to ask questions and direct the student, while simultaneously allowing the student to ask questions and direct SCHOLAR. In general, ICAT systems seem to suffer from the same problem as Hutley (1984) finds with today's CAI programs: Too much emphasis is placed on the technology in this case, the AI techniques - and too little on the learning outcomes. Recent...
ICAI proponents claim that many with AI backgrounds are concerned more with the nature of mental processes rather than with "practical aspects of learning, teaching and learning tools" (Yadurni & Lawre, 1986, p. 197).

As a result, what one sees are well-developed cognitive instructional models, used with inefficient and sometimes dubious instructional principles. Many of the systems are quick to the learner in control of instruction, thus limiting him or her investigate topics with occasional feedback, various forms of tutoring, and the capacity to ask the system various types of questions (Dockstuter, 1986). This type of environment rests heavily on the validity of inquiry or discovery learning models. The latter model, which has a strong humanist influence, has been recently popularized by Leopold (1980) and LOGO in CIC circles. As Dockstuter (1986) points out, part of the problem with ICAI systems rests with the system designers who are unfamiliar with preschool instruction.

Beyond this influence, there is an even stronger orientation for information processing theories of cognitive psychology to underlie efforts. While asserting that real ICAI systems should embody a well-articulated curriculum and tutoring strategies based on an explicit theory of instruction (Yadurni & Lawre, 1986), it is also argued that ICAI systems should transcend the linear, hierarchical approach to problem-solving in traditional instruction and CIC (Olshin, 1986). That is, an ICAI system should offer more than one way to a curriculum; it should adapt instruction to a student's needs and style of learning at any given time, thus capturing more than one viable mental model a student might have of the subject matter. Designing systems to do this is difficult, in part, because it is claimed that not much is known about teaching; and little, if any, work has been done with specific teaching strategies (Olshin, 1986).

These orientations - discovery learning and multiple models for teaching - sharply contrast with the growing body of empirical research that clearly describes another style of instruction. Effective teaching principles (cf. Bryk & Good, 1986) and direct instruction (Engelmann & Carnine, 1982; Rostenhine & Stevanez, 1980) not only delineate what makes for good teaching, but precisely capture a variety of real

Table 1 - continued

WUMPUS (Goldstein, 1982) is a much more elaborate game, one that attempts to teach logic, probability, decision theory, and geometry (Barr & Feigenbaum, 1982).

The object of the game is to hunt the monster WUMPUS in a warren that is replete with caves, bats, and pits. Students use this information to infer where to move next in the warren until they finally discover WUMPUS. The WUMPUS is a capricious creature that provides various hints and suggestions. The developers of WUMPUS have paid considerable attention to the kinds of explanations offered to students as they move through three phases of performance toward an expert level of play. Depending upon the student model, students are given analogies, generalizations, or inductive explanations. WUMPUS is somewhat unique as the expert module, student model, and tutoring component are all well developed.

GUIDON and SOPHIE. These differ from the previously described systems insofar as they offer problem solving environments for relatively sophisticated users. Both systems have advanced expert modules that direct the student-machine interaction. GUIDON (Heath, 1982) is an expert system that capitalizes on the expert system MYCIN (which diagnoses infectious diseases) and teaches diagnosis skills to medical students. The communication module allows the user to request more information about the patient and the student can even explore the reasoning used to derive a particular diagnosis. The system outside of the system and presents diagnosis problems related to the curriculum and the tutoring component, which is designed to be sensitive to student knowledge, will often quiz or protect a student before it proceeds with tutoring.

SOPHIE (1982) offers a similar experience for electronics students who are given challenging problems in debugging problems with circuits. The expert evaluates student hypotheses about faults in the circuit and an "articulate" expert can model the solution or even explain the nature of the problem. The second version of SOPHIE was weak in modeling student misconceptions (Barr & Feigenbaum, 1982). Also, SOPHIE's relationship to a fixed curriculum is less clear. In any event, the system presupposes that students have a basic background in electronics and circuit design.

BUGGY. Finally, BUGGY (Brown & Burton, 1976) is designed solely as a diagnosis tool. The sole intent of the system is to model student errors or "bugs" in subtraction problems. The expert module in BUGGY includes both correct and incorrect subroutines in subtraction problems, thus allowing it to simulate possible versions in which a student could solve a problem. The system generates a series of problems and then attempts to explain why the student made the mistake based on the assumption that the student is following a systematic misconception of the interaction process. BUGGY does not contain any kind of tutorial that attempts to remedy bugs once they are detected.

The student's current model of the min cycle does not apply to the effort to test the strength of an ICAI system's representational model, always attempting to refine it when necessary. In doing so, the counterexamples act as feedback to the student, allowing the student to understand the conceptual model.

By building on paradigms and contradictions, systems such as WUMPUS attempt to achieve a greater understanding of the material, thus leading to a greater integration and generalization of knowledge (Dede, 1986).

It is no surprise that WHY's designers place considerable emphasis on student errors and misconceptions. Beyond the challenge of diagnosing misconceptions, they are a direct and inevitable byproduct of the instructional principles used in the system. By continually presenting students with new and often contradictory information, most students should become confused. It is quite likely that many students will soon find this kind of interaction bewildering. Essentially, it does really make sense to base instruction on an array of evidence. The amount of student's potential amount of instructional time and confusion is the result.

Of the ICAI systems reviewed above, only WUMPUS offers a formal feedback basis. The reason for this is quite sensible. SOPHIE and GUIDON present challenging problems that address the set of common basic facts and concepts in well defined subject areas. Unlike the other systems reviewed, students are on relatively advanced stages of instruction when they encounter the problems and arc thus able to concentrate on the problems, not having to sort out or derive important facts and concepts at the same time. Students have mastered the necessary, antecedent knowledge (pre-requisite skills) for the above specific problem solving (cf., Glaser, 1984). To some extent this is true of GUIDON than SOPHIE. Following a test of SOPHIE III (Brown, Burton, & DeKoor, 1982), the designers noted that a longer period of basic instruction, among other things, would have led to a higher level of knowledge acquisition. The value of using ICAI systems with advanced learners was recently noted by Dede (1986).

As a negative generalization regarding the sophistication of the learner, it could probably be hypothesized that the more mature and knowledgeable a learner is with respect to the concepts of the system, the more the feedback would be enjoyed and productive. The less mature or less knowledgeable learners, on the other hand, will more likely profit from greater system control (p.391).

Most ICAI systems that we have described can be best appreciated by their computational techniques, not by their instructional principles. Even though educators are often satisfied with intelligence techniques, it is no way that follows that ICAI systems automatically embody optimal instructional. This should be somewhat obvious, because the human tutor - the very element that ICAI systems model - isn't necessarily a well-trained or competent instructor. The suggestion, for

Continued on Page 10

DIRECT INSTRUCTION NEWS, WINTER, 1987
Strategies for Evaluating Reading Programs

Learn to analyze the appropriateness of program variables for a range of student abilities.
- Pace of skill introduction
- Opportunities for practice
- Problem solving strategies
- Language of instruction
- Priorities and focus in lessons

February 27, 1987
Washington County ESD
located at the Rock creek Campus of Portland Community College, west of Portland

Washington State Inservice Seminars

• ADVANCED CLASSROOM MANAGEMENT
  with Randall Spirk

• ACADEMIC SURVIVAL SKILLS AND ADAPTING THE CONTENT AREA:
  A Direct Instruction Approach
  with Marilyn Spirk

• EFFECTIVE SPELLING FOR WRITING
  with Bob Dixon

March 19, 1987 6:00 - 9:30 and
March 20, 1987 8:30 - 4:00
Bellevue, Washington
Greenwood Inn just off I-405
Continuation credit available

For information
Clip and send the form or call
503-945-1442

Spring Inservice Opportunities

Comprehensive Strategies for the School Administrator

- EFFECTIVELY MANAGE THE FULL RANGE OF BEHAVIOR PROBLEMS

Help your staff learn to:
- Deal with out of control behavior
- Reduce office referrals
- Prevent behavior problems
- Increase academic success

with Randall Spirk, Ph.D., Geoff Colvin, Ph.D., Marilyn Spirk, M.S.

April 1, 2,3, 1987
Southcenter, Seattle, Washington

Strategies for Teaching

I Please send me information on:
- Strategies for Evaluating Reading Programs
- Washington State Inservice Seminars
- Comprehensive Strategies for the School Administrator to manage the full range of behavior problems

Name:
Address:
City, State, Zip:

send to:
Teaching Strategies, Inc.
PO Box 5205
Eugene, OR 97405

10 DIRECT INSTRUCTION NEWS. WINTER, 1987
ICAI critique -- continued from page 10

and 1/2 correctly. In our study, students in the basal treatment made four times as many strategy errors, such as adding unlike denominators, than did students in the videodisc treatment. In the videodisc treat-
ment, students received demonstrations and extensive guided practice in discriminating addition from multiplication problems. This parallels the results of the Caseine study (1980) cited earlier and clearly demonstrates how initial misconceptions directly related to instruction can present major problems for learners as they progress through the curriculum. It per-
tended that the problems likely to occur with ICAI systems such as WUMPUS, WEST, or WHY. Furthermore, it is doubtful that these misconceptions can be corrected through a few counterexamples or broad hints, or by shifting tutoring strategies. By initially constructing instruction through example selection, explicit strategies, etc., students are better prepared to tackle prob-
lems that require true transfer of learning, as in prealgebra word problems. This uncontro-
verted knowledge, then, is the foundation for the eventual shift to student controlled learning as portrayed in Figure 1.

Strategies for Reading Comprehension

One of the central concepts that has emerged from the work of the Institutes for Research on Learning Disabilities is that learning disabled students have not acquired efficient strategies for processing informa-
tion (McKinney, 1985). This observation is especially true when these students are required to "actively" comprehend long pass-
age or short stories on their own. Unlike

cases where students respond to literal or inferential questions about a particular sentence or paragraph in a story, students must construct images, descriptions, and summaries that cover the entire story.

One approach that has demonstrated success with non-learning disabled students is schema theory (e.g., Mandler & Johnson, 1977; Thaddeus, 1977). A recent study by Karnine and Kindor (1985) attempted to assess the relative effectiveness of teaching remedial and special educa-
tion students to answer and ask schema-
based questions (Singer & Donlan, 1982).

Twenty-seven immediate remedial and learning disabled students who met criteria on a screening test were selected for this study. The two groups of subjects were randomly assigned to schema training or a comparison method. Narrative and exo-
pository prose passages were devised for both groups. In the schema treatment, teachers were more directive in focusing students' attention on the structure and key elements of the narrative stories and expository passages. For narrative stories, the schema-
based questions highlighted a story's struc-

ture by asking about the central characters, their goals, obstacles to reaching the goals, and a resolution. Students were repeatedly asked, "Who is this story about?, "What is he or she trying to do?, "What happens when he or she tries to do it?," and "What happens in the end?" In expository pas-
sages, the schema techniques were modified and students were taught to extract a key

principle from a passage (e.g., "liquids and gases move from places of high pressure to places of low pressure"), apply the prin-
ciple to examples in the passage, and use the principle to construct new examples.

Figure 1

In the comparison group ("generative training"), a procedure was developed in-
volving student-generated imagery, stu-
dents' verbal descriptions, and summary statements of the passages. At key points in the story, the teacher would say, "Close your eyes and make a picture. Tell me what has happened in this part of the story."

At the end of the story, the students summa-

rized the entire story, "The same procedure" was used for the expository passages.

Over the series of training sessions on materials (10 on the narrative and 9 on the expository), teachers followed carefully designed scripts. Each day, teachers gave a narrative story aloud and asked questions, followed by a group reading of the story and finally, one silently read story. For the expository materials, only one passage was read each day. The teacher for each group introduced activities by reminding the students of the appropriate questions (e.g., in each action story, we ask four questions (...) or strategy (e.g., "Remember, close your eyes and make pictures."). In the remedial group, teachers responded to errors by modeling the correct answer.

On the posttest, new selections were presented with no assistance from the teach-
er. The intent was to prepare the students to monitor their comprehension of new in-
formation. A planned comparison of the overall effect of training (tests versus the posttest) was significant, F(2,10) = 14.8, p < .001 for the narrative tests and F(1,10) = 102.1, p < .001 for the expository tests. Post hoc tests revealed a significant differ-
ence on the maintenance test. These analy-

ses indicated that scores on comprehension retained dramatically improved after train-

Figure 1

In the current study, students did not improve their comprehension of the stories after the instruction. The results of the current study support the use of computer simulations in conjunction with a written curriculum in prealgebra material not taught in traditional means. Furthermore, the explicit strategy allowed the experimental students to integ-
rate and process fundamental or advanced knowledge before they played some of the hardest simulation games. In this sense, the experimental conditions was a success ful bridge to the activities required for com-

plicated problem analysis.

Artificial Intelligence Techniques and Education

These studies all show the very positive effects of successful use of control strategies and design principles. In each study, stu-
dents not only learned fundamental knowl-

dedge (e.g., addition versus multiplication of fractions, key elements in narrative and expository passages, foods that lead to an increased chance of heart disease), they also began to use the problem solving strategies. This kind of instruc-
tion, which is particularly effective when goals are clearly specified, is suited to well-
designed CAI (Duchastel, 1980) and direct instruction.

When students move toward exercises that demand increasing levels of generali-

zation (i.e., where there is greater complexity and more distracting information), artificial intelligence techniques be-

come much more viable. It is not that the instructional goals are any less clear, but that the context supports a much higher degree of learner control as shown in Figure 1. In fact, aside from providing im-
portant practice on generalizing facts, con-
cepts, and strategies previously mastered, students are in a better position to apply metacognitive techniques to the subject matter. More will be said on this topic shortly.

Continued on Page 12

DIRECT INSTRUCTION NEWS, WINTER, 1987 11
ICAI critique – continued from page 11

For the moment, let us re-examine our problem word example described earlier. It now appears that each ICAI component -- the student model, expert model, and communication module -- varies in potential usefulness. There are several reasons for this, especially an instruction that was in the content of the problem word example, and is not relevant to the student model than many of the ICAI systems mentioned in this article.

Work in predicate word problems would be preceded by a mastery of functorial (computation and word problems) and explicit terms for the limited set of predicate problems, thus encouraging near transfer of learning. Should students err, these strategies are the immediate reference point for corrections. Over time, learners make less errors because of the attention to well-chosen examples (i.e., examples that range from a range of application without inducing misconceptions) and persistent emphasis on the strategy. By carefully controlling instruction in its initial phases, better prepare students for success when they encounter more challenging problems later on.

All of this has considerable implications for those of the common ICAI components. As we noted in our earlier description, the expert module would contain the algorithms for solving the problem. The student model would store all of the strategies it teaches to the students. Even further, these strategies would be woven into the modeling and tutoring components. As we've noted, much of this work has been focused on remedial and tutorial tutoring. The ability to track student performance over time (or a large set of examples) is one of the distinctive characteristics of ICAI systems, something that makes it clearly superior to CAl programs. As a coaching strategy, it is a powerful means for student focused, directed learning (Dede, 1986).

This concept of instruction is very unlike the assumptions behind a program such as ILLUGY. This is rather than search for the "ultimate" reason for a student's misunderstanding, which is assumed in ILLUGY, the student is viewed as the uniqueness of a student's erroneous strategy (or the more likely occurrence — there is no pattern to a student's confusion), errors are evaluated in respect to past instruction. It appears that ICAl advocates (e.g., Burton & Brown, 1976; Ohlsson, 1986) made a leap forward in the understanding of logical reasoning and the understanding of a concept with simple confusion, which is indicated by highly inconsistent responses. In their quest for a final answer, they are tempted by the behavior "bog," Burton and Brown (1976) not only reveal how difficult it is to account for the sheer number of types of answers that can be given (as many as there is no "type" of error at all to be found. Nonetheless, we regard errors not only as a result of lack of instruction, but the instruction serves as a logical reference point for correcting these errors.

In using an ICAI system to teach predicate word problems, the communication module would make the most unique contribution. As student breaks down word problems, they often encounter difficulties translating certain portions of the problem or determining the most relevant information. Even competent students experience these difficulties, especially when the word problems contain a high degree of distractors, or when knowledge of the natural language interface, perhaps like the one used in SCOLAR, would permit students to ask about story problems in the context of the word problem. In earlier, students could: (1) ask for clarification ("Rephrase the second sentence in the problem") or (2) ask for more information ("What is a linear yard?"). Or (3) ask for help ("I don't understand what the problem asks, please help!"). This is perhaps the most significant feature of ICAI systems to students to concentrate on the central difficulties of a word problem because we argue that the algorithms for our examples are meaningful for students will have mastered the rules for constructing the narrative equation, computational techniques needed to construct the problem, and the solution of easier word problems that are amenable to a consistent strategy. Again, this cumulative view of instruction relies heavily on careful example selection, practice, and mastery -- it is unlike the instructional as- sumptions found in WESCUF or WEPIC's. We can see, ICAl techniques can be useful in guiding students as they tackle challenging problems in a specific content domain. For example, the communication module appears to be particularly beneficial, not just in the ways mentioned, but as a way to make the students feel less isolated and less student problem solving. Asking for more information, remembering that one does not completely understand the problem, etc., demonstrates the techniques that apply to a wide range of problems.

Ten years ago Joseph Wiezenbaum (1966) introduced a computer model of a field of inquiry that had fixated on a series of "lisp post" problems. Like the drunk at the bar, they were too drunk to hold up the light of the lisp post -- not because we're with his lost, but because that's where the light is lost AI researchers can become the problem, the problem of human cognition (e.g., vision, problem solving, natural languages) so that they can be more realistic in their programs. This is a broad and perhaps exceedingly harsh view of AI research today. As we have said, the AI techniques that have been incorporated in popular ICAI programs have promise. The problem with many of these programs is that they do not suffer from a variant of Wiezenbaum's (1966) "lisp post" problem. It is not that they have tried to solve only a limited set of problems as much as they have been unduly influenced and have been subtly by one kind of instructional philosophies. What must be distinguished are the viable AI techniques from the often dubious notions of discovery learning and multiple student models. What must be known is the importance of the reader. Some ICAI systems are based on limited knowledge of the students that are concerned with complex and challenging problems -- ones that promote generalization as much as they have been unduly influenced. This would seem to make it difficult for AI techniques when linked to content analysis and design principles, could contribute greatly to higher order instruction.

Effective Procedures

Point 4 (above) -- use effective procedures -- is the heart of the matter. The rest of this article summarizes some research-based procedures.

Use of Reinforcement

The principle of reinforcement is central to all good teaching, including coaching. When working with youth and adolescents, let them know when they have done a good job. Praise from a coach of the same sex is not a problem for high school youths. They appreciate it. However, disliking verbal punishment for a poor performance may only make the matter worse. It is likely to upset the athlete and make it harder to do better. When mistakes are made, focus, student, and model. Improvement is likely to be the "right way." Demonstrate, guide, and encourage. "Do it this way, and you'll get it." The important thing is to keep trying." With a positive approach, you show your players that you respect them as individuals. With good demonstrations and instruction, you earn their respect as a teacher.

Just as the regular classroom teacher does, the coach needs to survey the reinforcers available to him or her. Beyond posit ive attention and praise, consider how effectively you can use the following possible reinforcers:

- Improving times, scores, etc. Post them; chart them; talk about them.
- Improving skills that may not show in times, scores, etc. Give frequent feedback on improvement in component skills.
- Getting public attention in newspapers, on TV, on radio. Be sure the news gets out.
- Getting awards.
- Getting praise or participation in practice and in competition.

The team that wins is the "right way." Demonstrate, give them ideas of what are the good things that hard work can produce. And, when special goals are reached, call them to the attention of the group and of individuals.

Crack and Martin (1983) studied the effects of using reinforcers in swim- ming training. They had 8-13 year old swimmers earn the opportunity to participate in relay races at the end of practice sessions. They varied the frequency of races turned made in practice, and (2) by reducing the number of stops made when doing a practice turn (e.g., 4 yards, 10 yards backstrokes). This reinforced a dramatic drop in the inappropriate practice behaviors.

Attendance Boards and Program Boards

McKenzie and Rushall (1974) developed a procedure in which swimmers were told of a swim team to self-need to their attendance. A large waterproof board was constructed on which the swimmers could check each attendance at practices. There was also space for each swimmer's best consecutive record and current attendance record. When a student was absent, all of his/her checks marks were emed and he/she started over on a new "string." Use of the board reduced absences by 45 percent. Part way through the season, coming early to learn early to a failure to earn an attendance check on that day. Under this condition, late arrivals dropped 63 percent and early leaving stopped altogether. The attendance board proved to be very motivating. The team wait very enthusiastic about the use of the board. After 11 months, the record attendance was over 130 consecutive days.

In another study with 8 boys and girls aged 9 to 16, McKenzie and Rushall used 3 by 2 foot "program boards" to cue swimmers as to what they were to do next in their training program. Transparent pockets at the top of the boards could receive strips that the swimmer could retrieve at any time (e.g., make four 100 yard freestyle sprints). The training could be altered from session

Continued on Page 13

The Association for Direct Instruction and Teaching Strategies, Inc., Jointly Announce
The First Newport Beach Direct Instruction Institute August 19-21, 1987
The First Newport Beach Direct Instruction Institute Newport Beach Marriott Hotel, Newport Beach, California

Schedules:
August 18, 19, 20, 21, 1987
Coaching Athletes- continued from page 1
Coaching Athletes- continued from Page 12

much to be produced by a $10 reinforcement. Other variables were likely operating. A number of researchers have argued that your EA as .800 instead of having a batting average of .250 would likely be a good indicator of his ability. The EA statistic better reflects the contributions of team members toward winning a game. Also, there seemed to be a lot of allele-bending going on among team members that added to the 'action.' After the EA game was terminated, the players themselves kept calculating EAs and passing them in the dugout.

This study suggests that it might be beneficial to think about different ways of producing statistics that might have more reinforcement value for the players. The critical question is: 'What point system would best reflect a player's contributions to the team?'

Applications of Cognitive- Behavior Modification

A number of sport psychologists have been working with athletes to help them control what they think about before and during competition as a means of improving performance. Martin and Eysalco (1983) report five such studies covering applications of behavior modification (e.g., football kickers). In 1976, karate performance (Weinberg, Snodgrass, & Jacobson, 1981), golf(Kinchens & Bals, 1978), cross country ski racing (Gravel, Lentin, & Ladoceur, 1980), and tennis (Desiderato & Miller, 1979). This work holds much promise for the future.


References

Editor's Note: A complete set of references may be obtained by writing to The Editor, ADI NEWS P.O. Box 1025, Eugene, Or. 97440

The Association for Direct Instruction and Teaching Strategies, Inc.,

Jointly Announce

The Second Annual Salt Lake City Direct Instruction Institute

Salt Lake City Marriott Hotel,

Salt Lake City, Utah.

SchoolWriter is a comprehensive, easy-to-teach, word-processing package. Apollay, described the program as a "simplified first step word processor for the student writer" that will "give professionals a document as a printer will deliver. As we know, a printer is the best." SchoolWriter can print as scholarly a report or as creative a short story as a student can produce.

Nancy Matner received her Ph.D. in special education from the University of Arizona. She is an Assistant Professor in the Department of Special Education at the University of Arizona. Current professional interests include adapting special education methodology to the regular elementary classroom and training in the use of the Woodcock-Johnson Psychoeducational Battery.

Address: Nancy Matner, We were college in a lab with LD, remedial, and bilingual junior high students. Students with some background in word processing were immediately off and printing.

SchoolWriter is a comprehensive, easy-to-teach, word-processing package. Apollay, described the program as a "simplified first step word processor for the student writer" that will "give professionals a document as a printer will deliver. As we know, a printer is the best." SchoolWriter can print as scholarly a report or as creative a short story as a student can produce.

Nancy Matner received her Ph.D. in special education from the University of Arizona. She is an Assistant Professor in the Department of Special Education at the University of Arizona. Current professional interests include adapting special education methodology to the regular elementary classroom and training in the use of the Woodcock-Johnson Psychoeducational Battery.

Address: Nancy Matner, We were college in a lab with LD, remedial, and bilingual junior high students. Students with some background in word processing were immediately off and printing.

SchoolWriter is a comprehensive, easy-to-teach, word-processing package. Apollay, described the program as a "simplified first step word processor for the student writer" that will "give professionals a document as a printer will deliver. As we know, a printer is the best." SchoolWriter can print as scholarly a report or as creative a short story as a student can produce.

Nancy Matner received her Ph.D. in special education from the University of Arizona. She is an Assistant Professor in the Department of Special Education at the University of Arizona. Current professional interests include adapting special education methodology to the regular elementary classroom and training in the use of the Woodcock-Johnson Psychoeducational Battery.

Address: Nancy Matner, We were college in a lab with LD, remedial, and bilingual junior high students. Students with some background in word processing were immediately off and printing.

SchoolWriter is a comprehensive, easy-to-teach, word-processing package. Apollay, described the program as a "simplified first step word processor for the student writer" that will "give professionals a document as a printer will deliver. As we know, a printer is the best." SchoolWriter can print as scholarly a report or as creative a short story as a student can produce.

Nancy Matner received her Ph.D. in special education from the University of Arizona. She is an Assistant Professor in the Department of Special Education at the University of Arizona. Current professional interests include adapting special education methodology to the regular elementary classroom and training in the use of the Woodcock-Johnson Psychoeducational Battery.

Address: Nancy Matner, We were college in a lab with LD, remedial, and bilingual junior high students. Students with some background in word processing were immediately off and printing.
Teaching Effectiveness and Tolerance for

by Russell Gersten
Hill Walker
University of Oregon

Craig Dorach
Auburn University

In the past decade, a host of studies have explored the relationship between teachers' expectations and student achievement. In a recent review of this literature, Good (1981) asserted that "every research effort that has examined the relationship between student achievement and teacher expectations has yielded positive relationships" (1981, p. 439).

In the classic explorations of successful inner city schools, both Edmonds (1979) and Brokover (1981) found that teachers (and administrators) in these schools demonstrated consistently high expectations for students in both academic and social/behavioral domains. Recently, there has been a concurrent move in inservice education toward the improvement of these expectations (e.g., Clark and McCarthy, 1983), and to urge teachers to increase their standards and expectations in the hope of raising student achievement.

However, there is a curious irony associated with this issue that has never been publicly acknowledged. This irony may partially account for the negative experiences of many handicapped children who have been educated in regular classrooms as part of P.L. 94-142 (Creatham, 1982). Might not the most successful teachers, those with the highest expectations and standards for their students, tend to resist placement of a child with obvious behavioral or learning problems, social skill deficits, or other atypical characteristics? Such children are typically perceived as difficult to teach, demanding of teacher time and resources, and as having low potential achievement levels (Sennel, 1984; Gerber and Sennel, 1984).

The obvious, direct route to exploring this question would be to unobtrusively record occasions when regular education teachers actually resist placement of handicapped students in their classrooms, and then determine the relationship between these instances of rejections and teachers' performance. However, this would be neither an easy nor an intelligent route to take. For one thing, rejection of placement of a handicapped student in a regular classroom is a highly public event. A range of police, but subtle evasions often enter into the picture. Teachers are usually indirect and sometimes even passive during the maneuver, suggesting the child "really would do a lot better in the room across the hall" or alluding to how the teacher cannot find an appropriate reading group for the student. For this reason, researchers such as Ysseldyke and his colleagues (Ysseldyke & Thurlow, 1983; Thurlow, Chuston & Ysseldyke, 1983) resorted to studies where teachers are

asked what they would do if a child with a certain problem (e.g., a doer or a well-behaved charming child who read well below grade level) were placed in their class. Ysseldyke and colleagues analyzed possible determinants of these simulated decisions. Ysseldyke & Thurlow argue that teachers who anonymously tell a researcher that they will actively resist placing a problem child in their classroom will not be likely to do this in practice. This simulation approach underlies the two studies discussed in this paper.

These studies explore the relationship between teachers' social behavior standards (SBS) -- that is, their statements about social behavior standards that would lead them to resist placement of handicapped classroom -- and their observed teaching performance.

Study 1 focuses on observations during math instruction in elementary classrooms in a middle-income community. Study 2 was conducted in low-income, low-socioeconomic classrooms. These studies are the first to examine the effectiveness of teachers' overall performance, with a particular emphasis on behaviors linked to effective instruction for low achieving students. Conditions include the teaching behaviors defined in an earlier, case study, the effect in the effective teaching variables isolated by Brophy and Good (1986) and Englem (1984).

Study 1

The first study was conducted by Walker and Rankin (1983) and explored the issue of teachers' resisting placement of handicapped students in less restrictive settings (Walker, 1984). Two self-report inventories were used: (a) the SBS Inventory of Teacher Social Behavior Standards and Expectations, and (b) the SBS Checklist of Correlates of Handicapping Conditions (Walker and Rankin, in press). Three SBS self-report measures assessed: (a) which student adaptive behaviors teachers deemed essential for successful functioning in the classroom (the Expectancy Scale), (b) which students maladaptive behaviors would preclude admission to their classroom (the Tolerance Scale), and (c) the number of characteristics for which the teacher would actively resist placement (the Resistance Scale). These scales are described in more detail below. Because the level of predictor variables to number of subjects in this study, results were deemed qualifying. In this paper, scores on these measures were correlated with teachers' observed instructional behavior and their teaching performance during the mathematics lessons. The analysis of covariance were used in this analysis, with the three self-report scales treated as predictor variables and observed teaching performance measures as the criterion variable. Forty-three elementary teachers in a middle-income community (LaGrange, Oregon) completed these measures.

Three of the remaining measures were correlated with the SBS scores in the Walker and Rankin (1983) study. These results suggest that teachers identified by research as most likely to succeed with low-performing handicapped students were those who expected the most adaptive behaviors, who tolerated the fewest maladaptive behaviors, and who showed the least maladaptive behaviors. Interpretation of these findings should be tempered by the observation that only one portion of the teaching day (mathematics) was observed. This finding was a source of some surprise and major interest to us, and led to the development of the second study.

The second study was conducted in a low-income, rural community. All participating teachers were involved in the Follow Through Project (Direct Instruction Model), a federally funded compensatory education program. Their implementation of effective teaching techniques was assessed by trained consultant using a standardized administrative procedure (Teacher Effectiveness Observation Form) rather than the SBS Teacher Observation Scale used in

Study 1. The Teacher Effectiveness Evaluation form was previously validated in a study by Gersten, Camille, Zord and Cronin, 1986. As in Study 1, teacher completed measures which probed their expectations for adaptive behaviors, their tolerance of maladaptive behavior, and their propensity to resist placement of a handicapped child in their room. Although this study did not attempt to actually observe teachers resisting placement of handicapped students, like Ysseldyke, we believed teachers' self-reports could provide a basis for predicting what they actually would do. We hoped to see if the findings in the first study could be replicated in a quite different setting with rural Hispanic children.

Subjects and Setting

Subjects were 15 primary grade teachers in a low income community in rural Texas, with a high proportion of limited English speaking students, some of whose parents had limited literacy skills in either Spanish or English. Over 99 percent of the students were Hispanic and 85 percent were classified as low income by their district (qualifying for free or reduced lunch). The majority of the teachers were Hispanic and seven Caucasian.

Measures

As in the first study, the SBS Expectations, Tolerance, and Resistance scales were used. The teachers were also asked to indicate which behavior and learning problems of students they thought they would request technical assist for if their students had such problems. The scales developed by Walker and Rankin (1983) as part of the SBS battery were used.

Description of SBS measures. The SBS scale takes teacher to delineate components of children's social behavior they deem critical for successful functioning in their classroom. The 56 Expectations items are evenly divided between teacher-child behavioral interactions and items relating to comp

Table 1. Significant Multiple Rs Obtained Between Three SBS Measures (Expectations, Tolerances, and Resistance) and Teacher Observation Categories (Adapted from Walker & Rankin, 1983)

<table>
<thead>
<tr>
<th>Code Category and Label Definition</th>
<th>Multiple R</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Product Questions: Requires knowledge, choice or recall response from students.</td>
<td>0.18</td>
</tr>
<tr>
<td>2. Attention Signal: Verbal, gestural and physical teacher responses to obtain or focus a pupil's attention.</td>
<td>0.18</td>
</tr>
<tr>
<td>3. Initiating Teacher Command: Teacher commands that pertain to or relate to instruction.</td>
<td>0.18</td>
</tr>
<tr>
<td>4. Organizing Noninteractive: Teacher physically manipulates materials/objects in classroom to prepare for or terminate instruction.</td>
<td>0.34</td>
</tr>
<tr>
<td>5. Monitoring students performance as they work. Behavioral</td>
<td>0.22</td>
</tr>
<tr>
<td>6. Indirect Behavioral Consequence- Negative: Teacher verbally expresses disapproval of behavior.</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Study 1. The Teacher Effectiveness Evaluation form was previously validated in a study by Gersten, Camille, Zord and Cronin, 1986. As in Study 1, teacher completed measures which probed their expectations for adaptive behaviors, their tolerance of maladaptive behavior, and their propensity to resist placement of a handicapped child in their room. Although this study did not attempt to actually observe teachers resisting placement of handicapped students, like Ysseldyke, we believed teachers' self-reports could provide a basis for predicting what they actually would do. We hoped to see if the findings in the first study could be replicated in a quite different setting with rural Hispanic children.

Subjects and Setting

Subjects were 15 primary grade teachers in a low income community in rural Texas, with a high proportion of limited English speaking students, some of whose parents had limited literacy skills in either Spanish or English. Over 99 percent of the students were Hispanic and 85 percent were classified as low income by their district (qualifying for free or reduced lunch). The majority of the teachers were Hispanic and seven Caucasian.

Measures

As in the first study, the SBS Expectations, Tolerance, and Resistance scales were used. The teachers were also asked to indicate which behavior and learning problems of students they thought they would request technical assist for if their students had such problems. The scales developed by Walker and Rankin (1983) as part of the SBS battery were used.

Description of SBS measures. The SBS scale takes teacher to delineate components of children's social behavior they deem critical for successful functioning in their classroom. The 56 Expectations items are evenly divided between teacher-child behavioral interactions and items relating to comp

Continued on Page 15
Handicapped Students

test peer-to-peer interactions. Teachers are asked to make one of three rating judgments in relation to each item. These are (a) critical, (b) desirable, or (c) unimportant. Sample items are: (1) Child seeks attention at appropriate times, (2) Child cooperates with peers in group activities or situations, (3) Child is flexible and can adjust to changes in routine, teacher, or setting.

The Tolerance scale asks teachers to delineate student maladaptive behaviors they find intolerable in their classroom. This inventory contains 51 items describing a set of student behaviors that would tend to impair classroom adjustment or interfere with peer social relationships. Examples include: (a) actual acts of aggression, and (b) ignoring teacher warnings or reminders. Teachers rate each item on a 4-point scale, indicating whether specific behaviors are "Tolerable" means that although the teacher would prefer not to see the behavior, he is willing to "put up with" it (at least temporarily). Sample items are: (1) Child tests or challenges authority; (2) Child manipulates other students and classroom rules; and (2) Child manipulates other children and situations in order to gain higher status.

Table 2. Mean and Standard Deviations for the SBS Scales and Correlations with Teacher Effectiveness Observation Scale (TEOS) (N=15)

<table>
<thead>
<tr>
<th>Teacher Self-Report Measures</th>
<th>M</th>
<th>SD</th>
<th>Correlation with TEOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectations Scale</td>
<td>124.4</td>
<td>6.9</td>
<td>.47</td>
</tr>
<tr>
<td>Tolerance Scale</td>
<td>122.5</td>
<td>7.9</td>
<td>.47</td>
</tr>
<tr>
<td>Resistance Scale</td>
<td>5.3</td>
<td>2.5</td>
<td>.75</td>
</tr>
<tr>
<td>Perceived Technical Assistance Needs</td>
<td>40.8</td>
<td>14.3</td>
<td>.30</td>
</tr>
</tbody>
</table>

Table 3. Correlations TEOS Score, SBS with Factor Scores (N=15)

<table>
<thead>
<tr>
<th>Factor A</th>
<th>Expectation Scales</th>
<th>Factor B</th>
<th>Poor Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclass Behavior</td>
<td>.62</td>
<td></td>
<td>.29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factor A</th>
<th>Maladaptive Scales</th>
<th>Factor B</th>
<th>Maladaptive Behavior That Challenges Teacher Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maladaptive Behavior</td>
<td>.54</td>
<td></td>
<td>.36</td>
</tr>
</tbody>
</table>

The correlation between the Expectations scale and the TEOS measure was also significant (r = .47, p < .05). The most successful teachers tend to have the highest correlations for their classroom behavior and achievement.

These correlations repeat the findings from Study 1. These teachers with the strongest repertoire of direct instruction teaching techniques, have the highest expectations of students, say they will tolerate less maladaptive behavior, and say they are more likely to actively resist placement of students with specific handicapping conditions.

The correlation between Perceived Technical Assistance Needs and use of effective teaching techniques was significant and moderately strong: r = .30, p < .01. There was a significant and class for effective teachers (as assessed by the observed rating form) to indicate a greater willingness to receive technical assistance in dealing with the behavior and learning deficits they identified as problematic.

SBS factor scores. The self-report battery was factor analyzed by Walker and Rankin (1983). The correlations between the factor scores and the TEOS measure are presented in Table 3. Quality of teaching correlated significantly with the 2 of the 5 factors, i.e., Maladaptive Behavior that Challenges the Teacher's Authority and Adaptive Behavior Relating to Appropriate Class Behavior. Because of the small sample size (15), caution should be used in interpreting these findings.

Conclusions

At face value, the results of these studies suggest that the teachers who were most likely to maximize the achievement gains of students with learning and behavior problems were also those most likely to resist their placement in their classrooms. This may be the effective teacher's attempt to guard against ineffectual use of his or her academic instructional time, which could result in an overall decreased level of student performance. If the necessary technical assistance could be provided on how to implement teaching models that are effective for all students, it is likely these skilled teachers with high standards would be the first to accept handicapped students into their classrooms. It remains for future studies to examine this question.

Editor's note: Teachers, what are your experiences? Write me about your reactions to these findings and your experiences.

References

- A complete set of references may be obtained by writing to The Editor, ADE NEWS P.O. Box 10233, Eugene, Or. 97440.

DIRECTIONS INSTRUCTION NEWS, WINTER, 1987 15
February 11 & 12, 1987
Valley River Inn, Eugene, Oregon
Implementation of Effective Instruction- Problems and Solutions
Presenters: Zig Engelmann, Ed Schaefer, Bob Dixon, Marilyn Sprick
This workshop is for Administrators, Supervisors, Teachers and other personnel involved in the evaluation and adoption of programs.

February 20 & 21
Emerald Hotel of Anaheim, Anaheim (L.A.), California
Teaching the Beginning Reader
Presenter: Adrienne Allen
Training on how to implement and teach Reading Mastery I and Fast-Cycle. A good session for beginners as well as those wanting a brush-up on the latest procedures.

February 27 & 28
Emerald Hotel of Anaheim, Anaheim (L.A.), California
Teaching Basic Language
Presenter: Adrienne Allen
This workshop will provide in-detail training on Language I (revised 1986) and Language II. The trainer will also focus on specific techniques for working with ESL students as well as those weak in language skills.

February 26 & 27
Salt Lake City Marriott, Salt Lake City, Utah
Management and Teaching Techniques for the Severely Handicapped Learner
Presenter: Ann Arbogast
This workshop is designed for Special Education teachers needing practical, how-to information on teaching the Low-Performer.

Need a Workshop in Your Area?
If you have any training needs and would like to have an ADI training workshop scheduled in your area, please contact Bryan Wickman at ADI and he will work with you to explore the possibilities.

ADIMATERIALS PRICE LIST

| Theory of Instruction | By Siegried Engelmann & Douglas Carnine | Membership Price $20.00 | List Price $25.00 |
| Direct Instruction Reading | By Douglas Carnine & Jerry Silbert | Membership Price $24.00 | List Price $30.00 |
| Direct Instruction Mathematics | By Douglas Carnine, Marcy Stein & Jerry Silbert | Membership Price $24.00 | List Price $30.00 |
| Generalized Compliance Training | By Siegried Engelmann & Geoff Corvin | Membership Price $15.00 | List Price $20.00 |
| Structuring Classrooms for Academic Success | By Stan Paine, J. Radichci, L. Rosellini, L. Deutchman, C. Darby | Membership Price $8.00 | List Price $10.00 |

Members of the Association for Direct Instruction may purchase copies of the materials listed above at the Membership price. Shipping charges are $1.50 per book for 1-5 books and $1.00 per book for orders of 6 or more. Orders are to be paid in U.S. Funds, in advance. Purchase orders are also accepted. Please allow 4 weeks for delivery.

ADI cannot provide copies for entire classes nor can we provide desk copies. All such requests must be made to the publisher of the specific book.

Send your check or purchase order to:
Association for Direct Instruction
P.O. Box 10252
Eugene, OR 97440